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LIST OF ABBREVIATIONS AND ACRONYMS

ADF	Augmented Dickey-Fuller
AIC	Akaike Information Criterion
CSA	Central Statistics Authority
DF	Dickey-Fuller
EEA	Ethiopian Economic Association
ERCA	Ethiopian Revenues and Customs Authority
GDP	Gross Domestic Product
GMM	Generalize Method of Moment
IMF	International Monetary Fund
LDCs	Least Developed Countries
LICS	Low income countries
MEDAC	Ministry of Economic Development and Cooperation
MoE	Ministry of Education
MOFED	Ministry of Finance and Economic Development
NBE	National Bank of Ethiopia
NMAE	National Metrology Agency of Ethiopia
OLS	Ordinary Least Square
SSA	Sub-Saharan Africa
UNCTAD	United Nations Conference on Trade and Development
VIF	Variance Inflation Factor

TABLE OF CONTENTS

Content   **Page**

LIST OF TABLES

Table   **Page**

LIST OF FIGURES

Figures   **Page**

ABSTRACT

The effect of export diversification on economic growth has been a debatable issue in the empirical literature. This paper, therefore, examined the contribution of export diversification on economic growth in Ethiopia using time series data from 1970/71—2013/14 based on purposive samples. National Bank of Ethiopia (NBE), Ministry of Finance and Economic Development (MOFED), Ministry of Education (MoE) Ethiopia, National Metrology Agency of Ethiopia (NMAE), Central Statistics Authority (CSA) of Ethiopia and United Nations Conference on Trade and Development (UNCTAD) were the data sources. The research used both descriptive and causal type data analyses techniques. In the descriptive parts the trend analysis of export diversification and real GDP were separately and jointly analyzed. Looking at the result from descriptive analysis in Ethiopia, the country has recently shown numerical increments. Whereas, in the econometric analysis multiple regression and basic growth model were used. The estimation results obtained from the multiple regression test has revealed that export diversification positively affect Real GDP growth in Ethiopia. The major variables identified in the study were export diversification, rainfall, investment, financial development, trade openness of the country, human capital, and labor force growth. Necessary estimations were done to the effect of each variable on economic growth of Ethiopia. Therefore, export diversification, rainfall and investment were found to be significant. It has been found out that the country made an effort to improve export diversification, but it is still below the mid-level of diversification (50%). Likewise, positive link was found to exist between export diversification and economic growth in Ethiopia in which 0.14% effect on the economic growth come from export diversification at its enfant stage. Besides, the country should look forward to identifying new potential regional and international export markets, need to strengthen the existing few industries to diversify the exportable product and pave the way for the establishment of new industries. What is more, emphasis should be given (by the stockholders) to focus on value addition on exportable items.

Keywords: *Export Diversification, Economic Growth, Growth Model, Ethiopi*

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

The issue of accelerated economic growth has been the main agenda in economic policy formulation for most of the Sub-Saharan Africa (SSA) and other developing countries of the world since the early 1970's. The records of the economic performance of most SSA counties exhibit that they had been performing better before their colonial independence than today (Rodney, 1982). Hence, considerable attention has been paid by a number of development economists and government policy makers to review the experiences of these countries in order to promote economic growth and improve their living standards of their people (Chen et al., 2005). One of the areas that has been given much focus in order to promote the economic performance of these countries is external trade (Asiedu, 2002; Damijan, Knell, Majcen, & Rojec, 2003). Following the traditional trade argument, (Riedel, 1984), trade is viewed as an "engine", if not as a "handmaiden", of growth playing a supportive role in the economic growth of the least developed countries (LDCs).

The economic growth of the present day developed nations like the United States, Canada, Australia and New Zealand (referred as regions of recent settlement) that were once developing nations is largely attributed to international trade (Gould, 2013; Scholtz, 2013; Salvatore, 1990). Hence international trade has been given much importance in the policy formulation of many LDCs, viewing it as a vehicle to transform the economic performance of these countries (McCormick, 1999; Sachs & Warner, 1997).

Maddison (2007) and Mkandawire & Unies (2004) contended that International trade has also played a crucial role in the historical development of the third world countries. In the second half of the 20th century, the tremendous economic performance of the "four tigers"- South Korea, Taiwan, Hong Kong and Singapore has been largely attributed to the performance of the external sector where the export sector was given a greater emphasis (Mengistu, 2014; Debele, 2002). The researcher would also agree that strong political commitment towards export

promotion and the application of appropriate policies together with efficient institutional mechanisms helped these countries attain a higher growth rate of exports and hence of the overall economy.

Ethiopia, like many other developing countries has actively pursued the import- substitution industrialization strategy during the Imperial and Derg regime (Alemnesh, 2012). The World Bank (1987) classified Ethiopia as one of the strongly inward oriented countries during the periods of 1963-73 and 1973-85, which coincides with the Imperial and part of the Derge regimes, respectively. However, the import substitution trade strategy hadn't performed well, where the import competing industries remained infant and were at their rudimentary stage despite the tariff and non-tariff protection (Cerny, Menz & Soederberg, 2005; McCarthy, 1994). With the fall of the Dergue regime, however, the current regime initiated trade liberalization in which export diversification is the major component of the program (Debel, 2002). Hence, the researcher contends, a closer look into the policies that were once followed by these governments and an empirical investigation to find out the contribution of exports to economic growth is very essential in order to help the country experience a sustainable economic growth.

Motivated by the desire to spread risks, raising capacity utilization and increasing total export proceeds, export diversification has been the concern of most developing countries including Ethiopia. Despite such a concern, however, Kawai (2002), Gooptu (1993), and Mortimore, & Peres-Núñez, (2001) argue, very few developing countries in East and South East Asia (such as South Korea, Taiwan, Hong Kong, Singapore, Malaysia and Thailand) as well as developing South America (such as Brazil, Argentina and Mexico) have actually managed to achieve a diversified export structure with greater volume of manufactures.

Interestingly assertive, diversification and structural transformation play important roles in influencing the macroeconomic performance of low-income countries (LICs) (Dabla-Norris, *et. al*., 2010; Hasse, 2006; Bonaglia & Fukasaku, 2003; Armella, 1993). These scholars strongly argued that increases in income per capita at early stages of development are typically accompanied by a transformation in a country's production and export structure. Katila & Ahuja (2002) also agreed that diversification and structural transformation as a mode of playing significant roles in influencing the macroeconomic performance of low-income countries can

include diversification into new products and trading partners as well as increased in the quality of existing products. Similarly, the above scholars argue, diversification in exports and in domestic production has been conducive to faster economic growth in LICs. Denizer, Iyigun & Owen (2002), Easterly, Islam & Stiglitz (2001), and Ahmed & Suardi (2009) have taken the idea seriously in that increased diversification is also associated with lower output volatility and greater macroeconomic stability. In these scholars' accreditations, there is both a growth payoff and a stability payoff to diversification, underscoring the case for paying close attention to policies that facilitate diversification and structural transformation.

The overall performance of Africa in terms of export diversification has been far from satisfactory and most countries continued to be totally dependent on a few traditional exports. As argued by the World Bank (2000), many African countries have lost market share in their traditional exports while at the same time failing to achieve significant export diversification in the past 30 years. Agreeably consistent is by Joshi, *et. al*., (2004) in that such unsatisfactory performance given the region's huge potential for more diversified production and exports signify the existence of some constraints either on the supply or demand sides or both.

In the case of Ethiopia, export diversification has been in the development plans for more than 40 years while the export structure remained fixed with greater concentration on few traditional exports such as coffee, hides and skins and oilseeds and pulses (Assayew, 2013; Samuel, 2012; Genet, 2008; Debel, 2002). The researcher strongly agrees that they are still dominant in the country's export structure accounting for about a lion share of total exports currently. In view of this important role of export diversification, it is essential to examine the role of export diversification to economic growth of Ethiopia.

1.2. Statement of the Problem

Although exports are important for growth and development for macroeconomic and microeconomic reasons, developing countries have been struggling with the challenge of expanding and diversifying their export baskets for a long time (Assayew, 2013; Salomon, 2010). Salomon argued that when export is concentrated on a few primary commodities, there

can be serious economic and political risks, on the contrary; when it is diversified it can expand export and improve backward and forward linkages of domestic inputs and services.

Inferentially, for Assayew (2013) and Salomon (2010), Ethiopia's export sector is dominated by export of few primary commodities which include agricultural products mainly coffee, oilseeds, chat, flower, pulses, live animals, and hide skins. Exports of goods in Ethiopia are only about 13.4 percent of GDP, compared to an average of near 30 percent of GDP in Sub-Saharan Africa. Exports per person remain very low: only $24 in Ethiopia compared to $200 in Sub-Saharan Africa and $580 in developing Asia. Growth rates are also very modest if one makes a comparison with Asian countries over a decades-long time frame. For example, Ethiopia's total exports were higher than that of Vietnam in the 1980s but are now just a tiny fraction: $3.2 billion in Ethiopia versus $128 billion in Vietnam (ERCA, 2015; IMF, 2015).

Woinshet (2014) and Eyayu (2011) emphasized that the export sector can play a crucial role in the growth performance of the country, as can be evident from its contribution to the different sectors of the economy. During the past four decades, as they argue, for instance, export has contributed on average about 11.3 percent to GDP. In addition, it generates the much needed foreign exchange earning that is essentially used to finance the imports of the country. Together with foreign aid and grants, the country uses the foreign exchange generated from the export of primary agricultural products to import almost all of its intermediate inputs, fuel and capital goods, which are believed to be essential for the economic growth of the country (Woinshet, 2014; Eyayu, 2011).

Despite its contribution to the overall economy, however, the actual contribution of the export sector has been less satisfactory. Woinshet (2014) and Eyayu (2011) underscored that Ethiopia's exports are highly concentrated in agricultural commodities, while the share of non-agricultural products in total merchandise exports is almost insignificant. Coffee, pulses & oilseeds, hides & skins and chat, in that order, have contributed on average about 54.4, 13.1, 11.5 and 4.1 percent of the total export earnings respectively during the last four decades (Woinshet, 2014; Debel, 2002). The country's heavy reliance on these few export commodities, which are highly subjected to price fluctuations, is one of the reason for the poor performance of the export sector (Rakesh & Meseret, 2008). In addition to this, the researchers agreed that

there is geographical concentration of exports that makes the country vulnerable to the economic conditions (demand) of its trading partners. Germany, Japan, United States, Djibouti and Italy are the five major trading partners of the country, which altogether absorb about 73.3 percent of the country's export (NBE, 2010). This concentration on few trading partners resulted in demand constraint for the nation's primary exports and could be one reason for the poor performance of the sector and hence of the economy. Failure of the different government policies to diversify and promote exports is also one problem that greatly reduced the competitiveness and performance of the export sector. Until the demise of the Dergue regime, the country has been recognized as one of the strongly inward-looking countries. Anchored by high level of protection and overvalued exchange rate, the policy of inward-looking has weakened the export sector. The policies that were followed by the then governments had a strong anti-export bias that greatly reduced the competitiveness of the sector (Assayew, 2013; Salomon, 2010; Rakesh & Meseret, 2008; Debele, 2002).

The Transitional Government of Ethiopia who came to power in 1991/92 launched a new economic policy where the role of exports to economic growth was given due importance in the development strategy of the country. However, the export supply response to the policy change is not as anticipated. I also argue that the incentives provided by the new policy to promote exports could not totally eliminate the anti-export-bias incentive structure that originated from heavy protection of the domestic industries. As a result the export supply response was weak and the recovery since 1991 in export earning mainly resulted from coffee price boom and institutional reforms than the effect of trade and exchange reform. Debele (2002) identified that the factors behind the sluggish performance of the sector could be due to a combination of the structural problems existing in the whole economy or the insufficiency of policy measures taken to totally nullify the anti-export bias that prevailed during the previous regimes.

Researches done in the past like Determinants of Ethiopia's Export Performance using gravity model (Yishak, 2009); Export and Economic Growth: Empirical investigation (Debele, 2002), the Contribution of Export Earning to Economic Growth: a trend analysis (Senait, 2014), Determinates of Export Growth rate using co-integration and error correction model (Kiros, 2012), Determinants Export Commodity Concentration and Trade dynamics using vector autoregressive model (Tewodros, 2012), Prospects for Export Diversification using error

5

correction model (Berhanu,2002), and the Role of Diversification in Reducing the Impact of Export Instability on Economic Growth in Ethiopia (Shewangizaw,2003) has been studied. However, the uniqueness of this research paper aims to assess the relationship between export diversification and economic growth in Ethiopia based on data collected from 1970/71 through 2013/14 using Ordinary Least Square method.

1.3.   Objectives of the Study

1.3.1. General Objective

The general objective of this study is to examine the contribution of export diversification to the growth of the Ethiopian economy.

1.3.2. Specific Objectives

To achieve the above general objective, the study has the following specific objectives:

1. To analyze diversification of commodity in the export sector
2. To examine the relationship between export diversification and gross domestic product growth
3. To assess major variables that affect economic growth.

1.4.   Research Questions

1.4.1. General Research Question

The general question of this research is, what is the contribution of export diversification to the growth of the Ethiopian economy?

1.4.2. Specific Research Questions

More specifically, the following questions are formulated:
2. How is the diversification of commodity in the export sector of Ethiopia?
3. What is the relationship between export diversification and gross domestic product growth in Ethiopia?
4. What are the major variables that affect Ethiopia's economic growth?

1.5. Significance of the Study

This study would be very significant in assessing the contribution of export diversification to the Ethiopia economy and identifying major variables that affect economic growth. The study revealed the major gaps of export diversification on prioritization and its relationship to real GDP. Based on the outcomes the study may provide the link between economic growth and the study variables. The research should pinpoint to show the trend of export diversification and economic growth within the macroeconomic development framework of Ethiopia. Furthermore, this research would be used as a source material for policy implications and for further research in the area.

1.6. Scope and Limitations of the Study

The study would describe the possible ways through which the endeavor could come out with an investigation of the economic contribution of export diversification to Ethiopia economy focusing on commodity concentration. To achieve this objective, the period set to range from 1970/71 to 2013/14 used analyze the contribution of export diversification to economic growth, taking into account the major variables that affect economic growth like labor force growth rate, human capital, financial development, rain-fall, investment, and trade openness of the economy in Ethiopia. However, the study would not reflect different efforts done by the government to the export sector. This period is chosen because the data for the study variables are reasonably organized for by the identified data source organizations such as National Bank of Ethiopia, Ministry of Finance and Economic Development, and United Nations Conferences on Trade and Development.

1.7. Organization of the Thesis

This study has five chapters. Chapter one contains the introduction, which focuses mainly on the background, statement of the problem, objectives, significance and scope of the study. Review of the theoretical and empirical literature pertinent to the thesis are presented in Chapter two. Chapter three described the research methodology: brief description of the study variables, data collection procedures, sampling, research design and analytical techniques. Chapter four has shown results and the discussion including both descriptive and econometrics analysis. Finally, conclusion of the major findings and recommendation are presented in Chapter five.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. Review of Theoretical Literatures

2.1.1 Trade Theory

The Ricardian theory of trade indicates that countries producing as per their comparative advantage would benefit more from trade. This benefit comes from the differences in the productivity of labor in different countries making some countries efficient in the production of one good and other countries in other goods. This theory of course assumes only one factor of production that is perfectly mobile across sectors (Krugman, 2003). He claimed that the specific factors model improves on the Ricardian theory to explain why countries tend to protect some sectors from international trade claiming that factors are not easily substitutable among sectors. This, therefore, means that while trade benefits the factors of production engaged in the export sector it hurts those factors engaged in the production of import competing sectors. This means trade will have implications on distribution of income.

Another theory relating causes of trade with resources is the Heckscher –Ohlin theory of trade. This theory states that countries should produce and export those products whose factors of production are abundantly available. Similar to the specific factors model the owners of abundant resources benefit and owners of the less abundant resource lose. Because this model assumes the shifting of resources to produce the different goods this would result in the convergence of factor process also known as factor price equalization in the model (Thompson, 2006).

Intra-industry trade is another theory explaining the motives of countries to trade. This theory asserts that countries don't specialize in the production and export of certain goods. Rather they export and import goods of the same type in the same industry. This as explained by Krugman (2003) is due to increasing returns to scale and imperfect competition. This assertion goes in

contrast to the neo-classical analysis of constant returns to scale and perfect competition assumptions to analyze trade.

Prebisch (1950) studied the long-term behavior of terms of trade of primary products. They assert that in the long-term the prices of primary products in international markets decline thereby worsening the terms of trade for developing countries depending on primary exports. This implies an inward looking approach contrary to the classical theory of trade. This theory implies that instead of specializing in the sector with comparative advantage or resource abundance, they should diversify their production in favor of non-primary goods. This notion has been a subject of debate regarding trade and still remains so. There have been a number of empirical studies that try to prove or disprove this hypothesis (Sarkar, 1994).

2.1.2   Arguments for Export Diversification

The traditional argument for export diversification is based on its role in reducing export earnings instability caused by cyclical fluctuation in international commodity prices. The notion of commodity concentration and the inability to offset the fluctuation in the principal commodity exports by counter fluctuations and/or stability in the export of others has been at the center of the argument.

Wilson (1984, p.86) argued "when economies are dependent on just one export commodity, their foreign exchange position is frequently precarious." According to Massell (1964) concentration on a narrow range of export products is the source of fluctuations in export earnings. He cited Ghana and Sudan as examples of "one crop economies" dependent on cocoa, and cotton, respectively and argued for diversification to achieve greater degree of earnings stability.

In a similar line of reasoning Love (1983, p.787) argued:

> *The more highly concentrated a country's exports, the lower is the probability that fluctuations in one direction in some of its exports will be offset by counter fluctuations or stability in others. Hence, the need for diversification which has tended to be equated with the expansion of manufactured exports.*

One of the major events of the 1970's was the secular decline in the international price of primary commodities[1] and such considerable uncertainty has shaped the agenda of the fourth UNCTAD conference to concentrate on the stabilization of international commodity prices. It has also produced a theoretical interest and new arguments for export diversification based on dynamic comparative advantage. According to Ssemogerere *et.al* (1994), the dynamic elements include demand and supply changes, industrial capability, risk evasion, environmental considerations, debt problem and changes in commercial policies.

The new argument on the demand side is that exporters facing autonomous factors such as rising income and change in taste in importing countries have to diversify their exports towards income-elastic ones. The supply side argument is in terms of production structure adjustment to changes in production technology and input mix, better land utilization, the introduction of new skills, changes in the availability of imported inputs, in response to potential competitors, etc. The proposal is to diversify in to products with different price elasticity of supply thereby minimizing the risk of export earnings instability.

A related but important consideration in the literature is the positive relationship between export diversification and industrial capability. Since industrial capability enables product differentiation, a country can offer new products to the world market by varying packaging and label. Moreover, industrial production increases the competitiveness of export products by lowering unit costs (Ssemogerere *et.al*., 1994).

Environmental considerations especially the preference of many developed countries towards organically grown agricultural products, encourage commodity exporting countries to diversify in to new organically grown products. Diversification is also justifiable on account of increased debt problem in many least developed countries (Derosa, 1992). Ssemogerere *et.al*. (1994, p.21) argued, "If a country specializing in primary exports cannot generate revenue to service its debt, it will be cut off from borrowing".

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[1] In fact, Prebish had been arguing in this line and for him the terms of trade of primary products had been declining over time due to exogenous factors. (Wilson 1984; Bo Sodersten *et.al*, 1994)

2.1.3 Arguments against Export Diversification

In spite of the drive for export diversification, export pessimism[2] had been dominant in the development literature and it has shaped the trade policies of countries to accommodate certain degree of protection. The pessimistic views revolve around the decline in the rate of growth of demand for primary products in the industrial countries and an oversupply of manufactured goods if many LDC's diversify at the same time (Panoutsopoulos, 1992).

Considering the similarity in terms of factor endowments and the stage of industrial development, some academicians argued that the scope for market diversification by penetrating developing countries markets is very limited (Tecson, 1992). The other variant of export pessimism, as indicated in Sodersten Bo *et.al* (1994), is in terms of the provoked protectionist reactions by developed market economies if more rapid growth of LDC exports is going to happen, thus proposing import-substitution policies. There are other arguments that consider factor endowments as a limit on export diversification, highlighting the possible loss of welfare if production of non-traditional goods is expanded beyond the limit (Derosa, 1992).

Such pessimistic views had, however, been challenged in the development literature on account of increased exports of manufactured goods from some developing countries taking advantage of opportunities for product differentiation and economies of scale as well as their comparative advantage in labor intensive manufacturing. Proponents of the challenge include, among others, Panoutsopoulos (1992) and Tecson (1992).

2.1.4 Export Diversification and Economic Development

It is often argued that it is not only the level of exports that leads to growth, but what also matters is the degree of diversification of such exports or of the export base. Proponents of such a view have highlighted the prevalence of the diversification aspect as a major contributor to growth. For instance, Romer (1990) has identified diversification as a production factor whilst Acemoglu and Zilibotti (1997) claim that diversification may increase income by expanding the possibilities of spreading investment risks over a wider portfolio. However, more recent

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[2] Export Pessimism refers to the belief that developing countries cannot successfully penetrate the market of the industrial countries

literature has centered attention on examining the existence of a non-monotonic relationship between diversification and growth.

In this regard, Imbs and Wacziarg (2003), in their seminal paper, used domestic production and labor data to investigate the relationship between domestic sectoral concentration and per capita income patterns across various countries. Results of their studies revealed the presence of a non-linear pattern between production and employment diversification and growth. Using data on sector-level employment and value added covering a wide cross-section of countries at various levels of sectoral disaggregation; they found that the process of development is characterized by two stages of diversification. In the first instance, as a result of growth, sectoral diversification increases, but beyond a certain level of per capita income, sectoral distribution of economic activity starts concentrating again. Thus, they argued, sectoral concentration follows a U-shaped pattern. Interestingly, the work by Imbs and Wacziarg (2003) raises an important question as to whether such a U-shaped pattern would hold for export diversification as well.

Indeed, Klinger and Lederman (2004) demonstrated that this was actually the case. Using disaggregated export data, the authors found that overall diversification increases at low levels of development but declines as the country matures beyond a middle-income point. In addition, Klinger and Lederman analyzed the relationship between export discoveries, as measured by new export products introduced and the level of development. In that particular instance, they found that the number of new export products follows an inverted U-curve in income which indicates that, as incomes increase, economies become less concentrated and more diversified. It is only at relatively high levels of income that further growth is associated with increased specialization and less diversification.

Furthermore, Cadot, Carrère and Strauss-Kahn (2011a) derived and revisited a decomposition of Theil's concentration index that maps directly into the extensive and intensive (new products or new markets) margins of export diversification. In order to analyse how the two margins evolve as functions of GDP per capita, they constructed a very large database covering 156 countries. And they also found a hump-shaped (inverted U-shaped) relationship between economic development and export diversification, similar to the findings of Klinger and Lederman (2004).

2.1.5   Export Diversification and Economic growth

One of the main advantages of export diversification which has been put forward by economists is that it tends to increase economic growth in the host economy. There are two essential questions that the literature on the relationship between export diversification and economic growth has tried to answer: first, does export diversification affect long run economic growth? And secondly, can a country boost its economic performance by diversifying its exports?

A number of empirical studies have shown that export diversification is contributing to higher per capita income growth. Love (1986), for example, suggested that a country should avoid heavy dependence on limited products since it diminishes the state's potential to partially offset fluctuations in some export sectors with sectors in which stability prevails. Love concluded that export diversification is a useful strategy to reduce instability and should not be restricted only to those sectors outside agriculture.

In addition, Gutiérrez de Piñeres and Ferrantino (2000), in their study of Latin American countries, found that there was a positive interplay between export diversification and economic growth. Some examples of countries that experienced considerable diversification of their exports and a fairly strong growth performance were Chile, Colombia, El Salvador, Paraguay, the Plurinational State of Bolivia and Uruguay. Similar results were also uncovered by Hammouda *et.al*. (2006) with respect to African countries.

Interestingly, the findings of Greenaway, Morgan and Wright (1999) showed that not only export growth led to economic growth, but export composition also mattered. Their study also supported the view that there were greater externalities attached to the manufacturing sector when compared with other sectors. Such externalities may lead to horizontal diversification and advancement in the capacity of all industries to face foreign competition (Matthee and Naudé, 2007). Moreover, it could also be argued that the proportion of secondary sector exports in total exports is a satisfactory indicator of the extent to which a country is successful in building up forward linkages and diminishes its reliance on the primary sector. In this light, Levin and Raut (1997), for instance, concluded that there may be a positive and considerable impact on economic growth when a country's total exports consist of a higher proportion of manufactured exports.

The relationship between a country's productivity and its sectoral export variety was also studied by Feenstra and Kee (2004). In a sample of 34 countries for the period 1984 to 1997, they found that a 10 per cent boost in export diversity in all industries resulted in 1.3 per cent growth in a country's productivity. Furthermore, Herzer and Nowak-Lehmann (2006) analyzed the hypothesis that there is a relationship between export diversification and economic growth through externalities of learning-by-doing and learning-by-exporting in the case of Chile, and found that economic growth was positively influenced by both horizontal and vertical export diversification.

However, the posited positive relationship between export diversification and growth is not always revealed in the literature. Michaely (1977), for example, found a positive and significant link between exports and economic growth only among the more developed economies. But this was not the case among least-developed countries. He suggested that a certain minimum level of development is necessary for exports to impact on growth in an economy.

The time series analysis by Gutiérrez de Piñeres and Ferrantino (2000) showed no evidence supporting diversification-induced growth in Chile and Colombia, contrary to their analysis of panel data. Export diversification was not found to be a source of economic growth. Similarly, no support was found for this hypothesis during the period of rapid growth in Chinese Taipei (1971–1995) in the study carried out by Chang *et.al.* (2000). Finally, Sharma and Panagiotidis (2005) tested the export-led growth hypothesis in the case of India using diverse approaches and their findings tended to reinforce the arguments against the export-led growth hypothesis.

2.1.6   Export Growth and Its Importance

Export growth, defined as the expansion of exports in volume and value, is recognized since the mercantilist era, as critical for any country for a variety of macro and microeconomic reasons including the:

  i.   Need to generate foreign exchange vital to finance imports;
 ii.   Need to exploit larger scale economies that can be achieved by producing for export markets, given the small size of many developing countries and their negligible purchasing power; and

iii.   Potential contribution to employment and growth of national product.

Increasing exports is therefore a key concern for development economists and policy makers in all developing countries, and integration to global markets brings with it exposure to new technologies, new designs and new products while enhancing production efficiency and competitiveness.

Export development entails promoting export growth accompanied with improved quality and structural transformations (e.g. increasing the share of a country's exports in dynamic rather than stagnant products in world trade, expanding shares of exports sectors or employment associated with raising living standards and country's overall competitive position, enhancing country performance in a particular export category, and structure and improving the quality of jobs generated in the export sector). Higher export growth without structural transformation of export patterns (e. g. higher export concentration in some products subject to major price and volume fluctuations), may not be conducive to development. Hence, what a country exports matters (Cashin and Mc. Dermott (2002)). At the micro-level, export competitiveness can be defined as the ability of a firm to compete on domestic and international markets.

2.1.7   Constraints on Successful Export Diversification

Despite the desirability of export diversification and the diversification efforts that have been exerted by most developing countries since the 1970's, the overall performance is reported to be unsatisfactory and as argued by Wilson (1984, p.86) "only a few developing countries have actually managed to achieve it to any substantial degree." While structuralists ascribe such a failure to supply bottlenecks in the developing world, others blame the difficult conditions in the industrial markets for the slow pace of diversification.

Henson *et.al* (2001), for instance, provide argument in support of the later. According to them, sanitary and phytosanitary measures by the developed countries are the major factors influencing the ability of developing countries to exploit export opportunities for agricultural and food products in developed country markets.

Wilson (1984) argued that the issue of who is correct depends on the price elasticity of export supply and on the relationship between exports and domestic market production. According to

him, the structuralists view will be valid in conditions of low price elasticities of export supply and when there exist a negative relationship between exports and domestic market production.

There are other arguments that consider policy failure as a major constraint on effective export diversification. According to Yuan (1992), the success of export orientation depends to a greater extent, on sound policy implementation, at the right place and at the right time in removing constraints and seizing opportunities. According to the World Bank (2000), policy distortions, poor infrastructure services, high risks and high transaction costs that inhibit competitiveness are the prime barriers on effective export diversification in Africa.

2.2. Review of the Theoretical Framework

Export diversification, by definition is the changing of a country's export structure. This can be attained by changing the existing basket of commodities or by embellishing them through innovation and technology. Dennis and Shepherd (2007) define export diversification as widening the range of products that a country exports. As a matter of fact, export diversification can take two forms, namely, horizontal and vertical. Export diversification has different dimensions and can be analysed at different levels (Ali *et.al.,* 1991). Herzer and Nowak-Lehnmann (2006) explain that export diversification can occur either horizontally or vertically.

Horizontal diversification causes changes in the primary export mix in order to reduce the effect of the fluctuation of global commodity prices. It also implies that the number of export sectors has increased. This reduces the dependency on a few sectors to lead export-oriented growth Matthee and Naudé (2007). It brings forth stabilisation in export earnings (Al-Marhubi, 2000). If growth is to be achieved through horizontal export diversification, a country can either enlarge the share of products with increasing growth rates in export earnings, or it can add new products based on the growth rates of world prices (Ali *et.al.,* 1991).

On the other hand, vertical diversification involves contriving further uses for existing and new innovative commodities by means of value-added ventures such as processing and marketing (Salomon, 2010). Vertical diversification occurs when the export mix of a country shifts from primary products to manufactured products. The production of primary exports does not result in as many spill-overs as the production of manufactured exports Matthee and Naudé, (2007). In

the latter, externalities on, for example, knowledge and new technologies are created. These externalities benefit other economic activities (possibly creating horizontal diversification) and improve the ability of all industries to compete internationally (Chuang, 1998; Al-Marhubi, 2000; Herzer and Nowak-Lehnmann, 2006). Vertical export diversification also contributes to stabilisation in export earnings, as the prices of manufactured exports do not fluctuate as much as those of primary exports (Ali *et.al.,* 1991). If growth is to be achieved through vertical export diversification, a country can either introduce, expand value-added activities, or it can choose new products based on their value-added potential (Ali *et.al.*, 1991). Hausmann *et.al.* (2005) conclude that the composition of a country's exports matter, as countries that produce higher productivity goods experience greater export performance and are subsequently able to benefit more from the gains of globalization.

Both horizontal and vertical diversification can be favorable for a country's economic growth; however their performance would vary in terms of technological, managerial and marketing skills. Vertical diversification policy, compared to horizontal diversification policy, requires more advanced technology, skills and initial capital investment than horizontal diversification policies do. In result of that, vertical diversification may produce greater dynamic externalities than that of horizontal diversification.

There are many theoretical reasons, put forward by researchers, which says that export diversification leads to higher per capita income growth. Because of fluctuations in export, many developing countries option for export diversification. As mentioned is made above, this instability arises as commodity products are often subject to very volatile market prices so that countries that are dependent on these commodities may suffer from export instability (Hesse, 2008). As a result of the stated instability, risk-averse firms might not invest in the country which can create macroeconomic uncertainty and in turn can be disadvantageous for long run economic growth. To prevent this instability many countries have liberalised trade. Michaely (1958) studied export and import concentration using GiNi- co-efficient on the data set for 44 countries and 150 Standard International Trade Classification commodities, and notes that countries with more diversified export structure are more developed in terms of income per capita, and more industrialized in terms of primary commodity share in total export. Export diversification could therefore help to stabilize export earnings in the longer run (Ghosh and

Ostry, 1994; Bleaney and Greenaway, 2001). According to structural models of economic development, countries should diversify from primary exports into manufactured exports in order to achieve sustainable growth (Chenery, 1979; Syrquin, 1989).

However, the concept of export diversification seems to contradict trade theory, especially Ricardo's theory of comparative advantage where a country should specialise (Salvatore, 1990). Ricardo laid emphasis on the role of specialization in international trade and increases total productivity. According to him, export is said promote economic growth by specialising in sectors in which a country has a comparative advantage. In the same way, Helpman and Krugman (1985) pointed out that greater economies of scale due to increased exports can lead to an increase in the productivity level. In spite of the relationship identified between trade and productivity, the impact of specialization on the long run growth remained uncertain to many scholars. Sachs and Warner (1997), for example, identified a negative impact of a comparative advantage in raw materials on economic growth.

More recently diversification and specialization has been studied as the part endogenous outcome of a country's stage of development (Acemoglu and Zilibotti, 1997; Imbs and Wacziarg, 2003). This theory is based on countries' production and therefore has an effect on their export, as there is a relationship between production and export. Ramacharan (2006) finds that a one standard deviation increase in diversification is associated with about a 0.81 standard deviation increase in the level of credit to the private sector. Thus, diversifying the sectoral composition of the economy, will benefit financial development, which in turn, as shown by Kevin (1991) may allow countries to engage in more specialization of exports, given that developed financial markets may provide insurance against risk. This analysis may lead one to conclude that countries export structure may go through phases, from less diversified to more diversified, followed by a phase of less diversification and more specialization, as the financial sector development deepens (Saint-Paul, 1992). Diversifying the production structure of the domestic economy may therefore be a requirement for export diversification and later export specialization. Furthermore, not all developing countries will gain with high export as their location can be an important determinant for their export propensity. But, export diversification contributes to growth in a country (Herzer and Lehnmann, 2006) and many studies have proven so on a country level.

Related to export diversification, there could be knowledge spill-overs from new techniques of production, new management, or marketing practices, potentially benefiting other industries (Gutiérrez de Pineres and Ferrantino, 2000). Producing a growing basket of export commodities can be seen to have an active effect of export diversification on higher per capita income growth. Agosin (2007) develops a model of export diversification and growth where countries with low technological frontier widen their comparative advantage by imitating and adapting existing products. Furthermore, models in the product cycle literature (Vernon, 1966; Krugman, 2003; Grossman and Helpman, 1991) obtain diversity of export products by the North innovating and the South predominantly imitating and exporting the products from cheap labour countries.

2.3.   Review of Empirical Literatures

By measuring export earning instability as deviations from an estimated trend line and commodity and geographic concentration indices using Gini-Hirschman coefficient, Massell (1964) assessed the extent of association between export concentration and export earnings instability for a sample of 36 countries using a linear regression method. His result revealed the existence of positive and significant relationship between export earnings instability and commodity concentration indices while negative and insignificant relationship was recorded with respect to geographic concentration index. However, he concluded that diversification policy should not be expected to lead to marked reduction in export earning fluctuations, as the measured partial correlation coefficient between export earnings instability and commodity concentration was very low (i.e. about 0.3).

Michaely (1967) based his analysis of the association between commodity concentration and price fluctuations on rank correlation coefficients. By employing data for thirty-six countries, he found a rank correlation coefficient of 0.404 indicating the existence of weaker causal relationship between the index of export price fluctuations and the coefficient of commodity concentration of exports. Derosa (1992), on the other hand, used ordinary correlation analysis and multivariate principal component analysis[3] in examining, among others, the association

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[3] Multivariate principal component Analysis is one of the methodologies employed to arrive at the joint determination of the correlation variables. It basically enables the different variables to be grouped according to

between commodity dependence, export earnings instability and export concentration for a sample of 42 developing countries. His correlation as well as principal component analysis results indicate the existence of a strong positive association between commodity dependence, export earnings instability and export concentration.

Agosinet *et.al.* (2009) used 40 years data on 130 countries to estimate the determinants of export diversification. They use two-step GMM estimation on three groups of explanatory variables. The first group of variables includes reform related ones like trade openness and financial sector developments. The second group of variables includes structural determinants of exports like factor endowments and distance. The third group consists of macro-economic factors that affect exports like exchange rate volatility, terms of trade, interaction of human capital with terms of trade. They find that trade openness encourages specialization and therefore is negatively related to export diversification. On the other hand, financial development and higher schooling have a positive relation while exchange rate overvaluation and terms of trade improvement have a negative impact. This study is robust as it explores a number of measures and methods to estimate the determinants. Kadyrova(2011) also used data from 1962-2010 on 88 countries to show the effect of export diversification on country economic growth. The GMM estimator of dynamic panel model across countries showed a positive impact of export diversification on countries income per capital growth with the stronger effect on developing countries.

Olabanji and Henry (2013) examined the applicability of the Export-Led Growth hypothesis for Nigeria using annual secondary time series data from 1970-2010. The estimation results obtained from the cointegration test and Granger Causality test within the framework of a VAR model did not support the Export-Led Growth hypothesis for Nigeria. The paper concludes that government must diversify the product base of the economy, promote non-oil exports, and build up an efficient service infrastructure to drive private domestic and foreign investment.

Ferdous (2011) studies the determinants of export diversification in East Asian Countries. The study took eight years and eight countries panel data of the region. The explanatory variables used include, official exchange rate, trade openness indicators like tariff, and GDP. Fixed

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their degree of association with statistically independent third variables, termed "factors",that explain a substantial portion of total variation of the independent variables (Derosa, 1992, p.61).

effects estimation was used to estimate the equation. The study focuses on relating regional trade integration and export diversification. The results indicate that greater integration promotes export diversification. Devaluation of the exchange rate also helps diversification by encouraging exporters from other sectors.

Cabral *et.al.* (2010) estimates the political economic determinants of export diversification and export sophistication in Sub-Saharan Africa. The economic determinants in the model include level of development, endowment, growth, education and labor force. The geographic variables include distance and land locked-ness while the institutional variables include governance, control of corruption and spending on education. The study employed an instrumental variable fixed effects model. The study finds that governance is very important for export diversification in Sub-Saharan Africa.

In the Ethiopian case, Berhanu (2002), constructed the geographic and commodity concentration indices using Gini index of concentration. Using these indices the paper constructed the composite concentration index for exports. The paper also estimates determinants of exports for Ethiopia for the period 1970/71 to 1999/00. This paper was the first and complete attempt to construct export diversification. However, it didn't analyze the economics contribution of export diversification to the national economy; Berhanue's study only analyzes the opportunities and challenges of successful export diversification.

Senait (2014) investigated the contribution of export earnings on economic growth of Ethiopia for the period 1960/61-2011/12 by empirically testing the long run and short run relationship and causality between exports and economic growth using popular time series econometric techniques of cointegration ,vector error correction estimation and Granger causality test. She concluded that export growth positively and significantly affected economic growth and growth also stimulate export in the long run. This provided support for the adoption of both Export -Led Growth and Growth-Led Export growth strategies in case of Ethiopia.

Debele (2002) investigated the effect of exports on economic growth in Ethiopia for the period 1960/61-2000/01.The study reviewed the policies undertaken by the different regimes in relation to export policies, and to empirically test the relationship between exports and economic growth

using cointegration, error correction approaches in the regression analysis and a simultaneous equation model and the Granger causality test. The study finds that export growth positively and significantly affected economic growth.

Seid (2012) assessed climate change and economic growth in rainy-fed economy in case of Ethiopia using simple growth model. The researcher concluded that inter-annual and within-annual rainfall variation have negative effect on growth in the last five decades.

Likewise, Mengistu (2014) on the Challenges of Pre-Shipment Export Credit Financing In the Commercial Bank of Ethiopia, Alemnesh (2012) on The Nexuses between Public Investment, Private Investment, Trade Opennes and Economic Growth In Ethiopia: Co-Interated Var Approach., and Samuel (2012) on the Determinants of Agricultural Export in Ethiopia have also studied export and export diversification from different angels of Ethiopia's development. However, they have never studied the critical issues of export diversification from the angels of its relationship with economic growth. As a result, this study descriptively and econometrically assesses the diversification of exports vis-à-vis the economic growth of Ethiopia.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 The Research Method and Design

The fundamental research design of this study follows clear descriptive and causal methods of investigation under the quantitative approach of huge data stockpile. The descriptive research has been expected to answer questions of what and how much the sub-sector of real GDP attributed to economic development of the country. Again the trend of Export diversification and real GDP separately and jointly discussed in the descriptive method. The research also followed a causal type of research to show the cause-effect relationship between real GDP growth and export diversification in integrative and discrete measures. Optimistic and untailored trend analysis of basic growth model equation is used to identify the major variables that affect economic growth.

This research is dominantly a quantitative type design in which the method has been intended to reflect analytic results based on numerical data and its ideological output of the amassed numerical computation. Whereas, numerical data is dominant, the qualitative analysis—textual description, is intended to give a qualitative explanation and description of the findings from numbers inferred and the intended variables. Historical narration form thick data use in the theoretical argumentation and concept exposition would be the corner stone of the qualitative data analysis in interwoven. Both methods are thought to be supportive and traingulative in each other to bring relevant data into functionality and come up with acceptable findings for the countries development.

Econometric methods which is based on macroeconomic variables were also applied to analyze the data in time series; however, in most developing countries, time-series data are non-stationary (Green, 2003; Chauvet, 1998; Stock & Watson, 1988). The authors agreed that estimation within such environment violates most classical econometric assumptions and results spurious regression. In the first model of the study that relate export diversification and growth,

ordinary least square (OLS) method used with robustness checks, as data on all variables are expected to be stationary. Multiple regression using ordinary least square estimation method also used to assess the relationship among all the study variables.

3.2. Model Specification: Growth Model

As discussed in the vast of literatures, export diversification has a non-linear impact on growth (Miller & Pras, 1980; Klinger & Lederman, 2006; Dennis, 2007). Sometimes it is believed to be useful for economic growth; on the contrary, it hampers economic performance. Hence, this issue leads many researchers to investigate the non-linear nexus between export diversification and growth. In order to investigate the same issue in Ethiopia, this study employed the non-linear basic growth model to identify the study variable and multiple regression to investigate the relation between export diversification and economic growth, which is used by many empirical researchers. To examine the extent to which economic growth is related to export diversification, one can start from the basic growth model equation (Barro, 1991). The basic growth model can be specified as equation (3.1) below:

$$\Delta Y_t = \beta \Delta X_t + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \textbf{(3.1)}$$

Where:
Y_t is output (GDP)
X_t is the vector of explanatory variables
ε_t is error term
Δ is percentage change (growth)
β is coefficient of explanatory variables
t is time (year).

In order to capture the nexus between growth and export diversification, the basic growth model specified in equation (3.1) can be extended to equation (3.2).

$$\Delta Y_t = \alpha_0 + \alpha_1 ED + \alpha_2 \Delta X_t + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \textbf{(3.2)}$$

Where:

Y_t is output (GDP)

ED is export diversification index

X_t is the vector of explanatory variables

ε_t is error term

Δ is percentage change (growth)

α_0 is intercept

α_i is the coefficient of explanatory variables and t is time (year).

A common problem of numerous empirical studies on growth is that they do not produce an exact list of explanatory/control variables in the model. Solow (1956) and Swan (1956) who developed the first neo-classical models of growth, take investment and the rate of growth of population as explanatory variables in their growth model regression equation to show that an increase in investment together with a decrease in population growth promotes economic growth. A Neo-classical growth models considers technology as exogenous factor that determine the growth rate of output in the economy.

New growth theory formally incorporates technology and human capital as determinants of growth. Research and development (R&D) model explains how technology evolves over time, by considering technology as endogenous variable. Human capital models emphasize on the importance of human capital to growth, in addition to physical capital. (Romer, 1996). International trade theory proposes to include openness of the economy in the growth regression, which is positively related to growth. Furthermore, nowadays financial development is considered as important for economic growth (Barro, 1991).

Based on the theoretical illustrations in the context of developing countries, the model of this study include the following explanatory/ control variables; Investment, population growth as a proxy for labor force growth rate, human capital, openness of the economy and financial development. In addition, since moderate amount of rainfall, which is not too low or too high, results in a good agricultural output harvest, the absolute value of mean deviation of rainfall is included as explanatory variable.

The model specification of this study resembles with the model of Khan and Senhadji (2001), Mubrik (2005), Osama (2004), and many others. Thus, based on the authenticity in empirical literature on growth the equation of the model is given as:

$$\Delta Y_t = \alpha_0 + \alpha_1 ED + \alpha_2 \Delta HC_t + \alpha_3 \Delta FD_t + \alpha_4 R_t + \alpha_5 \Delta I_t + + \alpha_6 \Delta LF_t + \alpha_3 \Delta Ot + \varepsilon_t \dots \textbf{(3.3)}$$

Where:

Y_t is growth rate of real GDP;

ED is export diversification;

HC_t is growth rate of human capital;

LF_t is labor force growth rate;

I_t is growth rate in investment;

Ot is the growth rate of openness of the economy, which can be proxied by the ratio of import and export to GDP (i.e. (Export + Import)/GDP);

FD_t is the growth rate in financial development, which is proxied by growth rate in domestic private credit expansion;

R_t is absolute value of mean deviation of rainfall;

Δ is percentage change (growth),

t is time (year) and ε_t is the error term.

Based on theoretical hypothesis, all variables except export diversification and the absolute value of mean deviation of rainfall are expected to have positive coefficients in the above equation. Due to the unclear conclusion about the relationship between export diversification and output growth in theoretical and empirical literatures, the sign of the relationship between export diversification and output growth is not pre-conclusive, which is going to be addressed by this study.

3.3 Sampling, Data Description and Data Sources

The study used available data executed from selected governmental organizations to investigate the economic contribution export diversification to the economy in Ethiopia. For the analysis of a data base, the intended scope of the research was set for the period from 1970/71—2013/14, because data are accessible in carefully organized form from those institutions under focus. That

is, large but secondary data was taken in the time range from 1970/71 to 2013/14. The major data sources for the problem under investigation were publications of the National Bank of Ethiopia (NBE), Ministry of Finance and Economic Development (MOFED), Ministry of Education (MoE), Nation Metrology Agency of Ethiopia (NMAE) and Central Statistics Authority (CSA) of Ethiopia. Besides data were excavated from the United Nations Conference on Trade and Development (UNCTAD) data base. To estimate the models and to make inferences, the required data were collected on necessary macroeconomic variables for Ethiopia running from 1970/71 to 2013/14 on annual frequency according to Gregorian calendar. The full description of the variables and the data source are presented in the following table:

Table 3.1: Sources and Description of the fundamental Variables of the Model

Variable	Definition	Unit	Source	Remark
Y	Real Gross domestic product	Million Birr	MoFED /own computation	Basedon price **1999 / 00 constant**
I	Investment	Million Birr	MoFED	-
ED	Export diversification	Concentration Ratio	UNCTAD	Commodity concentration index
Lf	Labor force growth rate	Head count	CSA	Proxied by Population growth rate
HC	Human capital	Head count	MoE	Proxied by number of high school students
FD	Financial development	Million Birr	NBE	Proxied by the private credit expansion
O	Openness of the economy	Million Birr	MoFED	Proxied by the ratio of summation of import and export to GDP
R	Rainfall	Milliliter	CSA/NMA	Average rainfall of main metrology posts

3.4 Unit Root Rest

To get rid of spurious regression, the time series properties of the data used in this empirical study will be investigated using both the Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF) tests. Dickey and fuller suggest the method of determining the order of integration for individual series. The regression for single variable Y, to test for the presence of unit roots through DF test is given as:

$$\Delta Y_t = \theta_0 + \theta_1 t + (\rho - 1)Y_{t-1} + \varepsilon_t \quad \text{...} \quad \textbf{(3.4)}$$

Where, $\Delta Y_t = Y_t - Y_{t-1}; \varepsilon_t$ Is serially uncorrelated error term

Let $\sigma = (\rho - 1)$

$$\Delta Y_t = \theta_0 + \theta_1 t + \sigma Y_{t-1} + \varepsilon_t$$

The null hypothesis is $\sigma - 0$ which is there is a unit root (non-stationary) against the alternative hypothesis. The ADF test examine whether σ is equal to zero or not. Dickey and Fuller augmented DF test by adding the lagged values of dependent variable in order to overcome the possible autocorrelation in the error term. The ADF test here consists of estimating the following regression:

$$\Delta Y_t = \theta_0 + \theta_1 t + \sigma Y_{t-1} + \sum_{i=2}^{n} \Delta Y_{t-i-1} + \varepsilon_t \quad \text{...} \quad \textbf{(3.5)}$$

The ADF test follows the same asymptotic distribution as the DF statistic, follows the *IJ* (tau) statistic.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

In this chapter, a clear presentation of the data with necessary analysis and interpretations within the framework and model are made. Data presentation includes tabulation, graphics and description. From each presentation option, inferential drawings have been made in a precise manner. From the descriptive analysis, the export diversification in its averages and trends are critically analyzed under the different variables of economic growth. What is very important, in the econometrics analysis, Unit-Root Test, Multiple Regressions (OLS), Multicollinearity Test, Normality of the Residual, and Model specification Test have been implemented for a careful analysis to see the real relationship between export diversification and economic growth in Ethiopia.

4.1. Descriptive Analysis

4.1.1. Export Diversification in Ethiopia

When the value of export diversification states as 1(100%) diversified, it clearly shows that the county is exporting single product, whereas the value of export diversification formulated for numerical value near to zero, the country is exporting many types of product to the rest of the world. So, the measurement export diversification ranges from one to zero. More precisely, the more concentrated the export is the more the square of the shares each exported products approaches one. If there is only one export commodity for example the share will be one and the summation of the square of one will be one. On the other hand the less concentrated the market is the smaller the share of the largest firm which will mean that the square will even be smaller as the share is less or equal to one. Therefore, the sum of the square of the shares will be very small and close to zero. This means the market is not concentrated. The numerical value of commodity concentration coefficient from UNCTAD database shown an average level of 65.16%, 61.44%, 62.33% and 55% for the last four decades from 1970-2013. This numeric value indicates export diversification level of the country is low because the value of export

diversification stated in figure 4.1 below approach to one by consider the diversification measurement ranging from one to zero as the researcher stated above. As shown in figure 4.1 below the diversification index is approaching to zero in the years from 2001-2013 as compared from the remaining decades that show the country is show a bit effort to make its export diversified. But the effort of the country is still below 50% (mid-level diversification index). In the last decade export diversification is showing considerable increment as compared with the last three decades which might come from government sound police like more availability of credit facilities for export trade and for establishment new industry, export promotion and import substitution strategy of the government, foreign direct investment, value-adding effort the exporter and many other police measure taken by the government to the export trade. The graphic representation export diversification for the last four decades is shown as follows.
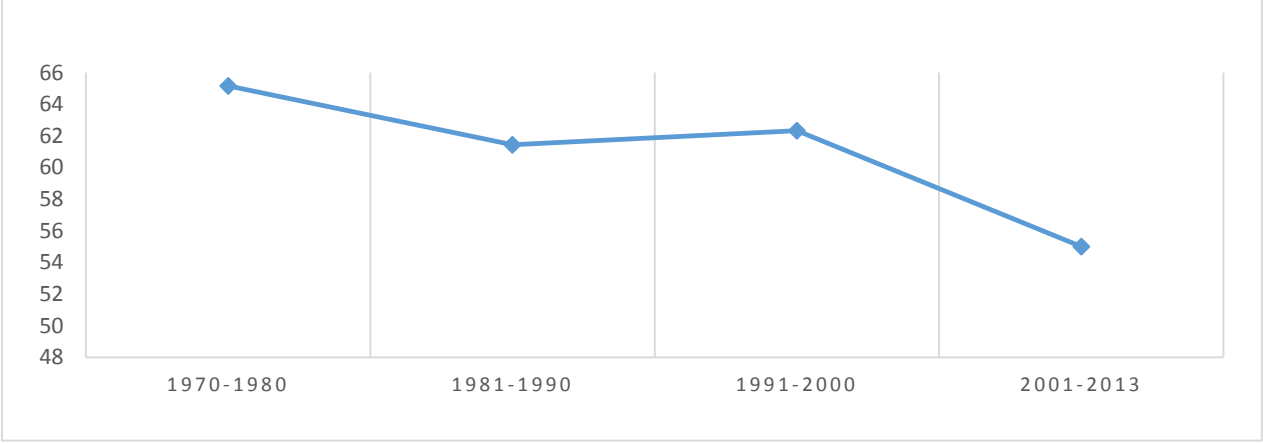

Figure 4.1 Trend of export diversification for the last four decades

Source: Own computation from UNCTAD, 2015.

4.1.2. Trends of Real GDP

As an agrarian economy, for many years, the Ethiopian economy was dominated by agriculture sector due to the dominate role the sector played for the economy. The agriculture sector was mainly dependent on natural factors and thus performed well in the season in which the climate is favorable. Due to the dominant role of agriculture, the Gross domestic product (GDP) followed the same variation with agricultural output.

In the first decade of 21 century, the economy performed well relative to the previous consecutive decades. The growth rate of GDP at the constant price with growth rate of sub-sectors from 1999/00 to 2013/14 is presented in figure 4.2. Following the moderate growth rate in first three years of the decade, the growth rate of GDP reached a negative value of 2.2% in 2002/03, which was mainly due to the fall in agricultural output associated with the then drought. In the same time period the growth rate in agricultural output dropped by 10.5%.
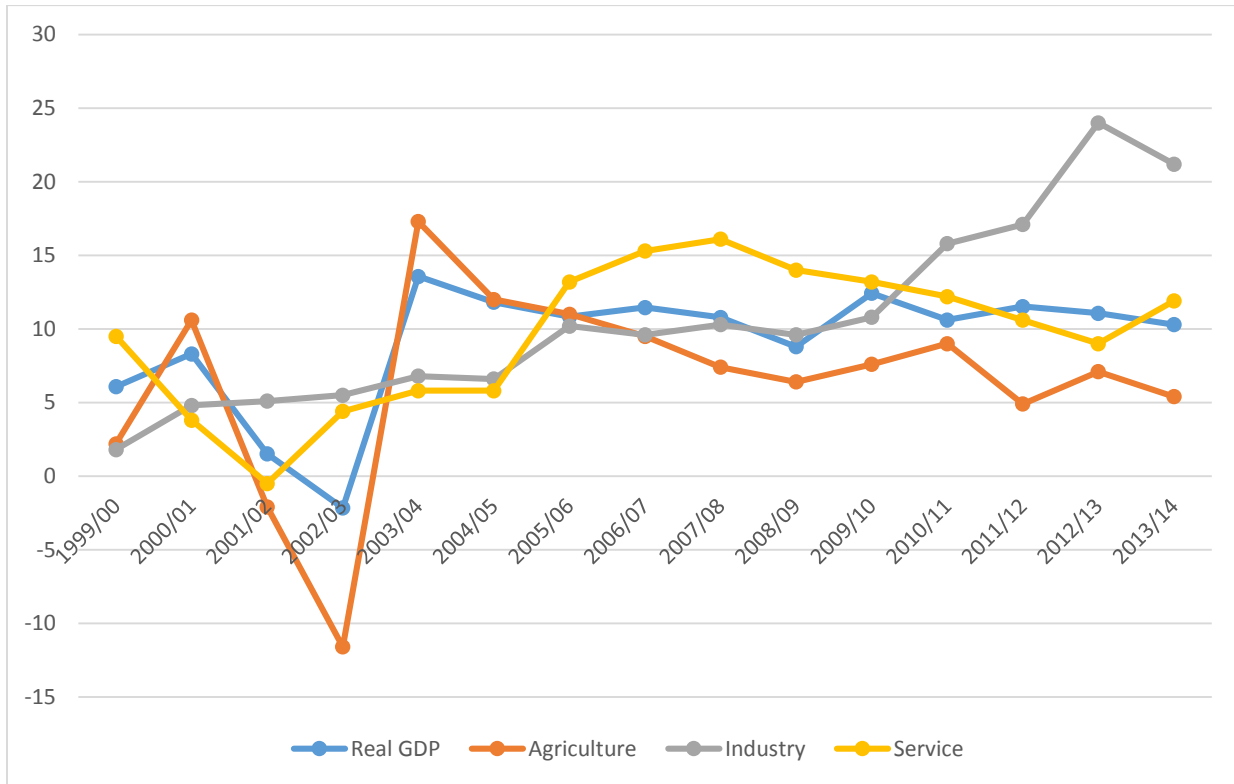

Figure 4.2: Growth Rates of GDP and sub-sectors output at Constant Basic Prices (%)
Source: own sketch from MoFED 1999/00-2013/14.

After 2002/03 fiscal year, GDP increased by double digit except for the year 2008/09. In the considered period, the average growth rate of GDP was 8.5%. The growth rate of agricultural output, industrial output, and service was 6.6%, 8.8% and 10.5%, respectively. In these periods, service sector showed a better performance than other sectors. Recently, the salient feature of the economy has been changed as the agriculture sector ceased to be the largest sector in the economy for the first time in Ethiopia's history. As it is clearly observed from figure 4.2, the growth rate in agricultural output continuously declined after 2003/04 fiscal year. After 2004/05

fiscal year, the growth rate in service sector started to be greater than the growth rate of agricultural output. Furthermore, in 2005/06, the growth rate in industrial output started to be higher than the growth rate of agricultural output. Consequently, the dominant role of agriculture for the economy declined.

For many years, the agriculture sector had a lion share from GDP in the Ethiopian economy, which almost covered 50% of GDP. However, the services sector, which covers real estate, hotels, transportation, communication, banking, health and education, took the highest share form GDP staring from 2007/08 fiscal year. The industry sub-sector remained to cover the lowest share as previous periods. Since 2009/10 real GDP shows double digit growth, the industry sub-sector growing alarmingly with 11%, 16%, 17%, 24% and 21% rate for the last five years and agriculture continuously declining in recent years, as shown in figure 4.3 below.
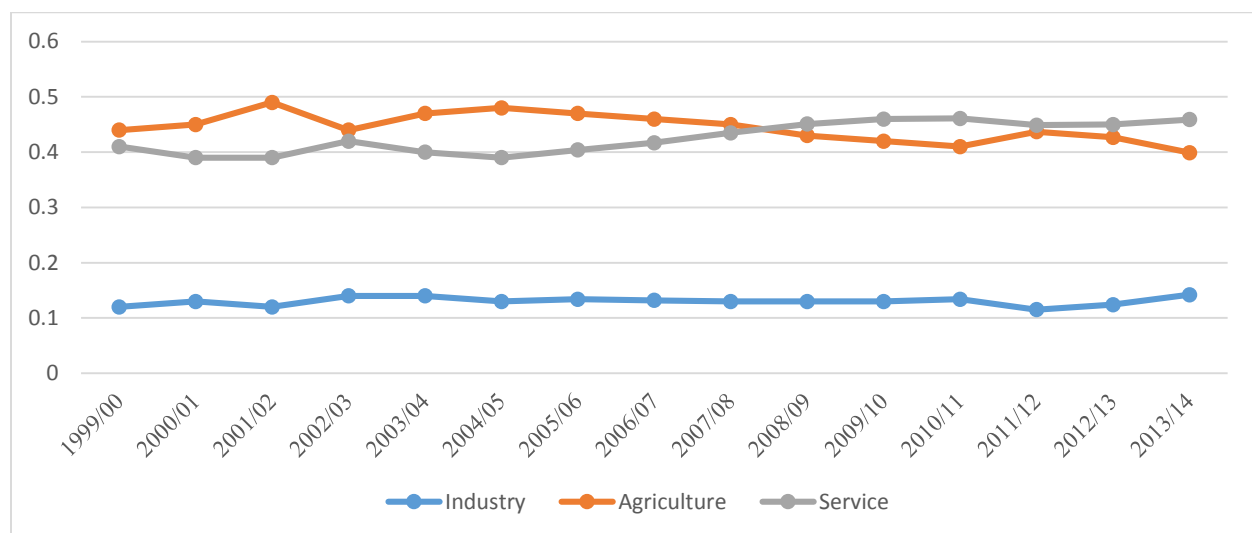
Figure 4.3: Percentage share of sub-sectors from GDP at Constant Basic Prices (%)
Source: own sketch from MoFED 1999/00-2013/14.

Before the physical year 2007/08 the agricultural sector took the largest share of the GDP, starting from the year 2008/09 the service sector took the lion's share of GDP. The Industry sector is still contributing small fraction of the GDP, This is one the reasons for which the country's export is less diversified.

4.1.3. Trends of Real GDP and Export Diversification

Comparing export diversification against the growth rate of real GDP in Ethiopia, one can expect a negative or positive relationship. Figure 4.4 illustrates the trend in export diversification and GDP growth rate of Ethiopia on annual base.
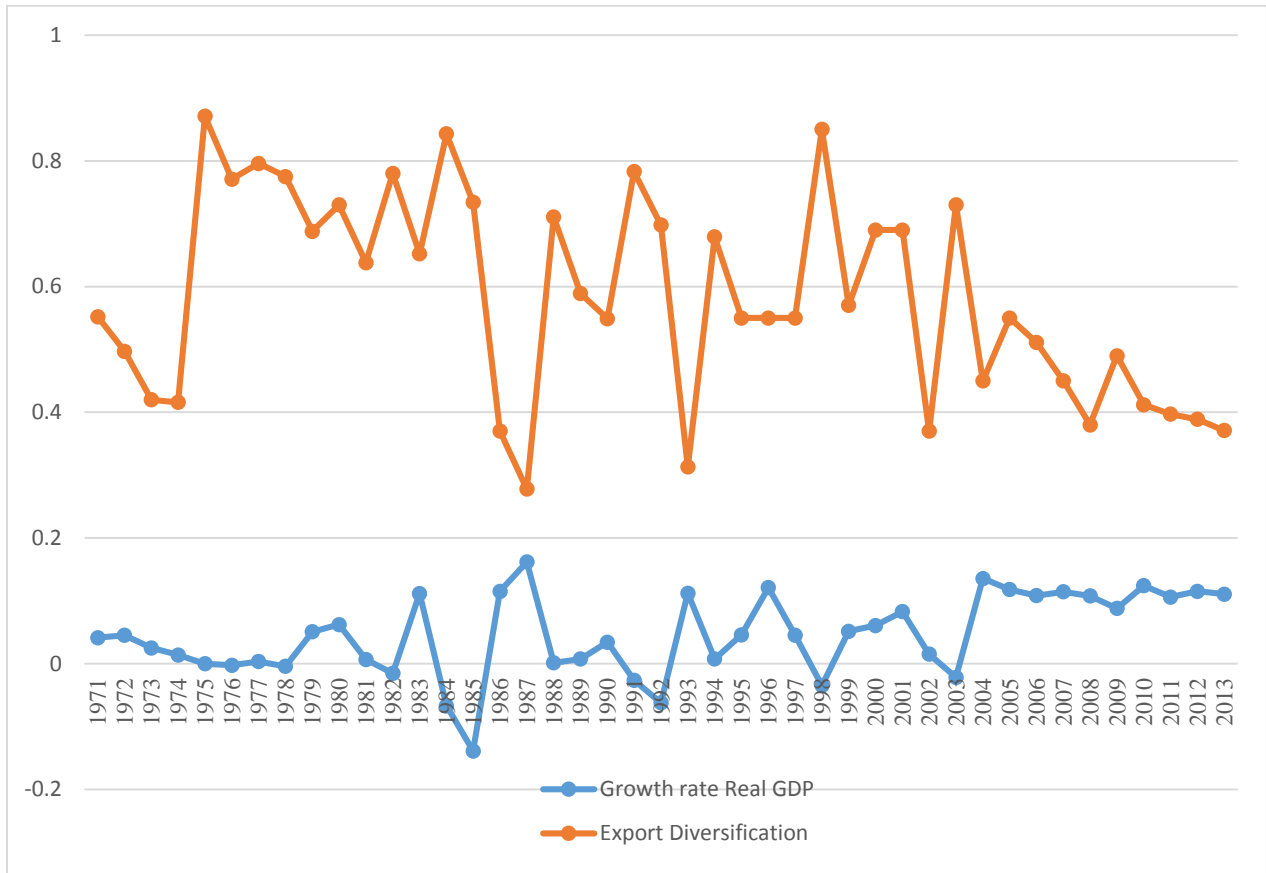
Figure 4.4: Trends of real GDP growth and export diversification, 1971-2013
Source: own sketch from MoFED different physical years report and UNCTAD, 2015.

The Figure somehow indicates an inverse relationship between both export diversification and GDP growth. As the figure illustrate, growth rates in GDP remained low in 1970s with the average value of 1.9%. During the same period export diversification was 65.16%. In early 1970s export was highly diversified due to the fact that the Dergu regime was adopting ten years perspective plan to reducing the dependence of the country's export sector on limited export markets, increasing the amount and composition of manufactured exports and increasing the socialization of the export sector (Provisional Military Government of Socialist Ethiopia, 1985). In 1980s, the average growth rate of GDP was 2.5% and the level of export

diversification was 61.44%. In 1985 the level export diversification was approaching one and the growth of real GDP was negative, which was associated with the then country wide famine. In 1986 and 1987 the growth of real GDP was satisfactory and export was highly diversified which witnessed the positive relation between economic growth and export diversification.

For the remaining two decades the level of export diversification has shown improvement and the growth of real GDP also has shown incremental for the most years. To draw a conclusion about the relationship between export diversification and economic growth in Ethiopia in the last four decades, it is possible to say when the export is diversified (approaches to zero) the economy has shown improvement.

4.2. Econometric Analysis

4.2.1. Unit-Root Tests

In order to avoid the possibility of ending up with spurious or nonsense regression results, it was vital to test the stationary behavior and determining the order of integration of variables in time series analysis. To test the time series for stationary, the Augmented Dickey-Fuller (ADF) test is conducted. The test has a null hypothesis of the presence of unit root (Non Stationary) against the alternative hypothesis of the absence of unit root (stationary) in series of data.

The ADF test was applied on ADF equation, which only includes drift (constant) term. The appropriate lag length in auto regressive representation of variables in ADF test is selected based on the result of Akaike information criterion (AIC).The ADF test is conducted on all variables included in the estimation of multiple regression equation, which is presented the immediate following section. ADF test result is shown in table 4.1.

Table 4.1 Result of Unit Root Test

Variables	ADF test statistics with constant term*		Order of integration
	Level of significance	Critical Value	
	1%	-3.60	
	5%	-2.94	
ED	-2.979*		I(0)
ΔY	-4.462**		I(1)
ΔHC	-3.074*		I(1)
ΔFD	-3.153*		I(1)
R	-5.772**		I(0)
ΔI	-6.204**		I(1)
ΔO	-4.025**		I(1)
ΔLF	-3.727**		I(1)

Notes: * denotes Unit root rejection at 5% level of significance, ** denotes Unit root rejection at 1% level of significance

Where:

ED is export diversification index;

Y_t is output (GDP);

HC is Human capital;

 FD is financial development;

O is openness of the economy;

 I is investment;

 LF is labor force,

R is rainfall and

Δ is percentage change (growth)

As depicted in table 4.1, the test has rejected the null hypothesis of the presence of the unit root for all variables. However, it is worth to notice that all variables except Export diversification and rainfall are the growth rate (Percentage change) of the variables. Therefore, rainfall and export diversification index are integrated order zero (I(0)) while the other variables are integrated order one (I(1)). This finding implies that these variables are suitable for meaningful regression analysis without the panic of getting spurious result.

4.2.2. Multiple Regressions (OLS) Result

In this section, the result of multiple regression analysis is presented and analyzed in order to explore the contribution of export diversification index to real GDP growth in Ethiopia. According to Gujarati (2004), regression analysis deals with the study of the dependency of one variable, the dependent variable, on one or more variables, the explanatory variables. Although regression analysis reveals the extent of dependent variable on independent variable, it does not necessarily indicate the causation extent or direction. Thus, one needs to depend on theories in order to define the direction of causation between variables.

The multiple regression equation can be specified as;

$$\Delta Y_t = \alpha_0 + \alpha_1 ED + \alpha_2 \Delta HC_t + \alpha_3 \Delta FD_t + \alpha_4 R_t + \alpha_5 \Delta I_t + +\alpha_6 \Delta LF_t + \alpha_3 \Delta O + \varepsilon_t \ldots \textbf{(4.1)}$$

Where:

Y_t is output (GDP)

ED is export diversification index

X_t is the vector of explanatory variables

ε_t is error term

Δ is percentage change (growth)

t is time (year)

After cleaning the raw data, Ordinary Least Square (OLS) regression, which includes the aforementioned dependent variable and independent variables, were estimated using STATA 12. The regression result is presented in the following table below.

Table 4.2: Regression estimate of the study

variables	Coefficient (α-alpha)	SE (Standard error)	P>t P-value
ED	-.0013521	.0005574 -2.43	0.021
R	.0000656	.0000278 2.36	0.024
ΔLf (pg)	.0063625	.0087979 0.72	0.474
ΔFD (gpcr)	.04884	.0303601 1.61	0.117
ΔI (gi)	.0626311	.0300283 2.09	0.044
ΔO (go)	.0019623	.0228354 0.09	0.932
ΔHC (gh)	.0526051	.0518207 1.02	0.317
Constant	-.0015562	.0629436 -0.02	0.980

F(7,35)= 11.36

R-square=0.6944

Agj R-square=0.6332

Prob >F=0.000

In order to test the significance of independent variables in the model, t statistics with P value was computed which can help to test the null hypothesis that the coefficient of independent variable is zero or insignificant. Among the explanatory variables export diversification index, rainfall and investment were found to be statistically significant at 1% level f significance, as the probability of t statistics implies the rejection of null hypothesis. The parsimonious model that only includes significant explanatory variables can be expressed in equation form as follows;

$$\Delta Y_t = -.0015562 + -.0013521 ED + .0000656 R_t + .0626311 \Delta I_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots \textbf{(4.2)}$$

So as to test the overall significance of the model the F test is estimated. The test has a null hypothesis of no difference between the model with only a constant and the model with independent variables. Based on the result reported on the above table, the null hypothesis of the F test is rejected, which implies the overall significance of the model at 1% level of significance.

The above significant variable show there is positive relation with value of real GDP, but it may be questionable since the sign of export diversification is negative. The negative sign shows that diversification of exported product increase when the value of export diversification approaches to zero.

R^2, which indicates the goodness of fit of the model, is found to be 69.44%. It means that 69.44% variation in real GDP is explained by the explanatory variables. The unexplained variation accounts 30.56% in the model. In our analysis, the percentage absorbed in the error tem is tolerable which may come from the omission variables like consumption level and government expenditure in analysis.

4.2.3. Multicollinearity Test

One of the import assumption of OLS is the absence of highest level Multicolinearity among the independent variables. In order to check the level of multicollinearity among independent variables, Variance inflation factor (VIF) was computed. As per UCLA (2015), if VIF is greater than 10 and 1/VIF (tolerance) is lesser than 0.1 it indicates the existence of multicollinearity among predictor variables. The estimated Variance inflation factor (VIF) for this study is reported in appendix c of the thesis. The result shows that the Variance inflation factor (VIF) is lesser than 10 and (tolerance) 1/VIF is greater than 0.10 for all independent variables , which conforms the absence of multicollinearity among the independent variables.

4.2.4. Normality of the Residual

One of the assumptions of OLS regressions is the normality of the residual generated from the estimated regression equation. In this study, the residual was predicted from the estimated regression equation, which is presented in the previous sub section, in order to test the normality of the residual. The normality of the predicted residual was tested for normality using two Caliber tests of normality, which are Kernal Denisty plot (Kdensity plot) and Shapiro Wilk (Swilk) W-test, as recommended by UCLA (2015).

A Kdensity plot shows that the plot of distribution of residual against normal distribution was generated and reported on appendix A. As Kdensity plot clearly reveals, the distribution of residual doesn't deviate by far from the normal distribution, which may confirms the normal distribution of the residual generated from the estimated regression.

In order to confirm the normal distribution of the residual another called Swolk test, which has a null hypothesis of normal distribution, was estimated. The estimated Shapiro-Wilk W test for normal data z value is 0.12292. Since the test has a null hypothesis of normal distribution, the above test shows the one cannot reject that the residual is normally distributed as the p value (0.12) is greater than 5 percent level of significance.

The last assumption of ordinary least squares (OLS) regression is the homogeneity of variance of the residuals. In this study, the fulfillment of this assumption was tested using Breusch-Pagan / Cook Weisberg test for heteroskedasticity, which has a null hypothesis of constant variance. The estimated Breusch-Pagan / Cook Weisberg test has a value of 0.3742. Since the p value of the test (0.3742) is greater than 5 percent level of significance on cannot reject the null hypothesis, which states constant variance (Homoscedasticity)

4.2.5. Model specification Test

A model can be called wrongly specified if one or more relevant variables are omitted from the model or one or more irrelevant variables are included in the model (UCLA, 2015). Specification error in the model needs to be investigated as it can affect estimates of regression coefficient.

In this study, link test is used to check if there is specification error. This test assumes that if one model is correctly specified it is not possible to find any additional independent variables that are significant, except in rare cases. This test generates two additional variables that can be called the variable of prediction (_hat) and the variables of squared prediction (_hatsq).

The test runs regression by considering the above two variables as independent variable and if variable of squared prediction is found to be significant one can conclude that there is a specification error, or otherwise. The estimated regression used test specification error through link test is presented as follows;

Table 4.3: model specification test

ΔY(grgdp)	Coef.	Std. Err. r	P>t
_hat	1.050214	.1732955 6.06	0.000
_hatsq	-.6476251	1.780754 -0.36	0.718
_cons	.0009131	.0078068 0.12	0.907

As revealed on the above table, the variables of squared prediction (_hatsq) is found to be insignificant, which indicates the absence of specification error. This result implies that there is no omitted relevant variable or no included irrelevant variable.

4.2.6. Interpretation of the Model

As the estimated regression is proved to be valid through various tests, it indicates the possibility of drawing inference from the result. Export diversification index, rainfall and investment has got significant variables, whereas the regression result also shows that, trade openness, financial development, human capital and labor force as insignificant variables. Thus, variables that are found to be significant in the model in affecting economic growth in Ethiopia are discussed as follows based the multiple regression result found in the above.

$$\Delta Y_t = -.0015562 + -.0013521ED + .0000656R_t + .0626311\Delta I_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots. \textbf{(4.3)}$$

I. Export Diversification Index

The results of regression show that this variable has a significant differentiating power in respect of real GDP growth rate in the country. It is one of the powerful variables, which has a positive relationship with the economic growth. The sign of the coefficient for export diversification in the above equation is negative, which show the value export diversification increase when approaches to zero or decreasing. The negative sign does not indicate the relationship between export diversification and real GDP. The regression result about export diversification and economic growth agreed with theories discussed in vast literature of this study that export diversification contributes to growth in a country as many studies have proven at a country level. But, it contradicts with Ricardo theory of comparative advantage about international trade. Ricardo laid emphasis on the role of specialization in international trade and increases total productivity. According to him, export can promote economic growth by specializing in sectors in which a country has a comparative advantage.

Again Michaely (1977) founded a positive and significant link between exports diversification and economic growth only among the more developed economies. But this was not the case among least-developed countries, which the researcher finding show positive and significant relationship in Ethiopia (one of the LDCs). In the last 43 years 0.14% annual change in real GDP was the result of one percent change in export diversification, ceteris paribus.

II. Rainfall

As can be seen from the regression result rainfall has a positive and significant relationship with the real GDP growth, implying that when the annual rainfall is satisfactory for production in the country, the real GDP is expected to increase. The lion share of real GDP comes from agricultural sector in Ethiopia which subject for rainfall yet and 0.01% annual change in real GDP was the result of 1% change in rainfall, ceteris paribus.

The result of the study is similar with the study other researchers. For example, rainfall was a significant variable as Barrio (2008) concluded that rainfall trend affect economic growth in Sub-Saharan countries, but no relationship for other developing countries and Odusola and Abidoye(2015) conclude that a percentage change in rainfall lead 6.7 percent change in economic growth . The finding also similar with Empirical analysis using data from Ethiopia that shown a deviation from long term mean annual rainfall and erratic distribution of within a year adversely affect economic growth (Seid, 2012).

III. Investment

There is a general agreement that, in all countries, the process of economic growth and investment is closely interconnected. Both neo-classical and Marxist economists have placed main emphasis on capital accumulation as the engine of economic growth.

The multiples regression result that researcher has got clearly support the above theory and investment has a positive and significant relationship with real GDP growth. Investment significantly explain (by 6.26%) the real GDP in the last 43 year in the country or a percentage change in investment leads a 6.26% change in the level of real GDP growth.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary and Conclusion

This study examined the contribution of export diversification in Ethiopia by investigating a number of practical issues empirically based on historical data that spans from 1970 to 2013.To identify the major variable that affect economic growth is examined using basic growth model and simple multiple regression analysis were used to assess at what extent that the major variables contribute for economic growth for the last 43 years in Ethiopia. Descriptive analysis were used to assess export diversification and the trend real GDP in Ethiopia. It found that the country made an effort to improve export diversification, but still below the mid-level of diversification (50%) although the real GDP should an increasing trend in recent years.

In econometric analysis, the unit root test using Augmented Dickey Fuller (ADF) and multiple regression were the major tools to assess the export diversification, rainfall, investment, financial development, openness of the country, human capital and labor force growth on economic growth of Ethiopia. Export diversification, rainfall and investment were found significant; nevertheless, the variable computation of insignificance was observed in human capital, labor force growth, financial development and trade openness.

Interestingly, it could be argued that the positive link found between export diversification and economic growth in Ethiopia in the present study is very much the result of sound government policies. The incumbent government has served to create conducive environment for the private sector to operate in and accordingly diversify its export base, both across differing industries and within the same sector.

5.2 Recommendations

The trade strategy Ethiopia was following, the pre 1992 was classified as a strongly inward oriented in which it made use of extensive tariff and nontariff barriers. Since 1992 there has been progress in policy reforms towards market, industry expansion and price deregulation. Steps have been taken in liberalizing the foreign exchange market, attaining macroeconomic stabilization and attracting investors towards the sector. The country has also made significant policy reform in reducing the anti-export bias in its trade policy. However, the diversification level of export in the country is still below the mid-level diversification even if the founding in this study shows 0.14% effect on the economic growth at its enfant stage. There are many theoretical reasons, put forward by researchers, which says that export diversification leads to higher per capita income growth and diversify from primary exports into manufactured exports in order to achieve sustainable growth. Consequently, this study recommends some policy measures and reforms that can be taken in order to improve export diversification.

Firstly, greater emphasis should be given by many stockholders in focusing on value addition on exportable items, which entails huge capital investment in modernizing the technology base for the export sectors. It can increase the share of export to GDP by significant amount and diversifying the export items when value-adding is implemented.

Secondly, Ethiopia has always been at the forefront of the various regional initiatives of which it is a member. Accordingly, it is proposed that the country should look forward in identifying new potential regional and international export markets using the opportunity. This may be achieved through the signing of bilateral treaties and regional trade agreements with member countries, which would undoubtedly serve to expand the export of goods and services.

Thirdly, the country need to strengthen the existing few industries to diversify the exportable product and pave the way for the establishment new industries with new exportable product.it can be achieved by attracting foreign direct investment, facilitating credit service for the domestic business and support the established domestic industry.

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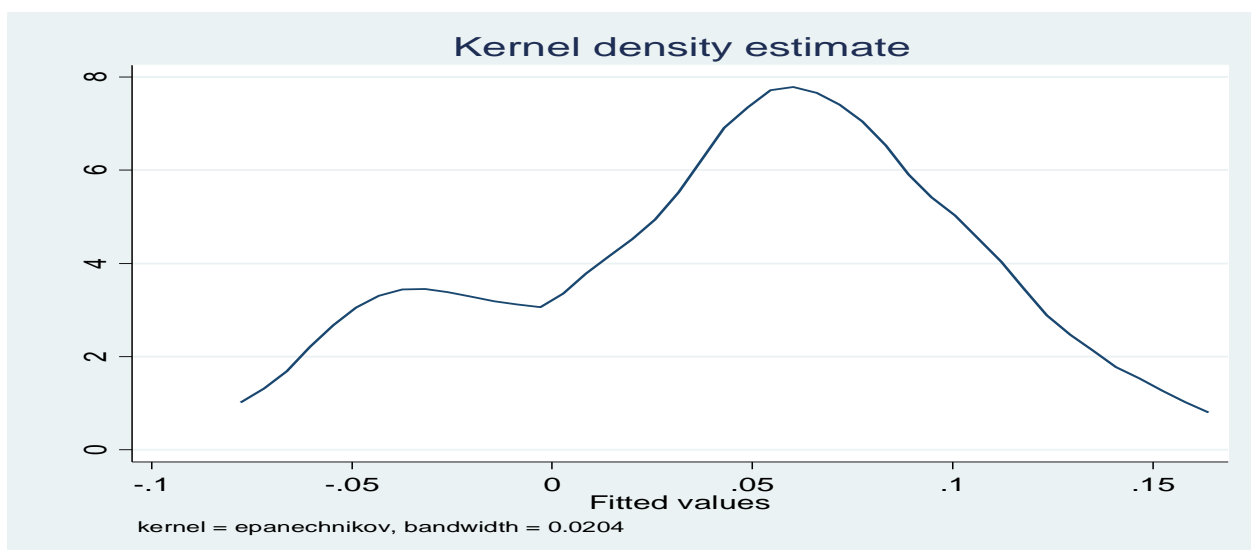
APPENDIX

Appendix A: Average value of export diversification

No	Years	Average Diversification index in %
1.	1970-1980	65.16
2.	1981-1990	61.44
3.	1991-2000	62.33
4.	2001-2013	55

Appendix B: Multicollinearity test

Variable	VIF	1/VIF
R	2.27	0.439566
ED	2.26	0.441730
ΔI(gi)	1.74	0.574270
ΔHC(gh)	1.15	0.870868
ΔFD(gpcr)	1.13	0.884903
ΔLF(pg)	1.11	0.902029
ΔO(go)	1.08	0.921942
Mean VIF	1.54	

Appendix C: Kernel Density Estimation

kernel = epanechnikov, bandwidth = 0.0204

Appendix D: Normality Test

Shapiro-Wilk W test for normal data

```
 Variable |   Obs      W        V        z      Prob>z
----------+-----------------------------------------------
   resid |    43    0.95857    1.732    1.160   0.12292
```

Homoscedasticity of the residual Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance

Variables: fitted values of grgdp

chi2(1)   =   0.79

Prob>chi2 =   0.3742