



**ST. MARY'S UNIVERSITY  
SCHOOL OF GRADUATE STUDIES**

**DETERMINANTS OF PULSE EXPORT PERFORMANCE IN ETHIOPIA**

**By**

**AMAHA WOLDEMICHAEL**

**JUNE 2020**

**ADDIS ABABA, ETHIOPIA**

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**AMAHA WOLDEMICHEL**

**A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY SCHOOL OF  
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**ADDIS ABABA, ETHIOPIA**





## **DECLARATION**

I, the under signed, declare that this thesis is my original work, prepared under the guidance of WondimagegnChekole (PhD). All sources of material used while working on this thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any type of degree.

Name

Signature and Date

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## **ENDORSEMENT**

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

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Advisor

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Signature

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## ACRONYMS

|         |  |
|---------|--|
| CSA     | Central Statistics Agency                          |
| EIAR    | Ethiopian Institute of Agricultural Research       |
| EIC     | Ethiopian Investment Commission                    |
| ER      | Exchange rate                                      |
| EPOSPEA |  |
| ERCA    | Ethiopian Revenue and Customs Authority            |
| FDI     | Foreign Direct investment                          |
| IFPRI   | International Food Policy Research Institute       |
| MOT     | Ministry of Trade                                  |
| OLS     | Ordinary least square                              |
| P.L.C   | Private Limited Company                            |
| RCA     | Revealed Comparative Advantage                     |
| TOT     | Terms of Trade                                     |
| UNCTAD  | United Nations Conference on Trade and Development |
| UNIDO   | United Nation Industrial Development organization  |

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## **ABSTRACT**

*Pulses are important crops for national consumption and export. Ethiopia ranks 7<sup>th</sup> in world by exporting pulse and have also an opportunity to produce and export more. The performance of pulse export and total production is increasing from year to year. Thus, the purpose of this study was to investigate the determinants of pulse export performance in Ethiopia, with the specific objectives to examine the determinants of pulse export performance and to assess the relationship between export performance and its determinants. 19 years' time series data ranged from 2000 to 2018 were employed to address the objectives of the study. Ordinary least square model was used to estimate the regression. The findings of the study shows that pulse export had shown an increasing trend between the anticipated years; within this all year on average the country was generating 22.4 million Birr from pulse export. Also the trends of pulse area coverage and production had an increasing trend and the average yearly pulse production was 48135 tons. In addition to this, the country's foreign direct investment had an increasing trend with average yearly investment of 1.14 billion birr. Interest rate and inflation was also shows an increasing trend. The findings of the study further shows that total production, interest rate and exchange rate had significant effect on export performance. One variable had not significant effect. Two variables total production and exchange rate had positive and significant effect on the export performance of the country; on the other hand the national interest rate had negative effect on the export performance of the country. The study revealed that total production of pulse had a significant and positive effect on the export of pulse which indicates that the pulses sector can be developed to benefit from existing production knowledge and potential. The policy focus in past years has been primarily on coffee and sesame; however, the pulses sector offers similar potential as an export crop which should get more attention by policy makers.*

**Key words:** *Pulse total production, export, Interest rate, Inflation, Foreign direct investment*





## CHAPTER ONE

### INTRODUCTION

#### 1.1. Background of the Study

Ethiopia has a diverse natural endowment from high to low land topography, climate, soil, and water resource that suit production of high and low land pulses for national consumption as well as for export purpose. Ethiopia as the center of Vavilovian origin of crop is a primary and secondary home of many of pulses growing in the country. The most important pulses grown in Ethiopia for national consumption and export are faba bean (*Vicia faba*), chick pea (*Cicer arietinum* L.), Lentil (*Lens culinaris* L.) soybean (*Glycine max* (L)) which are high and mid altitude pulses while common bean (*Phaseolus vulgaris* L.) and mung bean (*Vigna radiata*) are low land pulses. According to Ethiopian Agricultural Research Institute Pulses Research Strategy (2016-2030) (EIAR 2017) report over the last 18 years (1997-2014), the acreage pulse crops in Ethiopia has increased from about 0.89 million ha to 1.52 million ha. The pulse industry in Ethiopia has also developed significantly with little intervention. Great potential exists to increase the production and to impact pulses production through proactive and targeted support so that Ethiopia could expand its foreign market presence by at least doubling its current exports of 140,000 tons USD (90 million) through increased production levels through better inputs and sound agricultural technology (EIAR 2017)

The export of pulse crops in Ethiopia has not have a long time history as compared to coffee export history of Ethiopia. Pulses export from Ethiopia has started twenty to twenty five years back from now. The first chick pea export from Ethiopia to Pakistan was recorded 2002/3. In fact, Pulses production by volume has been increased by 71.92% for the duration of nearly 20 years and with a growth rate of 3.78% per annum. Area coverage by pulses crops for the same period has been increased by 53% with a growth rate of 3% per year. Total pulses grain yield, which is volume of production per unit area, showed significant increment from 8.79 quintals per hectare in the cropping year 1994/1995 to 14.76 quintals per hectare in 2012/2013 cropping season. However, it is much lower compared to the potential demonstrated in research managed fields. Area coverage and productivity are the two most important factors of production. From these data, one can safely deduce that the increment of volume of pulses production was attributed to both of the above

mentioned factors. Currently, the national average productivity of soybean, chick pea, faba bean, and grass pea is greater than the productivity of the pulses as a group (Atnaf, Tesfaye, & Dagne, 2015).

The country is historically famous for its production of oilseeds and pulses. Now, these items can be a major source of export earnings for the country next to coffee. However, the export procedures for agricultural products especially oilseeds and pulse are quite long and cumbersome, which undermines the country's competitiveness in the global market. In the face of the sharp reduction of the tariff in international trade, one of the major sources of increasing competitiveness for the traded items of any country remains in the ability to supply goods in the fastest possible time (EPOSPEA, 2016). Countries that are pursuing trade-led economic growth and development, improving the determinants of export performance are crucial factors. Countries can improve their competitiveness by increasing productivity, reducing the time and costs required for transportation and regulatory requirements involved in the process of exporting or importing any goods. Sometimes, these costs can be a substantial part of the value of the traded items, especially if the value of the time required is taken into account. The significance of trade facilitation by simplifying the regulatory process and procedures of cross-border trade, improving the conditions of transit procedures, and increased and efficient use of information and communication facilities has gained momentum and due importance in recent times.

Completion of any cross-border trade requires fulfilling regulatory and documentary requirements involving parties from both private and public sectors. To perform any such transaction completely, it requires harmonization and cooperation among many actors, service providers and regulators from both home country and partner country. Failure to meet these regulatory and documentary requirements or lack of proper coordination among the actors involved entails significant delays to complete the whole process of exporting, which eventually increases the costs of the items being traded (ERCA, 2014). In a nutshell identifying and examining the factors that significantly affect Ethiopia's export performance should facilitate the design of policies to improve the performance and ultimately overall economic growth. The objective of this paper is thus to look at the factors behind the poor export performance of pulse in Ethiopia. The paper identifies the major supply capacity and foreign market access factors and examines how much these factors affect the country's export performance.

## **1.2. Statements of the Problem**

Pulse export is one of the principal sources of the country's foreign earnings next to coffee, *chat*, hides and skins, and oil crops. Following the market liberalization in the early 90s, the role of state marketing parastatals in the local and export markets has declined considerably with increasing involvement of private market agents and private exporters. The government has also taken active role to improve the performance of the external sector by adopting various measures such as devaluation of the local currency, improving the licensing procedure and establishing and improving different organizations that have got direct link with export (Dawit and Demelash, 2003). Studies on export performance have proliferated in the last decades. Significant progress has been made in developing better theory and knowledge of the export performance. However, the field of inquiry is characterized by a diversity of conceptual, methodological, and empirical approaches that inhibit the development of clear conclusions regarding the determinants of export performance. In this paper, an updated review and synthesis of the empirical literature on determinants of Ethiopia export performance is offered. Despite the various constraints facing the export performance of Sub-Saharan Africa, developing countries in general and Ethiopia in specific, these primary commodity exports have a significant importance to the economy. Therefore, in order to improve its performance a close look at these constraints and analyzing them is indispensable (Ibrahim, 2007).

When we look at the case of Ethiopia, according to access capital report (2010), the country's exports reached a notable amount of \$2 billion in the just completed fiscal year, 2009/10. This export level is an impressive 38% increase from the \$1.5 billion in exports registered in the previous year, and nearly three times the average annual export level of the prior decade (2000-2009). Even though there is improvement in exports since recent years, it is not as such satisfactory. For instance, Exports of goods in Ethiopia are only about 7% of GDP, compared to an average of near 30% of GDP in Sub-Saharan Africa. Growth rates are also very modest if we make a comparison with Asian countries over a decades-long time frame. For example, Ethiopian's total exports were higher than that of Vietnam in the 1980s but are now just a tiny fraction: \$2 billion in Ethiopia versus \$65 billion in Vietnam (ERCA and IMF, 2010). Ethiopian export is based on agricultural products which constitute a substantial component of external trade generating a

significant portion of export earnings. For instance, according to data from MOT during the fiscal year (2015/16), total export in value were \$ 3.081 billion in addition to this when we look at the composition of commodities; coffee, oilseeds, chat, pulses in that order have contributed an average about 28, 17,9 and 7 percent of total export earnings respectively which is almost 46.11 % together. From this we can see that the country's exports are highly concentrated in few agricultural commodities (MOT report 2015/16) and Ethiopia's total export earnings by value declined by 8.5% in 2015/2016 from the previous year.

Countries export earnings are derived from only four principal Agricultural commodities such as coffee, oilseeds, pulse and khat, (Alemayehu, (2006). On the other hand, international organizations have often recognized that Africa's exports still face market access problems in the international markets (UNIDO, 2002; UNCTAD, 2008). However, Ethiopia's exports, declining prices for its exports, and limited destinations for Ethiopian exports. Both supply and demand side problems are typical African problems: For ex-ample, more than 50% of African share in total world exports is still very low, amounting to 0.01% in 2006 (WTO, 2007). In this regard, Alemayehu (1999) and Abay and Zewdu (1999) argue that Ethiopia's external trade has major problems both on the supply side – its dependency on few primary products, characterized by large fluctuations in volume; and a very high degree of concentration of exports on few commodities – and on the demand side – a low income elasticity for the type of commodities that Ethiopia exports. While there has been substantial growth in recent years, the current export market is underdeveloped. The less developed fragmented exporters operating at smaller scale in the market results in inconsistent export flows and thus, inconsistent demand for exports. The major causes of limited export development are inadequate market intelligence, inability to leverage scale efficiencies due to smaller size and non-conducive the business environment to due to missing credit and insurance; and inconsistent policy interventions (IFPRI, 2010).

Having the above information, even though there is a remarkable increase in the export sector it is not as intended and data shows that the export growth rate of Ethiopia is low as compared to many other African countries with similar features of economic structure and other features. So in considering those gaps, this paper tries to identify the key determinants of pulse export

performance in Ethiopia to come up with recent and reliable information that informs for responsible bodies and for deciding correct decision in policy making.

### **1.3.Objectives of the Study**

#### **1.3.1. General Objectives**

The overall objective of this study was assessing the determinants of pulse export performance in Ethiopia

#### **1.3.2. Specific Objectives**

- To examine the determinants of pulse export performance
- Assess the relationship between export performance and its determinants
- Investigating the relative importance of major factors that determine pulse export performance of the country

### **1.4. Significance of the Study**

The study has significance in broadening the knowledge about the existing export trade activities, performance and problems of pulse export trade in Ethiopia. The major contributions of the study fall into three categories: namely; (1) to provide recent information on the major factors influencing the performance of pulse export in Ethiopia to subsequent research works in the area, (2) as source of information for exporters to take their own internal decisions as to improve their capacity and enhance their performance and competitiveness, (3) the government and other concerned stakeholders may also take their own remedial actions so as to promote export growth in the country.

### **1.5. Scope and Limitations of the Study**

The scope of this study was limited to the analysis of pulse export performance determinants only for identifying the constraints and prospects of pulses exports towards achieving the country's development objectives. The study excluded the rest determinants of export performances and other types of exportable agricultural commodities. The research was bound in studying the export performance determinants in Ethiopia: using secondary data from survey.

## **1.6. Organization of the Study**

The research report has five chapters; The first chapter deal with back ground of the study, the basis upon which the study will make statement of the problem, basic question research, objectives of the research, significance of the study, delimitations or scope of the study. The second chapter contains basis of the study by reviewing the existing knowledge and literature about physical distribution mentioned by various several scholars. Chapter three presents the method and procedures that will be used in sample selection, data collection, analysis and presentation. It includes; sampling techniques, data collection method, study population, sources of data, sampling and sampling size and analysis method. Chapter four focuses on analysis and interpretation of the data collected through questionnaire. Chapter five will compromise four sections, which include conclusions and recommendations

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1.Theoretical Background

##### 2.1.1. Overview of Ethiopia's Pulses Production System

##### 2.1.1.1.Pulse Production Composition

Twelve pulse species are grown in the country. Of these, faba bean (*Vicia faba* L.), field pea (*Pisum sativum* L.), chickpea (*Cicer arietinum* L.), lentil (*Lens culinaris* Medik.), grass pea (*Lathyrus sativus* L.), fenugreek (*Trigonella foenum-graecum* L.) and lupine (*Lupinus albus* L.) are categorized as highland pulses and grown in the cooler highlands. Conversely, haricot bean (*Phaseolus vulgaris* L.), soya bean (*Glycine max* L.), cowpea (*Vigna unguiculata* L.), pigeon pea (*Cajanus cajan* L.) and mung beans are predominantly grown in the warmer and low land parts of the country. Among the individual varieties, faba beans (broadly known as horse beans) accounts for the greatest portion of production, at 36 percent, followed by haricot beans (17 percent) and chickpeas (16 percent). Other pulses (e.g., lentils, peas, lupines, and mung beans) account for the remaining 32 percent. While pulses are grown throughout the country, and account for 13 percent of cropped land area, production is concentrated in the Amhara and Oromiya regions (Table 1), which together account for 92 percent of chickpea production, 85 percent of faba bean production, 79 percent of haricot bean production, and 79 percent of field pea production. The region is also the largest producer of three out of the four major pulses varieties in the country (faba beans, chickpeas, and haricot beans), while Oromiya leads production in the other major variety - field peas (Yirga & Rashid, 2010). Table 2.1 provides a snapshot of production levels disaggregated by region and pulse variety. Explanations of low production in the other regions include: agro-climatic conditions; limited market access leading to less commercialization (as these regions are further away from main urban centers and seaports leading to limited access to both domestic and international markets), and; low population density. According to the 2007 national census, Amhara, Oromiya, and Addis Ababa account for 64 percent of the total Ethiopian population, compared to 6 percent and 1 percent in Tigray and Benishangul, respectively.

Table 2.1: Pulse production in Ethiopia by region, 2007

| Region                          | Population (million) | % of total population | Production shares by pulse types |            |            |               |
|---------------------------------|----------------------|-----------------------|----------------------------------|------------|------------|---------------|
|                                 |                      |                       | Faba beans                       | Field peas | Chick peas | Haricot beans |
| Amhara                          | 17.2                 | 23.3                  | 48                               | 20         | 62         | 42            |
| Oromiya                         | 27.2                 | 36.7                  | 37                               | 58         | 30         | 37            |
| SNNP                            | 15.0                 | 20.4                  | 10                               | 18         | 3          | 15            |
| Tigray                          | 4.3                  | 5.8                   | 4                                | 1          | 5          | 5             |
| Benishangul Gumuz               | 0.67                 | 0.9                   | 0                                | 2          | 0          | 0             |
| Total production (in '000 tons) | ---                  | ---                   | 696                              | 330        | 312        | 268           |

SOURCE: CSA 2008/09, Area and Production report; CSA 2007 census report for the population

### 2.1.1.2.Importance of Subsector to the Economy

Like for oilseeds, cultivation of pulses like chickpeas, red kidney beans and white pea beans is common in Ethiopia. Ethiopia produces more than 400,000 metric tons of chickpea annually and is the sixth largest producer of chickpeas in the world. Cultivation of pulses is carried out in both the highland and lowland areas of the country, mainly by peasant farmers. Currently, the country exports a large quantity of pulses to the international market (see figure 3). There are also a number of factories that process pulses in the country. Pulses, especially red kidney beans, are produced through major cooperatives that exist along the major regions of Ethiopia such as Tsehay Union in Oromiya and Mercha Union in Oromiya. Chickpeas on the other hand, are exported with contract-based linkage between large size business and small farmer's organizations (unions) such as ACOS Ethiopia(Ruters, Boere, Willems, Kidane, & Dolfen, 2015).



Table 2.2 Pulses export trend Ethiopia (EPOSPEA, 2015)

Pulses by Type for 2007-2014 GC (Hamle - Sene)

Volume in Tons and Value in '000 USD

| Sr. No. | Type             | 2009/10 |           | 2010/11 |           | 2011/12 |           | 2012/13 |           | 2013/14 |           |
|---------|------------------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
|         |                  | Volume  | Fob Value | Volume  | Fob Value | Volume  | Fob Value | Volume  | Fob Value | Volume  | Fob Value |
| 1       | Haricot Bean     | 81.635  | 45.246    | 102,026 | 57,932    | 63,699  | 39,469    | 183.458 | 122.626   | 102.394 | 70.187    |
| 2       | Horse Bean       | 61.165  | 35.741    | 41,027  | 24,166    | 35,302  | 25,525    | 35.981  | 21.746    | 38.985  | 20.629    |
| 3       | Chick Peas       | 53.873  | 26.013    | 61,536  | 39,639    | 60,346  | 45,354    | 73.953  | 48.193    | 46.338  | 25.681    |
| 4       | Lentils          | 22.985  | 21.061    | 3,683   | 3,243     | 272     | 322       |         |           |         |           |
| 5       | Green Mung Beans | 6.071   | 7.826     | 8,619   | 10,802    | 12,730  | 12,691    | 17.396  | 16.712    | 22.737  | 27.534    |
| 6       | Lupin            | 4.722   | 1.235     | 5,283   | 1,397     | 2,702   | 796       | 6.394   | 1.834     | 4.808   | 1.375     |
| 7       | Peas             | 952     | 545       | 412     | 230       | 51      | 37        |         |           |         |           |
| 8       | Vetch            | 510     | 208       | 1,909   | 905       | -       | -         | 5.924   | 3.049     | 12.545  | 4.964     |
| 9       | Soya beans       | 148     | 73        | 1,380   | 656       | 40      | 34        | 34.411  | 19.183    | 35.606  | 19.988    |
| 10      | Others           | 0       | 0         | -       | -         | 298     | 153       | 1       | 4         | 30.604  | 19.089    |
| 11      | White Pea Beans  |         |           |         |           | 50,834  | 35,346    |         |           | 59.628  | 61.574    |
|         | Grand Total      | 232.061 | 137.948   | 225.875 | 138.970   | 226.273 | 159.727   | 357.518 | 233.346   | 353.645 | 251.021   |

### 2.1.1.3. Internal Market

Pulses, which constitute approximately 13 percent of cultivated land and account for approximately 10 percent of the agricultural value addition, are critical to smallholder livelihoods in Ethiopia. Pulses contribute to smallholder income, as a higher-value crop than cereals, and to diet, as a cost-effective source of protein that accounts for approximately 15 percent of protein intake. Moreover, pulses offer natural soil maintenance benefits through nitrogen-fixing, which improves yields of cereals through crop rotation, and can also result in savings for smallholder farmers from less fertilizer use (Rashid, Yirga, Behute, & Lemma, 2010). Traditionally pulses, such as chickpeas, are processed at home to make Shiro stew. However, there are two companies that sell humus (processed peas): La Viva Fresh and Ambasel Trading. Additionally, Guts Agro and several other small to medium sized enterprises called Baltinas, process chickpeas locally into Shiro for local supermarkets.

### 2.1.1.4. Access to Finance

For pulses, availability of inputs such as quality seeds, fertilizer and credit is crucial for an efficient and effective marketing system. However, consultations with primary cooperatives, unions and government officials indicated that only about 1 percent of primary cooperatives and 10 percent of the unions have access to credit. This suggests that aggregating and trading activity is limited

by constrained access to finance, at least for smaller marketing actors. Larger traders in the major cities, however, are able to access formal credit to finance their business (Chilot et al, 2010).

#### **2.1.1.5.Challenges in the Value Chain**

The pulse value chain in Ethiopia is far from efficient and fraught with challenges. It is not well integrated, does not function as a unified system in a way that maximizes the welfare of all actors involved from production up to consumption and it is filled with informal actors and multiple traders and middle-men. Some of the major challenges within the sector are:

- Lack of continued supply because of low productivity as a result of crop failure because of limited use of improved inputs, small fragmented plots, marginal soils, limited use of improved varieties and inadequate farm management practices (Chilot et al, 2010).
- Lack of seed supply, while the seeds that are provided by the Ministry of Agriculture are not the types that are in high demand for export. The ministry and the Ethiopian Institute of Agricultural Research (EIAR) do not supply tailored-made packages or different varieties to producers of a specific type of pulse.
- Agro-climatic conditions: while agronomic practices such as the timing of plowing, fertilizer and insecticide applications, crop rotation, and weeding and harvesting are critically important to achieve optimum productivity, many farmers are unaware of their benefits. Limited knowledge of best practices for overall agronomic practices and post-harvest management has resulted in poor quality, low yielding pulses (Chilot et al, 2010).
- Across the value chain the perception about quality of products is low, including a lack of concerns relating to food safety standards and working conditions.
- The complexity of the chain implies that: (a) the quality of the product is reduced through excessive handling; and (b) multiple middlemen separate producers and exporters, so smallholders are unknowledgeable about the quality and type of demands in end markets (Chilot et al, 2010).
- Prevalence of mixed varieties in supply that negatively impacts on the quality of export products.

- Similarly, prevalence of storage insects and pests seriously affects quality of export products.<sup>68</sup> Limited storage facilities have constrained the efficiency of market actors involved in pulse aggregation and trading. Lack of adequate storage facilities contributes to post-harvest crop losses at about 15 to 20 percent of all pulse production.
- Lack of reliable information on prevailing international market prices for all ranges of commodities. In terms of market information, market participants typically have either no or flawed information on prevailing grain prices, supplies, stocks and inter-regional grain flows. A source of market information for importers and exporters is limited.
- Mechanization of pulse production is seen as a farfetched & ambitious plan by most experts involved in this sector. This connects to the lack of government attention that is given by the Ethiopian government to the sector, which favors support of cereals production.
- Limited market access leading to less commercialization (as the production areas are further away from main urban centers and seaports, leading to limited access to both domestic and international markets).

#### **2.1.1.6.Policies and Regulations**

In recent years, to develop the potential of the sector to supply high quality products for both the domestic and export market, various policy initiatives have been undertaken to increase the competitiveness of smallholder farmers. These policies paved the initial path for private sector participation in the pulse sector, contributing to improvements in production and exports. The initiatives seek to promote improved pulse production technologies with high yielding varieties, adoption of recommended fertilizer application rates and crop protection practices, and the promotion of pulse export trade and financing incentives to enhance the competitiveness of pulse exporters. In large part, these farm level efforts have fallen short of achieving the key goals of increasing smallholder productivity, maintaining steady and high quality production, and ensuring consistency in export volumes, primarily because of the lack of inputs and effective agencies to implement a cross-sectoral vision for the sector.

### **2.1.1.7.Challenges & Opportunities**

While pulses are grown throughout Ethiopia and account for 13 percent of cropped land area, production is concentrated in the Amhara and Oromiya regions, which together account for 92 percent of chickpea production, 85 percent of faba bean production, 79 percent of haricot bean (including white pea bean production), and 79 percent of field pea production . Amhara region also brings forward the largest producer of three out of the four major pulses varieties in the country. The primary producers of pulses are smallholders with small and dispersed plots under rain fed conditions. Women are also heavily involved in production, conducting the majority of on-farm labor during both planting and harvest, with additional activities in value-addition. Significant potential for productivity gains in the pulses sector are obvious. Comparisons between current yields with international and on-farm trial benchmarks demonstrate that for both chickpeas and faba beans, Ethiopia has substantially lower yields than on-farm trail and international yields would suggest possible. For example, although the Ethiopian average chickpea yield, at 1.2 tons per hectare is higher than countries including India, farm tests on experimental plots in Ethiopia have achieved yields from 2.9 to 3.5 tons per hectare. This implies a minimum productivity gap of at least 150 percent. At the farm level, productivity appears to be severely constrained by three major factors:

➤ **Limited or no use of chemical fertilizers for pulses (e.g., phosphates) -**

Studies in Ethiopia and elsewhere have demonstrated the productivity benefits for pulses from phosphate fertilizers (e.g., super- phosphates) in particular. Fertilizer use in Ethiopia is comparatively low, averaging 25 kg/ha of nutrients, and much of this is currently applied on cereals. Lack of fertilizer use can be subscribed to a limited access to credit, lack of import (especially of phosphate fertilizers) into the country and lack of awareness of the benefits of the use of such fertilizers. The use of fertilizer is especially important in light of multiple Ethiopia-specific studies that assert that soil fertility depletion is one of the fundamental causes for declining *per capita* production.

➤ **Very limited availability of improved seeds (most pulses are grown from unimproved cultivars with low genetic potential)**

Despite the release of a large number of improved pulse varieties which are adapted to a wide range of rainfall, soil and altitude regimes, the use of certified improved seeds by farmers is very low. A combination of factors explain low adoption: on the one hand, supply side constraints including extension, limit the knowledge of smallholder on production practices and benefits of diversification; on the other hand, a set of market-led demand constraints, particularly the price instability in 2008, led to diminished trust in the pulses sector for small producers after declining market returns.

➤ **The use of conventional agronomic practices (e.g., sub-optimal crop rotations, poor seed bed preparation)**

While agronomic practices such as the timing of plowing, fertilizer and insecticide applications, crop rotation, and weeding and harvesting are critically important to achieve optimum productivity, many farmers seem unaware of their benefits. Limited knowledge of best practices for overall agronomic practices and post-harvest management has resulted in poor quality, low yielding pulses. In particular, the lack of crop rotation is a key issue with respect to farm management practices. Currently, 13 percent of the land area used for grain production in any one year is devoted to pulses, suggesting a significant portion of the remaining cultivated area for grain is under mono-cropping. The adoption of optimal rotations, besides increasing the productivity of pulses and the subsequent cereal crop through improving soil fertility, can increase farmer income as area devoted to pulses increases.

Table 2.3 Area and production report: 2007 census report for the population (CSA 2008/2009)

| Region                          | Population (million) | % of total population | Production shares by pulse types |            |            |               |
|---------------------------------|----------------------|-----------------------|----------------------------------|------------|------------|---------------|
|                                 |                      |                       | Faba beans                       | Field peas | Chick peas | Haricot beans |
| Amhara                          | 17.2                 | 23.3                  | 48                               | 20         | 62         | 42            |
| Oromiya                         | 27.2                 | 36.7                  | 37                               | 58         | 30         | 37            |
| SNNP                            | 15.0                 | 20.4                  | 10                               | 18         | 3          | 15            |
| Tigray                          | 4.3                  | 5.8                   | 4                                | 1          | 5          | 5             |
| Benishangul Gumuz               | 0.67                 | 0.9                   | 0                                | 2          | 0          | 0             |
| Total production (in '000 tons) | ---                  | ---                   | 696                              | 330        | 312        | 268           |

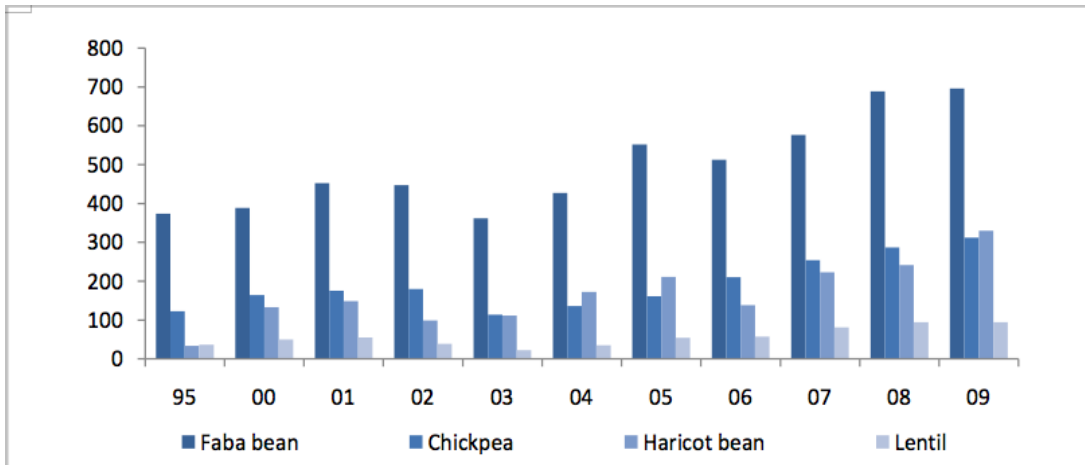


Figure 2.1Pulses production by pulsetype (1994/95to2008/09),000s tons (Chilotetal., 2010)

### 2.1.2. Export Performance and Competitiveness

Ethiopia's development model is partly inspired by the East Asian experience that realized high economic growth through the development of new export sectors and government-led development investments. No doubt, exports played a major role in East Asia, and developing a larger export base in a market-based system provides a unique opportunity for Ethiopia. However, the country's exports measured in percent of GDP falls short of reaching the heights seen in Korea, China, or Vietnam during their development periods (World Bank 2012a). Expansion of exports is often behind spurts in economic growth. A thriving export sector helps align the domestic economic incentive structure with areas in which a country has comparative advantage. This is desirable from the perspective of resource allocation. Furthermore, successful exports create dynamic efficiency gains by exploiting economies of scale, adopting best practice foreign technologies and business processes, and by being subject to higher international competition. Export sectors are also associated with productivity gains leading to wage premiums and job creation. There is also a foreign exchange element of exports that is important for sustainable growth of an economy. Exports help finance imports, especially of capital goods, and enable countries to maintain a more favorable balance of payment situation. Ultimately this means that countries are in a better position to repay their external loans. Better availability of foreign exchange in an economy will also ease the overall financing burden for companies to trade. On

the other hand, competitively priced imports used as inputs to the production process are an import part of overall competitiveness of companies (World Bank, 2014).

Exports indeed appeared as a driver for economic development in Ethiopia over the past Decade, but the export engine is sputtering. High export growth was one of many factors contributing to Ethiopia's economic takeoff since 2004. Although causation is always difficult to prove empirically, it is noteworthy that Allaro, (2012) finds that exports "Granger cause" growth in Ethiopia. However, Ethiopian exports are exhibiting their worst performance in a decade. Even if outside factors (e.g. declining prices) are partly to blame, it is important to introduce policies now that can improve competitiveness and boost future export and growth performance. The challenge of development has become more complex since the rapid growth experience of the East Asian economies. While East Asia relied on manufactured exports for its growth, this course alone will not suffice for Ethiopia during an era of fast-changing modes of trade and production in the world economy. Growth and competitiveness today is increasingly linked to a tight complementary potential of exports *and* imports, as well as capital inflows, outflows, and domestic investment to enhance productivity in agro-based as well as classical manufacturing that increasingly draws on modern, competitive services as intermediate inputs.

#### **2.1.2.1. Growth of Exports in Agriculture sector**

Agriculture proved to be a driving force in output growth over the past 15 years, second only to services. At the same time agriculture is the sector in which most new employment was generated, with a share of more than 72 percent of the 11.6 million jobs created over the past 15 years. Yet, labor productivity advances are relatively low in the sector with growth rates at around 2.5 percent compared to 6.1 percent for the services sector and 5.4 percent in the trading sector. Given the large size of the agriculture sector, it is imperative that continued efforts are made to make the sector more productive. Indeed, relatively higher past productivity growth rates in the trading sector indicate the potential of advancing agriculture trade. Ethiopia's expansion of horticulture marks a spectacular export success of the past decade. The cut flowers industry grew from one single firm in the year 2000 to about 100 firms today, contributing to export earnings to the tune of US\$200 million (Dinh, Rawski, Zafar, Wang, & Mavroeidi., 2013). Estimates are that the sector employs more than 50,000 individuals who, in turn, support the livelihoods of about 250,000 people. While over 80 percent of the flowers are destined for the Dutch auctions, there have been

recent efforts to seek new markets. New routes opened by Ethiopian Airlines, such as South Korea and Singapore often determine the direction of this search. Indeed, a decisive factor in the exponential growth of the flower industry is the expansion of Ethiopian Airlines' cargo capacity and passenger flights. With a functioning air cargo system now in place, the experience of the flower industry could be relevant to developing new (diversified) export opportunities, which are in close "proximity" to flowers.

The discovery of this new export activity is welcome against the backdrop of a nascent manufacturing industry. Cut flowers, which are classified as agricultural raw materials, can be expected to share more product characteristics with the processed foods category, which includes fresh fruits and vegetables, poultry, fish, and dairy products. These are known to fetch higher value in world markets than unprocessed agricultural commodities. They require some form of technological processing before being exported and are then typically subjected to stringent food safety standards. Processed foods are, therefore, distinct from traditional beverages (such as tea and coffee) and cereal grains (such as wheat, maize, or rice) which are generally exported in bulk. There are three reasons why processed food, and by the same logic, horticulture, are important for export growth: First, income and price elasticity of demand for processed food are higher than most traditional primary agricultural products. Therefore, diversification of the export mix into this commodity category can nudge export growth combined with terms of trade gains. Second, the final stages of food processing are labor-intensive and help create jobs. Finally, processed food products typically have greater domestic input content and value-addition (Athukorala & Waglé., 2013).

Ethiopia has a revealed comparative advantage in about 80 export products. Comparing the relative share of Ethiopian export sectors with corresponding shares for the world computes the Revealed Comparative Advantage (RCA). If the value of RCA exceeds one for a sector, the country is said to have "revealed" comparative advantage in that sector. In terms of major export sectors, Ethiopia has a revealed comparative advantage in two of eight, namely food and beverages (RCA: 9.8) and agricultural raw materials (RCA: 4.3). Somewhat surprisingly, given recent foreign direct investment, the results suggest that Ethiopia does not have a revealed comparative advantage in apparel and footwear (RCA: 0.5). On the other hand, Ethiopia has augmented its performance in



this category compared to a decade ago where RCA was 0.1. In three products, Ethiopia ranks among the top eight exporters in the world: fourth in cut flowers, second in sesame seeds and eighth in coffee beans.

### **2.1.2.2. Pulse Export Dynamics**

The most important export pulses include haricot beans, chickpeas (large type), faba beans, lentils and field peas. Ethiopia exports pulses to many countries in Africa, the Middle East, Europe, Asia and America. Pulses, especially the haricot peas, are exported through major cooperatives from Tsehay Union in Amhara and Mercha Union in Oromiya. Chickpeas, on the other hand, are exported with contact based linkage between large size business and small farmer's organizations (unions) such as between ACOS Ethiopia P.L.C. and their suppliers (see boxed text on page 15). At the moment, most of the ACOS exports are to Europe in the gap where Mexico cannot meet European demand. According to pulse sector investment profile (2016), Pulses form a substantial portion of Ethiopia's diet, especially for peri-urban and rural consumers, and its domestic demand rises- from time to time, along with its domestic price. White pea beans and chickpeas are important crops within the Ethiopian pulses export sector. Ethiopia exports a sizeable amount of pulses to the global market. The total export volume and value of pulses has increased from 224,875 tons in 2010/11 to 353,646 tons in 2013/14, and US\$ 137.9 million in 2010/11 to US\$ 251.02 million in 2013/14 respectively. Based on export earnings in 2013/14, pulses are Ethiopia's fifth most important export crop. Some chief export pulses are chickpeas, faba beans, field peas, haricot beans, and lentils. Pulses are the fifth largest export crop, after coffee (21.9%), oilseeds (20%), gold (14%) and chat (9.1%), with a share of 7.7% contributing US\$ 250.7 million to export earnings in 2013/14 (EIC, 2016).

Ethiopia exports pulses to numerous African countries, as well as in Asia, Europe, the Middle East and the United States of America. Some chief pulse destinations are Yemen, the Republic of the Sudan, the United Arab Emirates and South Africa. These countries' importance as a destination for Ethiopia's pulses fluctuates from year to year. Whereas demand for Ethiopian pulses rose steadily in Italy, India and Yemen, Romania, the Kingdom of the Netherlands and the Kingdom of Belgium, demand was inconsistent for the United Arab Emirates, the Sudan, the Islamic Republic of Pakistan, the Kingdom of Morocco and the Kingdom of Saudi Arabia. Therefore,

Ethiopia must work on ensuring a constant demand for its pulse exports, but it will be challenging to sustain continual demand by country. The export coverage of import has been 33.3%, 28.9% and 26.8% for the years 2010/11, 2011/12, 2012/13 respectively (Seid, 2015).

Pulses accounted for 7 percent of Ethiopian exports in 2012, and while their export value declined in 2009 during the global financial crisis it recovered robustly thereafter. Export value, quantity, and unit prices of pulses have been on the rise since 2009. The number of Ethiopian pulses exporters was 380 in 2010 but declined to 330 in 2012 (Figure 2.2.1). Pulses exporters accounted for 18 percent of total exporters in Ethiopia in 2012. The pulses export sector appears to have a higher level of churning than other export sectors in Ethiopia as its share of total entrants and of total exiters exceeded its share of total exporters in all years (Figure 2.2.2). With increasing unit prices and a declining number of exporters, the average size of pulses exporters increased between 2008 and 2012. While the growth in the average size of pulses exporters in 2012 was mostly driven by growth in the size of incumbent exporters, growth in the median size of pulses exporters is driven by the increase in the median size of entrants, which nearly doubled between 2009 and 2012 (2.2.3). The share of large exporters selling over US\$5 million annually was almost zero before 2011 and increased to just 2 percent of total pulses exporters in 2012. Prior to 2011 the largest share of exports corresponded to exporters selling US\$1–5 million annually but in 2012 that largest share corresponded to large exporters. It is also worth noting the high share of exports corresponding to mid-size exporters (Figure 2.2.4)(World Bank, 2014).

The number of entrants and incumbent exporters of pulses in Ethiopia was almost unchanged in 2008–2010. It only changed thereafter. In 2011 the number of entrants declined and that of incumbents increased and the share of incumbents in total exporters increased to 61 percent. The entrants' share of pulses exports also increased in 2010 and declined thereafter. There was a big decline in the exit rate of pulse exporters in 2010 but it rebounded in 2011. In contrast, entry rates increased slightly in 2009–2010 but declined in 2010–2011. While the gap between exit rates and entry rates narrowed in 2012, exit rates remained higher than entry rates. Looking at destinations, Pakistan and India became the largest importers of Ethiopian pulses in 2012. The entry rate of pulse exporters into Pakistan was 59 percent while the exit rate was 30 percent in 2012. For India the corresponding numbers were 68 percent (entry) and the 42 percent (exit). Regarding Sudan,

the exit rate remained higher than the entry rate over the period and the one-year survival rate of new exporters declined between 2009 and 2011. In contrast, survival rates of new pulses exporters in the EU are on the rise from 18 percent of new exporters in 2009 to 50 percent in 2012 (Figure 2.3)(World Bank, 2014).

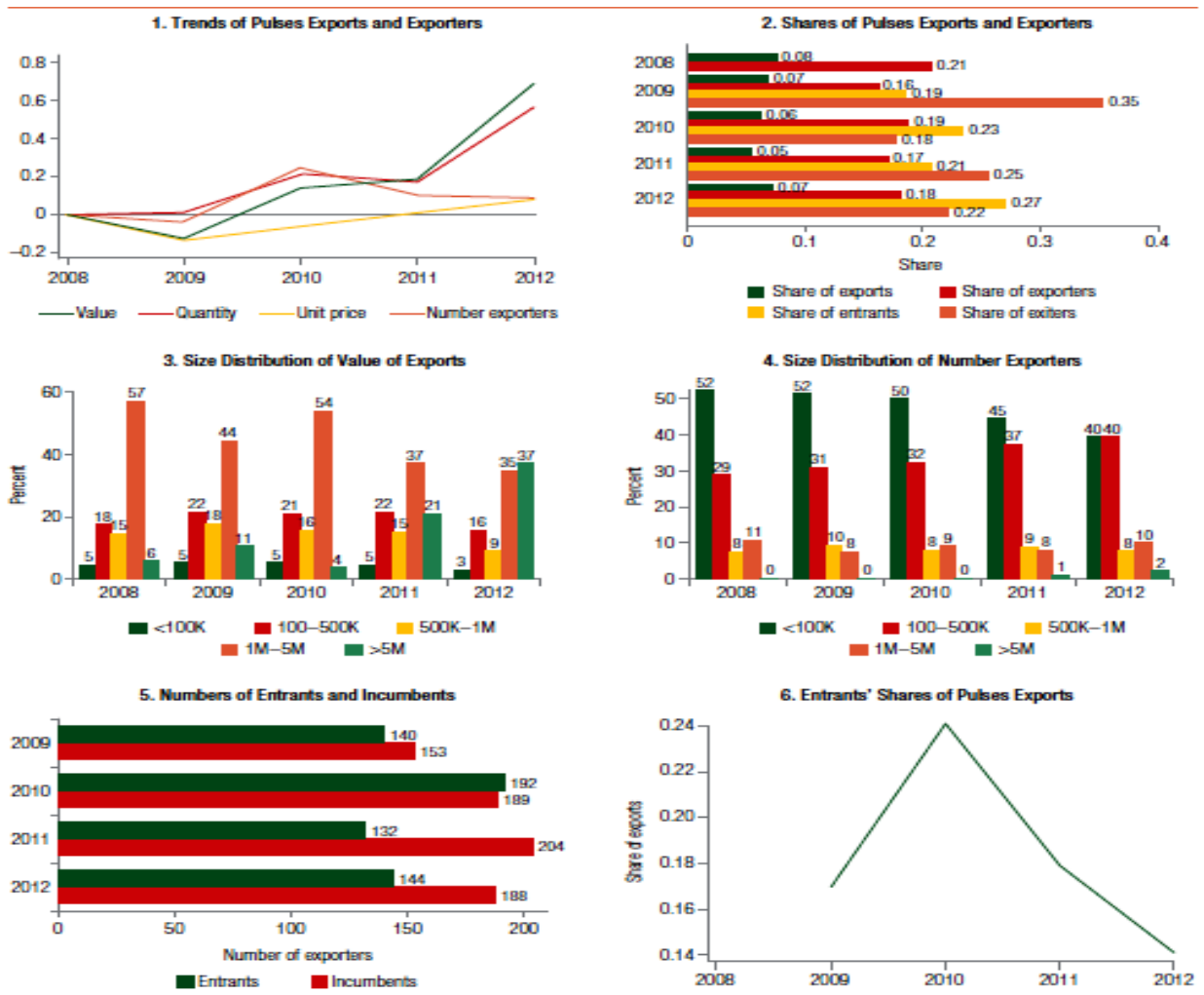


Figure 2.2 Exporter Dynamics: Pulses



Figure 2.3 Dynamics of pulses exporters in main destinations

Ethiopia is now one of the top ten producers of total pulses in the world, the second-largest producer of faba beans after China, and the fifth or sixth largest producer of chickpeas. Within Ethiopia, pulses are the third-largest crop export behind coffee and oil seed, and represent a USD 90 million export industry (Figures 2.4 and 2.5).

Percent of Total Export Earnings, 2008/09

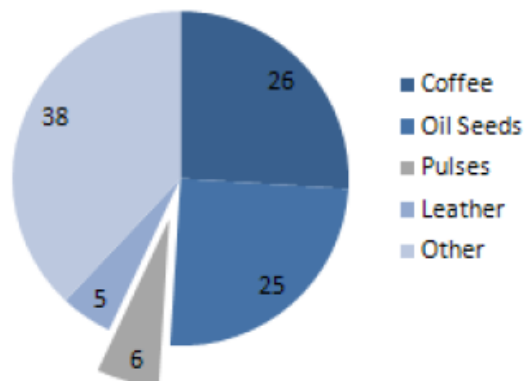


Figure 2.4 Importance of pulse export to total export earnings

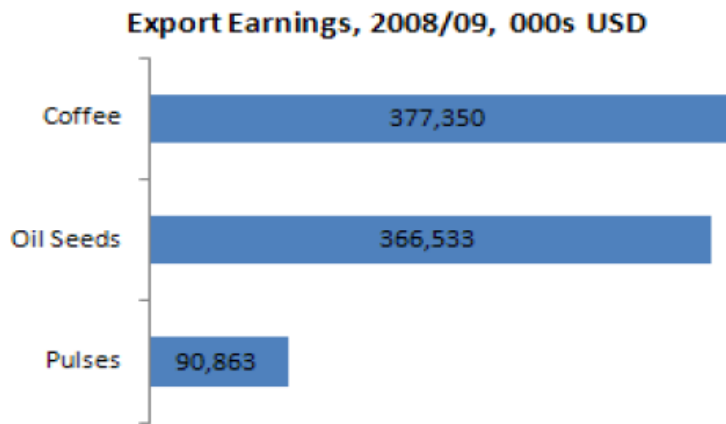


Figure 2.5 Importance of pulses export to total export earnings

The role that Ethiopia now plays in the international pulse market can be attributed to significant growth rates in pulse production over the last decade (Figure 2.6, Figure 2.7). For instance, in 1994/5 the country produced only 742 thousand tons of pulses, compared to 1.25 million tons in 1999/2000 and to 1.8 million tons in 2007/08 (Figure 2.6). This growth of 243 percent between 1994/95 and 2007/08 implies an annual growth rate of 17 percent. Growth rates for individual varieties of pulses are even higher. The total production of haricot beans, a key export, was only about 34 thousand tons in 1994/95 and increased nearly tenfold to 330 thousand tons in 2008/09. From 1994/95 – 2008/09, rates of production growth for chickpea, haricot bean, faba bean, and lentil were 12, 43, 7, and 15 percent respectively. For each variety, the rates of production growth outpaced rates of growth in cultivated land, suggesting parallel gains in per hectare productivity.

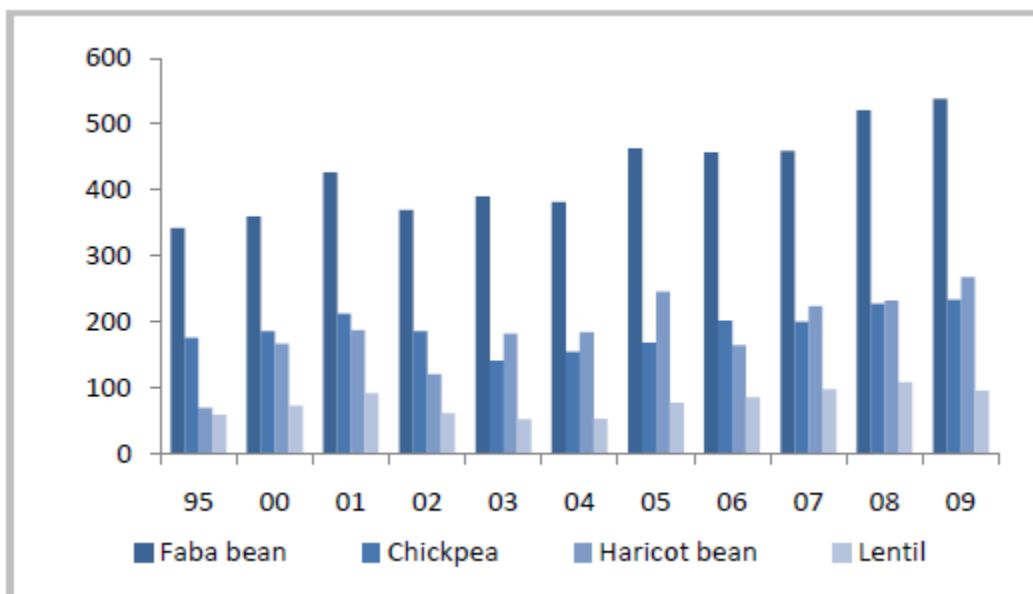


Figure 2.6: Pulses crop area by pulse type (1994/95 to 2008/09), 000s ha

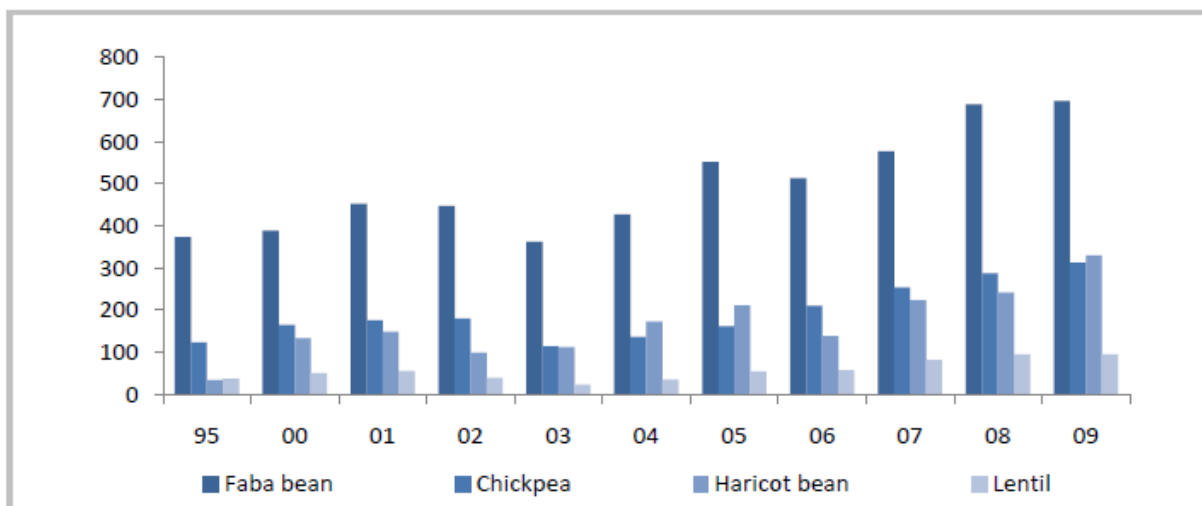


Figure 2.7: Pulses production by pulse type (1994/95 to 2008/09), 000s tons

Although production continued to increase through 2009, export volumes dropped by 42 percent in 2008/09 (from 233 tons to 136 tons). As shown in Figure 10, after consistent growth in prices in global pulse markets for several years, global prices fell in 2008/2009. This caused the local price for pulses to rise above the export parity available to smallholder farmers. Farmers sold on domestic markets (as the export price was not high enough to justify transport and cleaning costs),

further depressing the farm-gate price, or stored their pulse supply, anticipating an upswing in the global price. This price volatility exacerbated challenges throughout the value chain, causing sourcing problems for exporters and traders and limiting ability for the off-take market to function. This impact also had lagging effects on pulse production, with estimates showing fewer pulses planted in 2009/2010 season and a potential for pulse shortages in 2010.

### **2.1.3. Determinants for Performance of Pulse Export**

Even though there are many Export Performance determinants studied by various researchers such as, terms of Trade, (TOT) Trade openness (TO), Exchange rate (ER), Foreign Direct investment (FDI), Foreign price level, and total production are determinants of pulse export in Ethiopia.

#### **2.1.3.1. Foreign Price Level**

The price of exports on the international market is one of the major determinants of export growth especially for countries which depend on the exportation of agricultural products whose prices fluctuate from time to time. A study in South Africa by Edwards and Golub (2004) found that foreign prices have a strong impact on manufacturing sector's export growth. They used time series data and got a significant positive coefficient of foreign prices. A similar study in Sub Saharan African countries by Rafik and Svedberg (1990) also revealed that protection in form of export quotas and price decline of primary commodities accounted for one third of the total world market share loss by Sub Saharan Africa. In the same way, Ndulu and Lumumba (1990) studies opportunities and constraints to trade and their influence on growth and development of African economies, discovered that foreign prices of primary commodities significantly affect the export performance of country's production. In summary, when we see the empirical review of different studies conducted on different times in developing countries there have been glaring contradictions on the determinants of export growth rate and in addition to this a lot of changes are occurring in the overall economy in the recent years so this initiated the researcher to conduct a further research to identify plausible determinants of export growth rate so that information is provided to the concerned authorities hence leading to the formulation of corrective policies to address the problem.

#### **2.1.3.2. Trade Openness (TO)**

International trade is presumed to play important role in economic growth through efficient resources allocation. Transfer of technologies, transmission of innovative ideas and diffusion of managerial skills are the other positive benefits of international trade. Many studies recognize the positive and significant relationship between international trade and economic growth and attracted policy makers, particularly from developing countries, to increase the role of international trade in fostering the economic growth process. Trade liberalization has been a prominent component of policy advice to developing countries to enhance economic growth and development. Since, free trade encourages the production of those commodities in which countries possess comparative advantage. This can leads to enhance the productivity and increase in level of production resulting from allocation of resources(Usman, 2014).

Trade liberalization encourages competitive environment and contribute towards efficient allocation of resources. Due to the reduction in tariff and non-tariff barriers, the firms can directly enjoy the benefits from relatively lower prices of goods. This can encourage domestic and foreign investment and eventually leading towards economic growth and development. In the recent years, we can locate a good contribution in economic literature dedicated to explore the relationship between trade openness and exports led economic growth. During the last two decade developing countries have open their boundaries for trade and have adopted export promotion strategies to achieve their growth objectives. The higher export growth benefits the domestic economy in terms of efficient allocation of resources, economies of scale and technological spillover. The proponents of openness of trade argue that the trade openness reduces anti-export bias and makes export more competitive in the international markets, mainly by reducing exchange rate distortions and export duties.

#### **2.1.3.3.Exchange Rate (ER),**

Most of them discuss these asymmetric effects within a micro-economic modeling framework. Froot & Klemperer, (1989) point out that the asymmetric response of stock prices to currency movements may occur due to asymmetric pricing-to market behavior. When the domestic currency appreciates, exporting firms with a market share objective do not permit local currency prices to increase because of the risk of losing their share, so they decrease their profit margins. On the other hand, under currency depreciation, exporting firms with a market share objective maintain rather



than increase their profit margins as a result of their focus on sales volume. Other studies supporting the same arguments are Goldberg (1995). Another type of the asymmetric effects of exchange rate fluctuations on exports is proposed by Baldwin and Krugman (1989) and Dixit (1989). They argue that new export competitors enter the market during depreciation periods. However, these competitors remain in the market when the currency appreciates.

Obstfeld, (2009) posits that one of the puzzles in global macroeconomics is the small impact that large and significant exchange rate movements have on exports and imports. They conducted a study on international finance aspects and growth in emerging countries and found that there is a very small but significant impact of large exchange rate policy movement. Exchange rate policies changes can be identified by the changes in exchange rates of a country. Consequently, there is a significant disconnect between international products (imports and exports) and exchange rates. However, Darva, (2012) observe that large exporters are often large importers. From diverse studies that have deduced a positive co-integration relationship between exchange rates and international trade, it is expected that there is a co-integrated relationship between exchange rates and exports-imports. However, there are several studies, such as (Genç, 2009), who indicates that there is a negative relationship between exports and exchange rates.

Some authors in economics such as Bailey (2009) and Bhattarai (2011) have argued about free independent exchange rate movements which are not the result of central bank' interventions as a monetary policy maer. De-Paoli (2009) demonstrates the arguments on the desirable degree of foreign exchange rate policy have persisted for decades. Similar arguments are postulated by Alam& Ahmed (2012) who indicated that some researchers in the field of economics and even academia have argued that exchange rates should be determined freely by the mechanism of supply and demand. In other words, markets should determine the optimal level of exchange rates.

#### **2.1.3.4. Foreign Direct Investment (FDI),**

No matter the level of economic development, countries are oriented towards the creation of economic policies that encourage attracting FDI. They want to realize the benefits from FDI. It is known that FDI can encourage the countries' economic development by making companies become more competitive, bringing new capital, new technology and growth of the employment. The process of globalization has tremendous impact on the spread and growth of foreign direct investment. Today enterprises are more aggressive than ever before in the global market. One of the strategies to enter firms in the global market is FDI. The concept of FDI and trade are in coherence to each other. Investments as economic concept represent a step preceding the trade. Successful entities before the start of the production process, they need to plan production cost and the margin profit. Both of these are elements that are related to the orientation of investment decision. Western Balkan countries are a diverse and complex region. They are characterized by political instability and low level of income compared to the other part of Europe. These countries, most of them are still in the transition phase and that takes a long time; they consider that the role of FDI is an engine for their economy. The FDI contributes to the economic growth by providing additional financial capital and managerial and marketing skills. Foreign direct investments are investments that are associated with the movement of production of goods and services across the border. FDI are real asset investments. Investor's role is active. It has the right to control the company (Selimi, Reçi, & Sadiku, 2016).

Foreign direct investment is seen as a major source of getting the required funds for investments since most developing countries offer incentives to encourage FDI (United Nation, 2005), (2005). According to the report issued by the United Nations Conference on Trade and Development (UNCTAD), FDI flows have achieved growth rates higher than the growth rates in foreign trade and GDP globally (UNCTAD, 2005). With foreign direct investment companies can expand their production operations because they have larger capital and the ability to borrow from international markets, thus benefiting from economies of scale, leading to an increase in exports of a host country. In addition, local companies in host countries benefit from the trade information available to foreign direct investment companies from international industrial and commercial organizations. This also motivates local companies and drives them to improve their production, which is reflected in the increase of exports. This is the indirect effect (Jaumatte, 2004). Policymakers, especially those in developing countries, have come to the conclusion that foreign

direct investment is needed to boost economic growth. It is claimed that FDI can create new employment opportunities, increase technological development in a host country and improve the economic condition of the country in general.

Economic openness to the outside world in all its dimensions is one of the main pillars of the general economic policy in Jordan. Openness of Jordanian economy with all its privileges would convey it from the previous stage which was depended on the protection and government support to the current stage based on economic liberalization, raising productivity and competitive advantage for the private sector. Successive governments of Jordan has worked to improve the investment climate through the process of updating and developing legislation in order to attract foreign capital where a number of agreements signed, at this, economic openness policy was one of the most important issues. Jordan has signed trade agreements with the United States and the European Union and the Arab states. It also joined the World Trade Organization in 2000 and signed the Establishment of Qualified Industrial Zone (Jordanian Economic and Social Council, 2012).

## **2.2. Empirical Background**

G/Hiwot, (2018) analyze the major determinants that affect the performance of oilseeds and pulse export in Ethiopia. Multiple leaner regressions are employed using SPSS version 20 software to examine the effects of the selected variables on the performance of export oilseeds and pulse. From 565, oilseeds and pulse exporters 130 have been taken residing Addis Ababa and Adama towns using simple random sampling technique as primary sources of data. The findings implied that the foreign price level' production/productivity, quality of the product and real effect exchange rate were found to be positively and significantly affect export performance. Whereas, and Infrastructure/rural feeder road were found not to be as such influential factors to deter performance of oilseeds and pulse export in Ethiopia. Based on the findings of the study it were recommended that enhancing productivity, keeping quality of the product, making stable foreign exchange rate and improve the foreign price level areall important.

Alemu, Ferede, Habte, Tesfaye, & Ayele, (2010) analyze the challenges and opportunities of Ethiopian pulse export. The increased trend in the production of pulses due to productivity improvement and area expansion; the emergence of new pulse crops for export; improvement in

the storage, cleaning, and grading capacity of exporters and wholesalers; and the existing favorable public support for export have supported the increase of export over the years. However, the export performance in the last quarter of 2008 and in the first quarter of 2009 has shown a declining trend. The major reasons of this trend are related to international demand decline, poor seed quality of local production, huge domestic demand, and unstable domestic market. In order to overcome the stated constraints the researcher forwards recommendations such as improving access and use of improved varieties of pulses that have, international demand is essential. This need to be augmented with promotion, of farmers' access to pulse markets with premium price for quality; the existing domestic market for impurities (by-products from cleaning and grading activities) need to be regulated as this is increasing the cost of cleaning and grading for exporters, which in turn is reducing their competitiveness; and Promotion of availability of market information, which enable all market actors to make right market decision and to reduce the impact of misbehaving brokers;

Yirga & Rashid, (2010) make a study entitled with Pulses Value Chain Potential in Ethiopia: Constraints and opportunities for enhancing exports. The findings in this report demonstrate the importance of pulses as a significant contributor to the economic and social development of Ethiopia. Pulses have the potential to be a significant driver for smallholder livelihood improvement and food security in Ethiopia. The consistent growth in the demand for exports and the relative proximity of Ethiopia to these growing markets is an opportunity to substantially boost earnings. Diversification by small-scale producers, rotating staple cereal production with cropping pulses, is an important income opportunity. From the food security dimension, the nutritional effects to enhance protein consumption for the rural poor will make needed inroads. Finally, from a macroeconomic perspective, boosted exports in pulses stands to improve foreign exchange and allow for continued imports of necessary productive inputs. Realizing the full potential of the crop as a component of Ethiopia's long-term food security and growth relies on clear direction and execution capacity from GOE and a wide number of stakeholders. To achieve the latent potential in the sector, several constraints must be addressed. These are all within the capacity of the Ethiopian government to stimulate. A common vision among all stakeholders and the roadmap to undertaking the respective roles of different actors with the confidence in safeguards in place is critical.

Kabata et al (2017) study sought to gain an understanding of the determinants and constraints of pulse crops based on data collection in 2013 from 250 households in Oromia regional of Ethiopia. Determinants of production and consumption were identified using logistic regression. The result showed that Haricot bean was produced widely but not widely consumed, while Lentil is widely consumed but not produced. Production of haricot bean was hampered by problems related to weed control disease, pests, yield and soil quality, a seasonal market, and a shortage of farmland. Consumption of haricot bean was low due to perceived gastrointestinal distress after eating and the culture of it being at a taboo food. Logistic regressions how education of household head educational status and age, land size and household size statistically significantly affected household pulse (haricot bean and lentil) consumption frequency. Agronomic market, culture and household characteristics related determinants and constraints were identified. Also a mismatch of production and consumption was observed in the study. It is recommended that agronomic and market concerns related to production of haricot bean and other pulses are addressed and that household food preparation techniques for pulses that reduce gastrointestinal symptoms be promoted and evaluated.

### 2.3. Conceptual frame work

The research describes the determinants of pulse export performance in Ethiopia; there are independent variables and dependent variables which are expressed below.

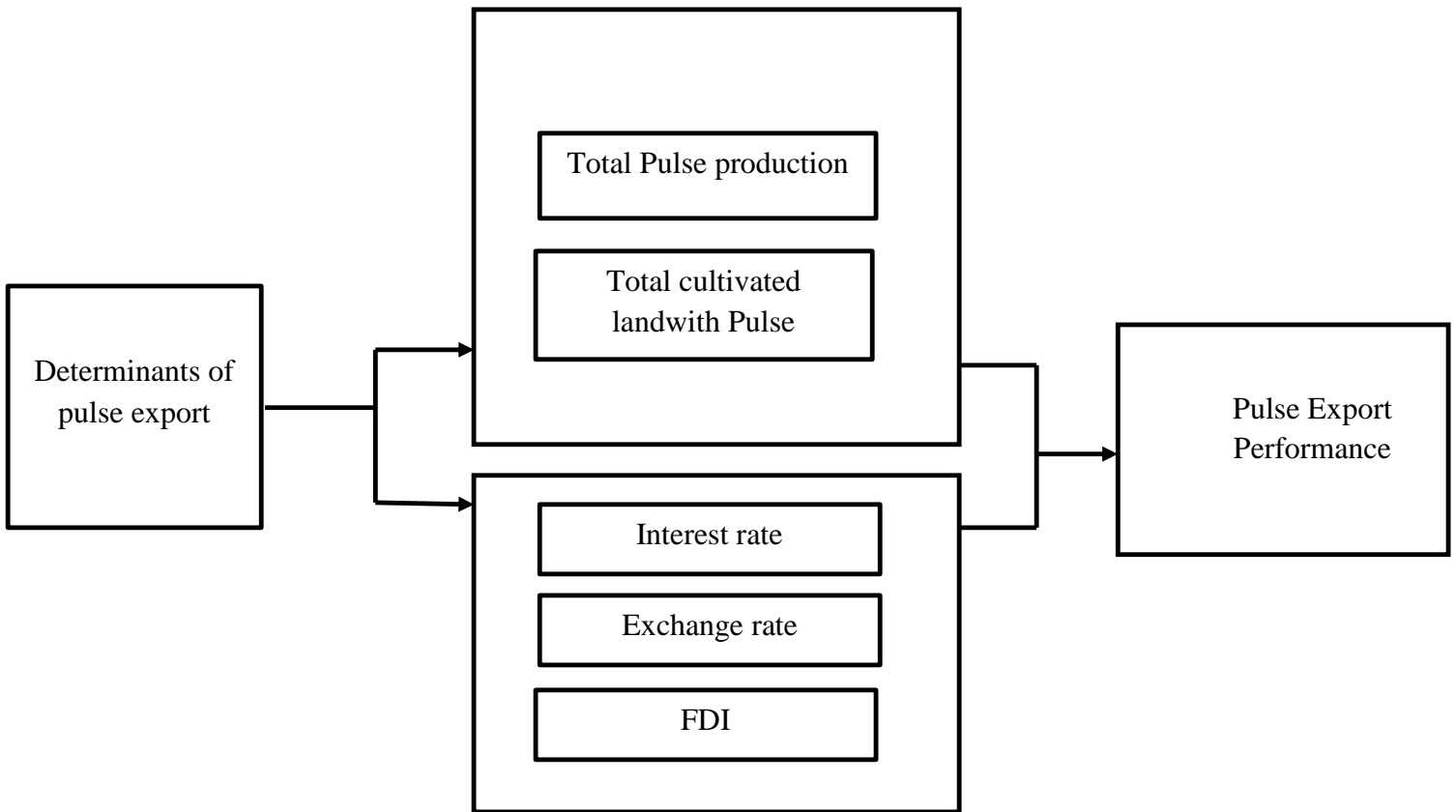


Figure2.1 Conceptual framework showing the determinants of Pulse export

## **CHAPTER THREE:**

### **RESEARCH METHODOLOGY**

#### **3.1. Research Design and Approach**

For the purpose of analyzing the determinants of pulse export performance in Ethiopia, the researcher employed quantitative method of research approach; Quantitative research is an approach for testing objective theories by examining the relationship among variables. Furthermore, explanatory research design was adopted to analyze the determinants of deposit; explanatory research seeks explanations of observed phenomena, problems, or behaviors, where it seeks answers to why and how types of questions. It attempts to “connect the dots” in research, by identifying causal factors and outcomes of the target phenomenon.

#### **3.2. Source, Type and Method of Data Collection**

A time series secondary data were used for the purpose of this study. The major data source for the investigation was the National Bank of Ethiopia, Central Statistics Authority of Ethiopia, World Bank and other related official sources. The time series data is 19 year data ranged from 2000 to 2018

#### **3.3. Method of Data Analysis**

Upon collection of all data, the data are processed, edited, classified and organized in order to enable the researcher interpret and summarize the data. Data will be analyzed using both descriptive and inferential statistics techniques. In descriptive statistic the researcher use percentages, correlation and frequencies as well as mean and standard deviation that help to analyze the data where as in the inferential techniques which is known as regressions particularly ordinary least square (OLS) was employed which shows not only the relationships or associations existing between variables it helps to analyze the extent to which one (independent) variable predicts the other (dependent) variable. Further, the collected raw data were classified and compiled to make assessment manageable and understandable using STATA as well as Excel.

The dependent variable is the yearly pulse export and the anticipated independent variables are exchange rate, inflation, international average pulse price, local pulse price and GDP.

### 3.3.1. Anticipated Variables

In this study five variables were considered as independent variables which are expected to affect bank export performance of pulse, these are total production, total cultivated area, Interest rate, exchange rate and foreign direct investment.

| <b>Variables</b>                | <b>Description</b>                            | <b>Type</b> |
|---------------------------------|---|-------------|
| <b>Pulse export performance</b> | yearly total export of pulse crops            | Dependent   |
| <b>Total production</b>         | Yearly total production of pulse crops        | Independent |
| <b>Total cultivated area</b>    | The yearly total area coverage of pulse crops | Independent |
| <b>Interest rate</b>            | Yearly national interest rae                  | Independent |
| <b>Exchange rate</b>            | Yearly Official exchange rate                 | Independent |
| <b>FDI</b>                      | Yearly, foreign direct investment             | Independent |



## CHAPTER FOUR

### DATA ANALYSIS AND INTERPRETATION

#### 4.1. Trend Analysis of Variables

##### 4.1.1. Trends of Pulse Export (2000 - 2018)

Pulse incorporate more than one crop such as Haricot bean, horse bean, chick pea, soya beans etc. the following trend graph shows the export performance of Ethiopia for the past nineteen years ranged from 2000 to 2018. Accordingly, as shown in the trend map the pulse export of the country was moving at a very slow rate between 2000 and 2008 with a little fluctuation; however, in 2009 the export goes down. Starting from the year 2010 the export booms drastically with a high increasing rate until 2015; in 2015 the export again shows a little stagnation; and as shown in the trend graph below starting from the next year up to the end of the trend graph the export of pulse continuously increases. Overall, the countries pulse export increases year to year. The maximum export performance was recorded in 2018 which was 7.1 million birr, and the minimum export was happened in 2000 which was around 72,799.62 Birr where within this all year on average the country was generating 22.4 million Birr from pulse export.

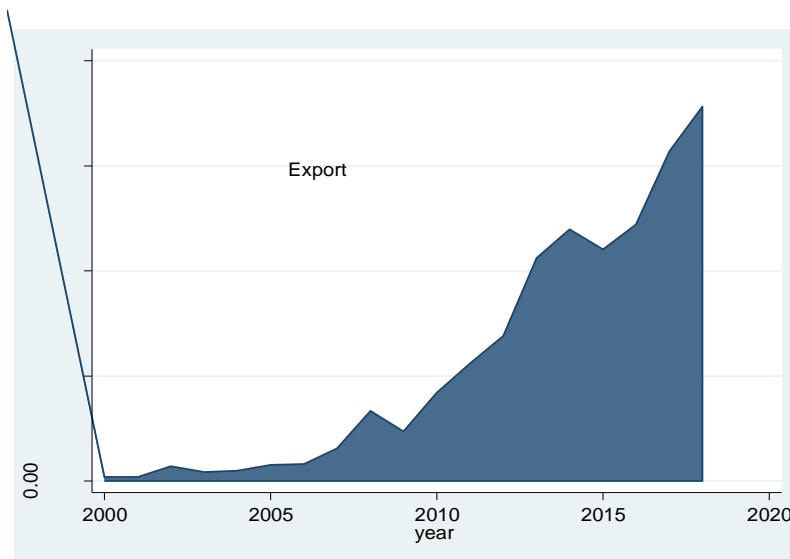


Figure 4.1 trends of pulse export performance

#### 4.1.2. Trends of Total Cultivated Area of Pulse (2000-2018)

The cultivate area indicates the yearly total area land cultivated with pulse crops; as it is described in the previous part the pulse crop incorporates more than a single crop; and hence, the trend graph represents the summation of all those crops. Between the year 2000 and 2005 as shown the graph below the cultivated area was increasing except at some years 2003 and 2005; the cultivated area continuous it's increasing till the year 2009 and drops down up to the year 2011. Apparently, the total cultivated area again increases continuously up to the year 2016 with a high increasing rate. However, the area coverage decreased at the end of the trend that means the cultivated area decreased in 2019 and shows a little upward. Overall the area coverage of pulse crop increases from 2000 to 2018. Within 19 year the average pulse crop area coverage was 47,102 hectare where the 13520 was the minimum and 92286 hectare was the maximum coverage which where happen in the year 2001 and 2016 respectively.

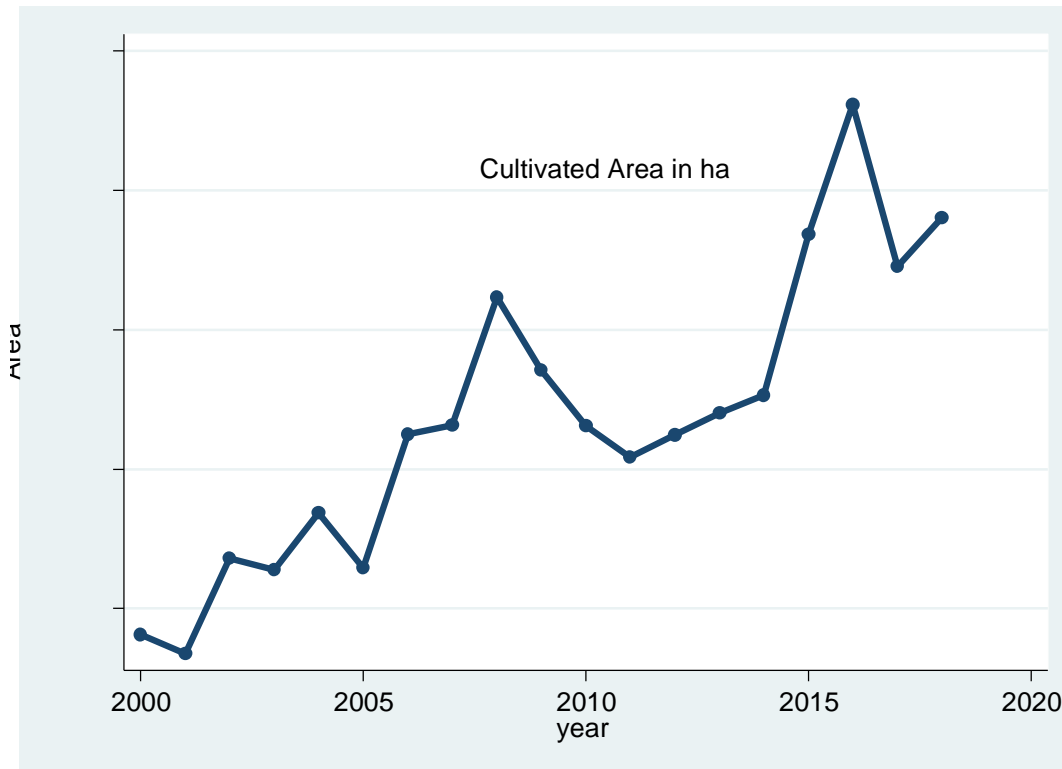


Figure 4.2 trends of total land area covered by pulse

### 4.1.3. Trends of Yearly Production (2000-2018)

The yearly production represents the annual pulse production of the country; the trend graph of pulse production shows the countries total production is increasing year to year; when we observe for the first five years, that is 2000 to 2005, the countries production level increases, although it is with a slow increasing rate. After 2005 the production level shows an increasing trend with a better increasing rate and continuous up to the year 2009. On the other hand the countries production level decreases in 2010 and 2011 when compare to 2009. However, the total production level goes up ward with a better increasing rate up to the year 2016 and bounce back in 2017; finally compared to 2017 the countries pulse production increases with some amount. Generally, the in the overall trend, the countries pulse production is increases with is the past nineteen years. In addition to this, the maximum production of pulse was made in 2016 which was 115, 800 tons of pulse were produced, and the minimum pulse production was incurred in 2001 which was 8007 tons of pulse was produced in the overall the country; apparently, the average yearly pulse production was 48135 tons.

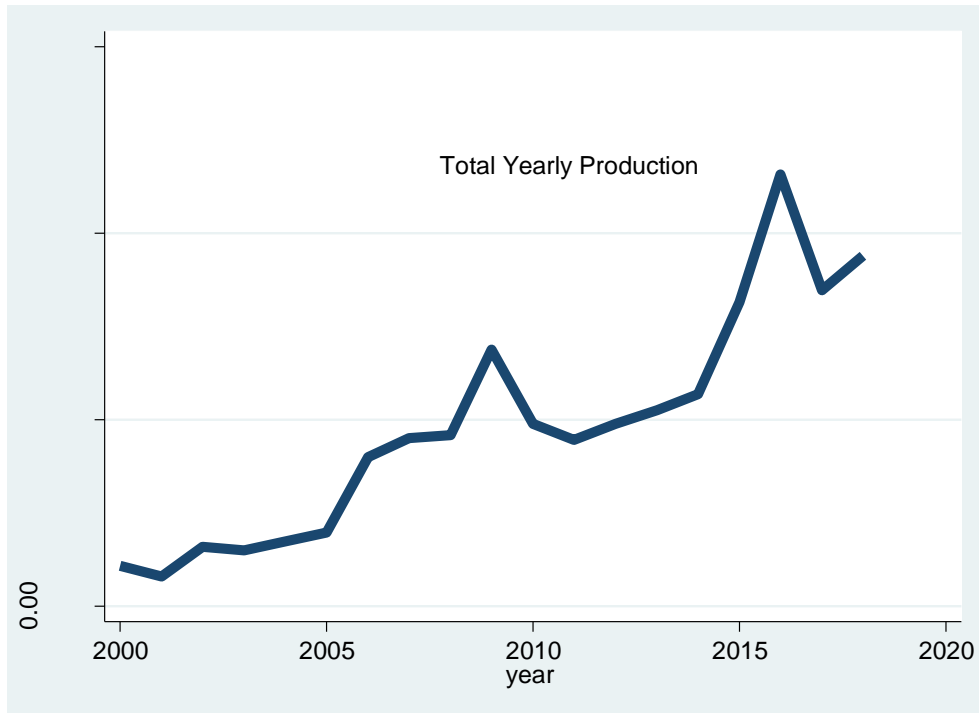


Figure 4.3 trends of total yearly production of pulse crops

#### 4.1.4. Trends of Exchange Rate(2000-2018)

The other variable was exchange rate; the trend shows except for some years the exchange rate was continuously increasing; in the beginning of the trend graph, that is, starting from 2000 up to the year 2008 the exchange rate was responded with a slow growth rate; however, the exchange rate shows a high increasing rate since the year 2009; starting from the year 2009 the countries exchange rate show a consistent and continuous increasing rate up to the edge of the trend graph which is 2018.

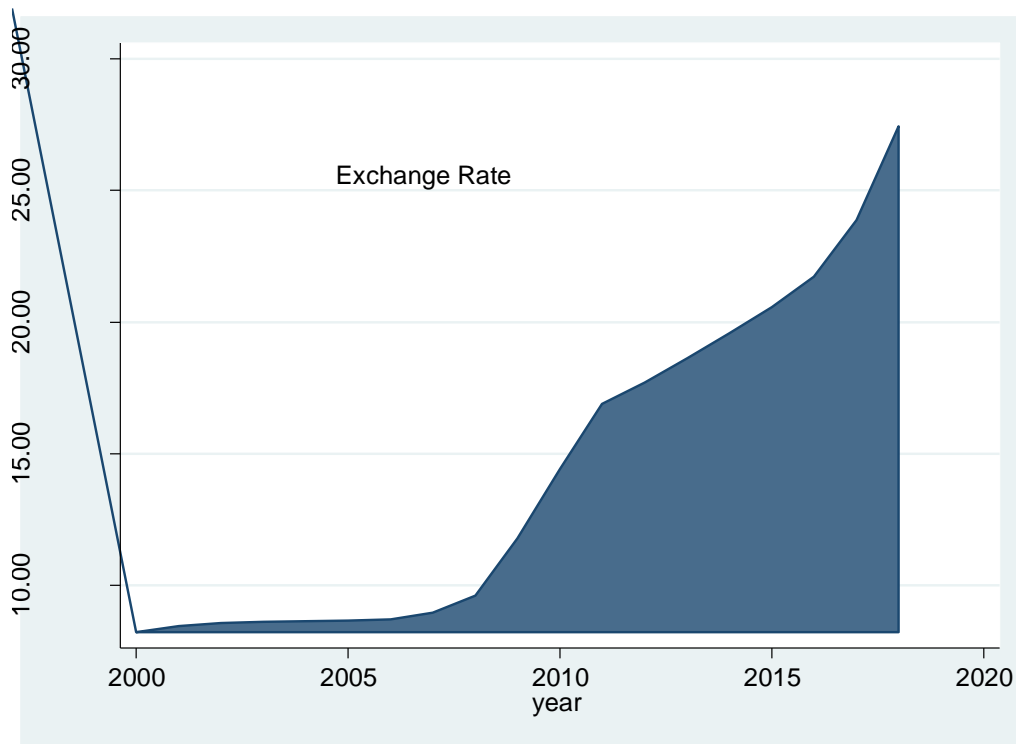


Figure 4.4 trends of annual exchange rate

#### 4.1.5. Trends of Foreign Direct Investment (FDI) (2000-2018)

Investment is one of the backbones of a country for development; the following graph shows the countries capital inflow of nineteen years. Accordingly, as observed in the foreign direct investment trend graph below the countries FDI were seems similar between 2000 and 2012, in this years although the investment shows some fluctuations however, its dynamic goes up and down within a small range. The countries very high and significant foreign direct investment were occurred between the year 2013 and 2016, in this three years the country's foreign direct investment was increased drastically; and also it reaches its peak; on the other hand, after the year

2016 the FDI curve bends downward which indicate the foreign direct investment of is at its declining. Furthermore, the maximum foreign direct investment was invested in 2016 which is 4.14 billion birr and the minimum foreign direct investment was 109 million birr which was made in 2008; and the average yearly foreign direct investment of the country was 1.14 billion birr.

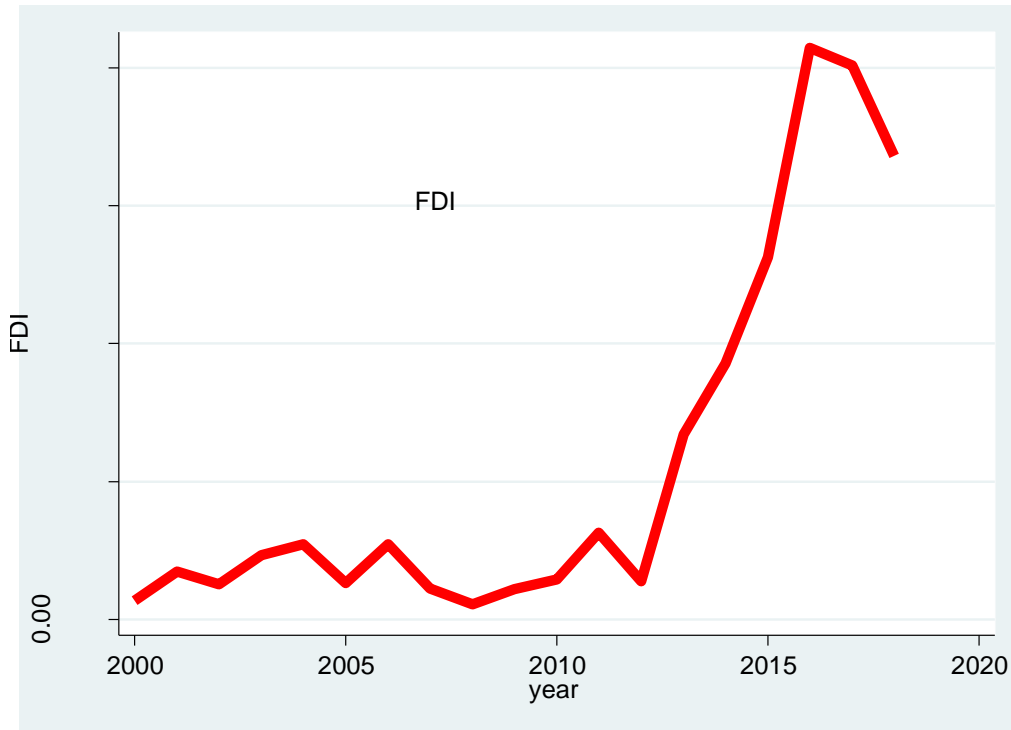


Figure 4.5 trends of annual foreign direct investment

#### 4.1.6. Trends of Interest Rate(2000-2018)

In Ethiopia case the minimum interest rate is determined by the government; as observed in the trend graph the national interest rate was continuously increases since 2000 and reaches its peak in 2005, within this period the interest rate was constant which didn't show a change between 2001 and 2002 as well as between 2003 and 2004. After 2005 for the next three consecutive years 2006, 2007 and 2008 the interest rate was devaluated or decreased; and bounce back up in 2009; in 2010 and 2011 the interest rate shows a slightly reduction. Between 2012 and 2015 the interest rate had

very insignificant change; however, 2016 interest rate shows very high changes and remains the same for the following year.

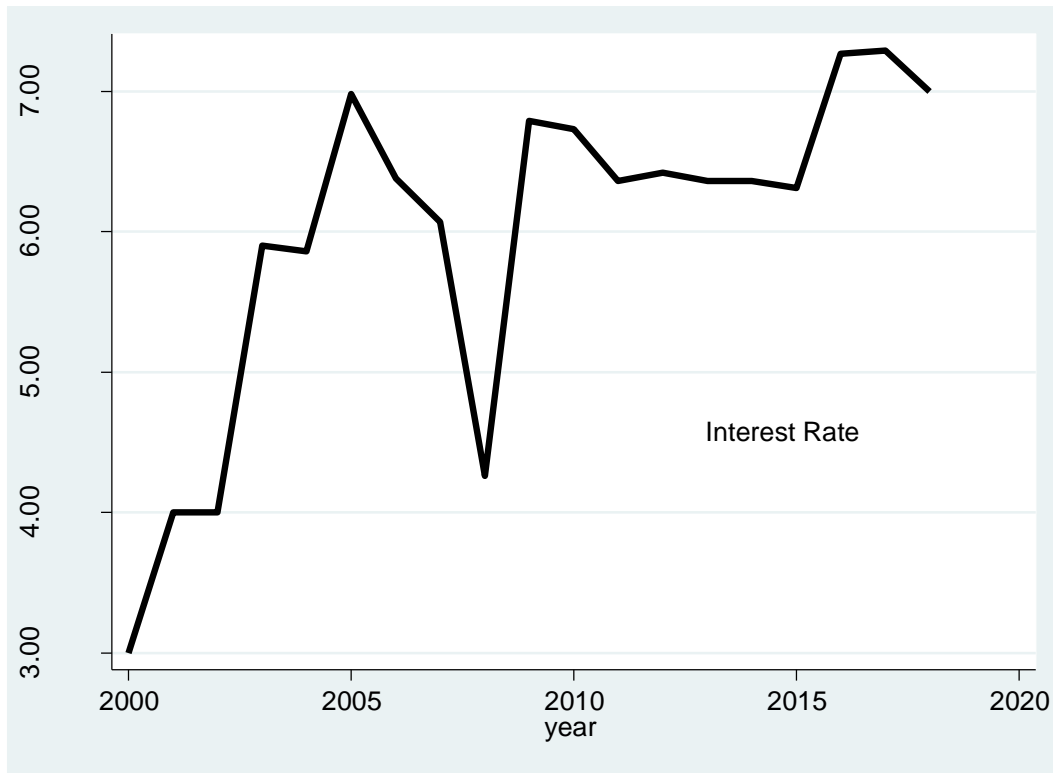


Figure 4.6 trends of annual official interest rate

## 4.2. Regression Result

Under this sub-topic the regression output and its preconditions will be discussed; firstly, the assumption tests of the regression will be discussed followed by the main regression output.

### 4.2.1. Assumptions of Ordinary Least Square

#### 4.2.1.1. Multicollinearity Test

Different sources indicate that Multicollinearity refers the existence of linear relationship between each independent variable, where the theory said the reverse, there should not be a linear association between independent variables; here, there were five independent variables which need to be considered; among different techniques of testing multicollinearity Variance Inflation Factor (vif) is the most common and widely used techniques; and hence, for the purpose of this study a vif test of multicollinearity would be used to test the existence of the problem. The vif test is

determined based on the result of vif of each variable; accordingly, the reference number is 10, if the any of the variable have a vif value greater than 10 it is the indication of the problem is there; however, if the values are less than 10 it implies there is a problem if multicolliniarity. Accordingly, as we have seen the table below some variables has a value of more than 10, which shows the data is suffering from the problem of multicolliniarity.

Table 4.1 Vifmulticolliniarity test of variables with problems

| Variable     | VIF   | 1/VIF    |
|--------------|-------|----------|
| logProduc    | 29.23 | 0.034211 |
| Area         | 22.84 | 0.043782 |
| FDI          | 7.40  | 0.135044 |
| logExchan    | 7.11  | 0.140653 |
| InterestRate | 3.16  | 0.316066 |
| Mean VIF     | 13.95 |          |

Once the existence of the problem is identified the next step is considering remedial actions; accordingly, although different remedial action is recommended, the most widely accepted and implemented method is removing one of the critical variables which causes the problem; accordingly the researcher removes the variable cultivated area; and as shown in the table below the problem is solved; none of the variable had a vif value of greater than 10. Therefore, the regression analysis will be carried out with only four variables through excluding the variable cultivated area since it causes a problem.

Table 4.2 Vifmulticolliniarity test of variables after the problems

| Variable     | VIF  | 1/VIF    |
|--------------|------|----------|
| logExchan    | 5.75 | 0.173981 |
| logProduc    | 4.30 | 0.232393 |
| logFDI       | 3.36 | 0.298021 |
| InterestRate | 2.43 | 0.411646 |
| Mean VIF     | 3.96 |          |

#### 4.2.1.2.Hetroskedasticity

This is the other assumption which could be considered in running any regression analysis, this assumption states that the change between each error terms should be some constant number or should be some homoscedastic, if this is violated it assume that there a problem of hetroskedasticity; accordingly like the other assumption there might be different ways of testing this assumption, among them Breusch-Pegan test is the one; therefore, for the purpose of this research this method of employed; the interpretation is made through p-value, the p-value is significant or less than 5% it is the indication of the problem is happened, it need some remedial action; on the other hand if the p-value is greater than it is concluded that the there is no the problem of hetroskedasticiy. Accordingly as we have seen in the table below the p-value is greater than 5 percent which is the data is free from the problem of hetroskedasticity.

Table 4.3 test of heteroskedasticity

|   |
|---|
| Breusch-Pagan / Cook-Weisberg test for heteroskedasticity |
| Ho: Constant variance                                     |
| Variables: fitted values of logExpo                       |
| chi2(1) = 0.14  |
| Prob> chi2 = 0.7059                                       |

#### 4.2.1.3.Autocorrelation

The term autocorrelation may be defined as “correlation between members of series of observations ordered in time or. In the regression context, the classical linear regression model assumes that such autocorrelation does not exist in the disturbances  $ui$ . If there is any correlation between the disturbance terms or error terms we conclude there is a problem of autocorrelation; for the purpose of this study Durban Watson test was employed to test whether there is a problem of autocorrelation; accordingly, as shown in the in the table below the DW statistics is almost 2 which indicates there is no a problem of autocorrelation.



Table 4.4 test of autocorrelation

|  |
|--|
| Durbin-Watson d-statistic (6, 19) = 2.168098 |
|--|

**4.2.1.4. Normality**

Likewise the above assumptions this is also one of the important assumption which should be fulfilled; just like hetroskedasticity and autocorrelation, for this assumption we use the disturbance or error term to test Normality. According to this assumption, the error terms should be normally distribute; in order to find out the problem, skiwness-kurtosis test was performed; this test is interpreted using the p-value like the other two tests; accordingly, the p-value is significant or less than 5% it is the indication of the problem is happened, it need some remedial action; on the other hand if the p-value is greater than it is concluded that the there is no the problem of hetroskedasticiy. Accordingly as we have seen in the table below the p-value is greater than 5 percent which is the data is normally distributed.

Table 4.5 skiwness-kurtosis test of Normality

| Skewness/Kurtosis tests for Normality |     |              |              |                  |           |
|---------------------------------------|-----|--------------|--------------|------------------|-----------|
|                                       |     |              |              | -----joint ----- |           |
| Variable                              | Obs | Pr(Skewness) | Pr(Kurtosis) | adj chi2(2)      | Prob>chi2 |
| resid                                 | 19  | 0.9623       | 0.2360       | 1.56             | 0.4581    |

**4.2.2. Estimation Result**

Totally export performance was predicted using 5 anticipated variables, total production, cultivated area, interest rate, exchange rate and foreign direct investment. However, one of the variable “cultivated areas” creates a problem of multicollinearity, therefore, it was discarded from the regression analysis. Furthermore, the export performance was estimated use ordinary leas square and the R square is 0.9453 with F statistics (4, 14) prob> F= 000; which indicates the model is highly significant and the independent variables explain 90 % of the variation in export.

Among the anticipated four variables total production, interest rate and exchange rage had significant effect on export performance. One variable had not significant effect.

The variable total production had a positive and significant effect on pulse export performance 5% level of significance. As shown in the regression output table the coefficient 0.94 indicates, as countries total pulse production increases by 1 percent the pulse export increases 0.94 percent; which indicates the more production the more will be the export.

Apparently, the variable exchange rate had a positive and significant effect on pulse export performance at 1% level of significance. This variable had a coefficient of 2.35; which implies as the exchange rate increases by 1 percent the pulse export performance also responds positively by 2.35 percent; that means the pulse export increases by 2.35 percent. In line with this study Ngondo & Khobai, (2018) also found out that exchange rate has a significant negative relationship with exports. Apparently, Genc & Artar, (2014) had similar finding which shows there is a long run relationship between effective exchange rates and exports-imports of emerging countries in the long run.

On the other hand, the variable interest rate had negative and significant effect on pulse export performance at 5% level of significance; the variable interest rate had a coefficient of -0.17, the coefficient of this variable indicates that as the banks interest rate increases by 1 percent the pulse export performance also decreases by 0.17 percent.

Table 4.6 regression result: OLS estimation

| Source   | SS         | df | MS         |                 |        |  |
|----------|------------|----|------------|-----------------|--------|--|
| Model    | 40.2974063 | 4  | 10.0743516 | Number of obs = | 19     |  |
| Residual | 1.78979471 | 14 | .127842479 | F( 4, 14) =     | 78.80  |  |
| Total    | 42.087201  | 18 | 2.33817784 | Prob > F =      | 0.0000 |  |
|          |            |    |            | R-squared =     | 0.9575 |  |
|          |            |    |            | Adj R-squared = | 0.9453 |  |
|          |            |    |            | Root MSE =      | .35755 |  |

| logExpo      | Coef.     | Std. Err. | t     | P> t  | [95% Conf. Interval] |          |
|--------------|-----------|-----------|-------|-------|----------------------|----------|
| logProduc    | .9468579  | .2257528  | 4.19  | 0.001 | .4626662             | 1.43105  |
| InterestRate | -.0174842 | .106777   | -0.16 | 0.002 | -.2464982            | .2115297 |
| logExchan    | 2.354956  | .4686141  | 5.03  | 0.000 | 1.349879             | 3.360034 |
| logFDI       | -.1831391 | .1324378  | -1.38 | 0.188 | -.4671898            | .1009117 |
| _cons        | -4.96037  | 4.046932  | -1.23 | 0.241 | -13.64018            | 3.719435 |

## **CHAPTER FIVE**

### **CONCLUSION AND RECOMMENDATION**

#### **5.1. Conclusion**

The purpose of this study was assessing the determinants of pulse export performance in Ethiopia, specifically, this study was conducted to examine the determinants of pulse export performance and assess the relationship between export performance and its determinants. 19 years' time series data were employed ranged from 2000 to 2018. Ordinary least square model was used to estimate the regression. The findings of the study shows that pulse export had shown an increasing trend between the anticipated years; within this all year on average the country was generating 22.4 million Birr from pulse export. Also the trends of pulse area coverage and production had an increasing trend and the average yearly pulse production was 48135 tons. In addition to this, the country's foreign direct investment had an increasing trend with average yearly investment of 1.14 billion birr. Interest rate and inflation was also shows an increasing trend. The findings of the study further shows that total production, interest rate and exchange rate had significant effect on export performance. One variable had not significant effect. Two variables total production and exchange rate had positive and significant effect on the export performance of the country; on the other hand the national interest rate had negative effect on the export performance of the country.

#### **5.2.Recommendation**

Based on the findings of the study the following recommendations is forwarded

- The findings of the study revealed that total production of pulse had a significant and positive effect on the export of pulse which indicates the pulses sector can be developed to benefit from existing production knowledge and potential. The policy focus in past years has been primarily on coffee and sesame; however, the pulses sector offers similar potential to be developed as an export crop.
- Rough calculations indicate that Ethiopia could expand its foreign market presence from its current levels of US \$ 100 million through increased production levels. The production of pulses in Ethiopia is currently about 2 million tons. Market-oriented production can help Ethiopia generate more foreign exchange from exports.

- New types and varieties of pulses should be introduced, produced and increase the export performance of pulse
- Interest rate was found to reduce the export of pulse; accordingly, it would be good to make some special consideration for those investors who invest in agricultural production particularly in pulse production.
- For further study, it would be good if other additional variables which could determine the pulse export to analyze the factors of pulse export.

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