



ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES

THE IMPACT OF EXPORT FINANCING INCENTIVES BY
COMMERCIAL BANKS ON THE EXPORT EARNING OF
ETHIOPIA: THE CASE FOR EXPORT CREDIT

By Elias Getachew

May 2019

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OF ETHIOPIA: THE CASE FOR EXPORT CREDIT

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Declaration

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Abebaw Kassie PhD. All sources of materials used for the 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 degree.

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Abstract

There are several motivations for countries to export their production. Exports growth is seen by governments as being a driver to economic growth, and it also helps domestic industries to develop, improve productivity and create new job. Ethiopia's export earnings are one of the most important sources of foreign currency to import its vital imports. Despite years of growth in the export earnings it faces a severe balance of trade deficit, because the return from exports is far less than the expense needed to pay for the imports. This export and import unbalance leads Ethiopia to the instable and weak macroeconomic management due the depletion of foreign currency, eventually the nation is forced to look for additional finance to cost of its imports. Lack of own financial source has led the country to the development of a significantly sized external debt. This paper tried to answer export credit incentives effect in boosting the export earnings of Ethiopia in the past decade, how is the link between private sector and government regarding financial credit as well as what can be done to improve the nation's export performance. In this paper Inferential Fixed Effect Model of the Pane Data is used to illustrate the case for the effect of export credit on export earnings, while real GDP and Inflation Rate were used as control variables. The analysis results show that, during the period of 2007/08 to 2017/18, there was a strong and positive effect of export credit on export earnings. Thus, this paper put forward for Ethiopia banks to promote export through increment of credit volume to the export sector as well as by diversifying the credits instruments that are provided to the sector.

Key words: export, export credit, Fixed Effect Model, panel data

CHAPTER ONE: INTRODUCTION

1.1. Background

In this era of trade liberalization and globalization, the importance of exports cannot be over-emphasized. The role of exports in economic development has been widely acknowledged. Ideally, export activities stimulate growth in a number of ways including production and demand linkages, economies of scale due to larger international markets, increased efficiency, adoption of superior technologies embodied in foreign-produced capital goods, learning effects and improvement of human resources, increased productivity through specialization creation of employment.(Were M et al, 2006)

The ability of a country and its businesses to grow is tightly related to the possibility of exporting and penetrating into foreign markets. Indeed, policy-makers debate intensely on the policies that can encourage the expansion of local firms beyond national borders. However, such an expansion encounters several challenges. Export activity entails extra up-front expenditure than selling to the domestic market that may force firms to rely on external finance: firms need to acquire information about foreign markets, customize products to fit local tastes and set up distribution networks. (Minetti, R., &Zhu,S. C. ,2011).

There are several reasons why these sunk costs are difficult to finance. The investments are made long before any export revenue is collected and provide limited collateral compared to e.g. machine or real estate investments. To the extent that foreign investments are tangible, they may still be harder to seize than domestic assets. Revenues from abroad may be difficult to verify for outsiders, and be more difficult to extract from the firm. Therefore, export revenues may be more difficult to pledge to

outside financiers than domestic revenues. Finally, export revenues may be volatile and difficult to predict, for both firm insiders and outsiders. The bottom line is that it may therefore very difficult to secure outside financing for export investment. (Becker and Greenberg, 2003)

A well-functioning financial sector is a necessary and inextricable component of solving the problem of financing the export development in particular (Manova, 2008) since the financial intermediaries have access to more information, contracts are enforced more reliably, and are more capable of assessing potential risks and reward. As financial intermediary institution banks contribute in financing the exporting sector of the economy, by facilitating international trade and providing credit facilities in terms of short-term loans and overdraft facilities to those into exporting industries.

Provisions of export credit programs (ECPs) to assist exporters in increasing exports in risky foreign markets have a long historical development. According to Carr (1939), in 1919, the British government was the first to establish its ECPs. Following the lead of the British government, many developed, developing, and other countries established their ECPs. The governments that established these programs considered them useful policy instruments and a means of encouraging their producers to expand and diversify exports. These ECPs were thought necessary to improve their trade balance, increase their foreign exchange reserves, and reduce their national unemployment (Mutharika, 1976).

Ever since 1999/00 the export earnings generated by Ethiopian firms has been growing steadily, with the exception of some disruptions in 2012/13-2014/15 period, owing to various favorable macroeconomic developments and preferential incentives provided by government and private entities. During this period different financial and non-

financial incentives were given to enterprises to increase the export income generation capacity by existing exporters and to attract other investors outside the industry to get involved in the business of export. Alongside the incentives given to exporters by the government, private financial intermediaries in Ethiopia has been giving assortment of financial and non-financial incentives to promote the export sector as a national effort to increase the export income as well as to attract other investors into the sector to diversify, expand and exploit the export potential of Ethiopia.

Export credit scheme incentives given by both by Ethiopian government and private banks include preferential credit facility and international trade guarantees. While the all are critical for the performance of the export sector, availability of preferential credit facility in terms of easier access, discounted interest rate and relaxed collateral requirement takes the largest incentive given to exporters in any given year.

However, despite the efforts mentioned, difficulty in accessing bank financing, along with poor international market access, shortage of hard currency, low quality raw material, poor infrastructure, has brought about lower rate of export growth and diversification of exporting industries. (Mulu & Ashagrye, 2017)

This study therefore motivated to investigate the impact of export financing incentives by Commercial Banks on the export earning of Ethiopia.

1.2. Statement of Research Problem

Like other African countries, Ethiopia has faced problem low volume exports and increased gap of balance of payments for a long time. For instance, in 1983 the Provisional Government of Socialist Ethiopia noted that the basic constraints for Ethiopian exports include the low volume of exportable products, the limited degree of diversification of exports, which are made up mainly of unprocessed primary products, frequent economic crisis which substantially reduce the demand for and prices of primary products, artificial trade barriers by trading partners etc. (Abay and Zewdu 1999).

Thus the importance of Ethiopia's export trade promotion strategies through different regimes was justified by a number of arguments, which includes increase foreign exchange revenue, improving balance of payment, capacity utilization, increasing market size and growth of factor productivity (Getnet, 2005). By bringing down the marketing costs and risks for exporters face Ethiopia has been trying to diversify and prop up its volume and value of export.

After the fall of socialist EPRP government in 1991 and the transition to a more market oriented economic system EPDRF government, stated the necessity to increase and diversify exports. In order to achieve the goal various measures were taken including opening up of more sectors to foreign investors, tax holidays and duty exemptions, and provision of infrastructures and financial facilities to help the set up and operation of export investment projects. (Alemayehu, 1999)

Acknowledging the importance of credit in the business activity of exporters the government of Ethiopia, through its monetary policy regulators have been providing and motivating/incentivizing other public and private financial institutions in Ethiopia to give various financial incentives for exporters. The National Bank of Ethiopia itself

was the first to start cheaper and faster credit scheme exclusive to exporters in the year 2004. However, the NBE hand over the responsibility of the scheme to the Development Bank of Ethiopia (DBE) and walked out from the provision of export credit and guarantee to concentrate itself in the regulation of the scheme in 2007. Other local banks followed suit of DBE and by the year 2009 all of the existing public and private banks were giving ECG (export credit and guarantee) services to exporters.

The ECG scheme is considered to help exporters to facilitate the their day to day activities and decrease the financial and liquidity problems they face while trying to procure their inputs and sell their products in the international market. However, the problems Ethiopian export sector faces aren't only financial constraints and significant improvements in the performance of export earnings require the alleviation of those problems.

Many researchers have offered a number of theoretical models to rationalize the consequences of financial market conditions for international trade. An important implication of these models is that the effect of credit constraints varies across countries and sectors, such that financially developed economies have a comparative advantage in financially needy export industries.

There is a general conscience among scholars that well-developed financial system makes it easier for exporters to secure external finance for investment. By the extension of this idea it can be said that firms that export to foreign markets may also benefit from higher levels of financial development since exporting involves fixed up-front costs which are more difficult to finance than other investments.

Thus investigation on how much the availability of cheaper and faster credit by Ethiopian banks impacts the Ethiopian export sector will give insight on how much is

the scheme is contributing to the improvement of the export performance and show the potential of the scheme to help more.

This study intends to contribute to the already existing knowledge in these light possible measures that will make the financial sector's promotional role more effective for an increase exports. This research shows the direction towards future policy decision as well as act as a reference material for students of finance, economic and other relate fields of study.

1.3. Research Question

The research answers if there is statistically significant relationship between export credit provided by commercial banks and the performance of export earning of Ethiopia?

1.4. Objectives of Study

This study attempts to investigate the impact of commercial bank credit (loans and advances) on the Ethiopian export trade, taking into consideration the period from 2008 to 2017. Therefore this study is thus to achieve the following objective.

- a) To identify the effect of export credit provision, real GDP and domestic inflation rate on export on export trade.
- b) To identify the effect of export credit has on the export performance of Ethiopia
- c) To suggest, on the basis of empirical evidence, recommendation that would help Ethiopia improve the export performance.

1.5. Hypothesis of the Study

The aim of the study is to test whether the export credit provided by commercial banks of Ethiopia has positive and significant impact on the export earnings of Ethiopia. With

an overwhelming theoretical and empirical evidences put forward in the literature review section of the study, that suggest positive and significant relationship between export credit and export earnings, this research will test the hypothesis if export credit has positive and significant impact on export earnings of Ethiopia, in consistence with the theoretical and empirical literatures in the area of study.

Thus:

Null Hypothesis (H₀): The export credit made by commercial banks has no significant impact on export trade earnings of Ethiopia.

Alternative Hypothesis (H₁): The export credit made by commercial banks has positive and significant impact on export trade earnings of Ethiopia.

1.6. Significance of the Study

This study is relevant to the government in the sense that, it enables the government to know the necessary policy that will enhance export. The study is also relevant to the banking industry participants as it will show the true magnitude of the impact of preferential credit on the export sector's ability to export more and the banks gain through higher hard currency earnings from increased export volume.

Academically the study will try to fill gaps that exist in the understanding of the financial industry's contribution in the promotion of the export sectors performance and foreign exchange earnings through the supply of credit facilitates.

1.7. Limitation of the Study

The time and duration is limited to 2007/08–2017/18. The analysis of this study will be based on information obtained from the National Bank of Ethiopia (NBE), Commercial Bank of Ethiopia and all private banks that provide export credit for export business.

Although the most accurate method of measuring the impact of credit on export was to measure its impact at the firm level, as was evidenced from the literature review in on the subject from different countries, the financial information of firms involved in exporting business in Ethiopia doesn't exist, thus hindering the possibility of finding out the effect of export credit on heterogeneous firms across sectors.

1.8. Organization of the Study

This study decomposes the rest of the paper as follows. Chapter Two reviews the relevant theoretical and empirical literature regarding the subject. In chapter Three, the model specification presented and Chapter Four estimation results and analysis are presented while in Chapter Five suggests recommendations and concludes the paper.

CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

This chapter presents the review of historical development of export credit in Ethiopia and previous literatures about the theoretical and empirical evidences about the effects of export credit on the performance of export trade. The conceptual framework is presented in this chapter.

2.2. Theoretical Literature

Many researchers have offered a number of theoretical models to rationalize the consequences of financial market conditions for international trade. An important implication of these models is that the effect of credit constraints varies across countries and sectors, such that financially developed economies have a comparative advantage in financially needy industries. There is a general conscience among scholars that well-developed financial system makes it easier for firms to secure external finance for investment. By the extension of this idea it can be said that firms that export to foreign markets may also benefit from higher levels of financial development since exporting involves fixed up-front costs which are more difficult to finance than other investments.

The classic analysis of the relationship between credit and export trade is due to Kletzer and Bardhan (1987). Their analysis is further developed by Beck (2002), who shows that two-sector small economies with a better-developed financial sector have a comparative advantage in sectors with large scale economies and, all else equal, are net exporters of the goods they produce, relative to less financially developed countries.

Melitz (2003) predicts that the efficiency of the financial sector has a higher impact on growth and export performance in industries intrinsically more dependent on external finance. The incorporation of financial frictions in a heterogeneous-firm trade model

allows to formalize the intuition that, if financial development promotes a growth biased toward financially dependent industries, then this impact should be even more apparent on export growth, because access to export markets is more demanding in terms of external finance, due to the presence of fixed costs of entry (Chaney, 2016; Manova, 2008). Models by Chaney (2016) and Manova(2008) also predict that the efficiency of the financial system should affect the export structure, with the most dependent sectors being disadvantaged in environments with high distortions, but benefiting relatively more from improvements in financial system efficiency. Manova assumes that firms must borrow to finance export costs. Because more productive firms earn higher profits and can offer financiers (banks and investors) greater returns in the event of repayment, they are less likely to be credit constrained and more likely to export.

Classically, the most important financial theory has been the Theory of Capital Structure (leverage), by the works of Modigliani and Miller (1958, 1963) and Myers and Majluf (1984). In a recent study, researchers have summarized several other theories to explain the optimal capital structure as a function of various costs and benefits from the financing by debt capital and equity (Silva and Santos, 2012).

The OECD emphasizes that the limited access to external finance is an important obstacle faced by SMEs in many countries, especially by exporter firms (OECD, 2006). And, according to the OECD, the capacity to internationalize is often dependent on the available financing, especially for new exporters, because owners' personal and private sources are usually limited. Moreover, exporters are in general more informational opaque than larger firms, due to the differences in asymmetric information, therefore, this type of enterprises relies more on banks and trade credits for financing (Bartholdy and Mateus, 2008). Consequently, it is very important to access

financing, as entering international markets requires substantial finance resources (Zahra et al., 2000).

2.3. Empirical Literature

While there is strong evidence showing the positive relationship between credit accessibility and export there is mixed results regarding the causality as there are researches that show good export performance generally increases the probability of exporting firms to secure external finance as well as others that show the availability of external finance increasing the export of firms. However, there is a consensus in all about the positive relationship between the two variables.

Studies that focus on aggregate data, either at the country or the industry level, are consistent in finding an important role of financial development and credit and external financial dependence in explaining the existence of export flows and their magnitude. Studies that analyze the intensive margin of export—the magnitude of export sales, intended as export-to-total sales, volume of exports, or export growth—provide somewhat mixed results on the role of finance, which is sometimes positive and significant but small, and sometimes statistically insignificant. Studies that focus on financial shocks due to banking or financing crisis find that such shocks explain a significant but relatively small portion of export adjustment, particularly in industries with more pronounced external financial dependence.

I. Buono and S. Formai (2014) found that export flows are not affected by short-run shocks in the credit supply. The positive correlation between trade flows and credit granted at the firm level seems to be explained entirely by firm's characteristics and demand factors. They also found that access to bank credit is instead a key determinant of total revenues. In particular, the most conservative specification of the relationship between credit granted and revenues, a reduction of 10% in the supply of credit causes

a reduction of total revenues of 1.6% for the sub-sample of exporting firms, and of 2.4% for the full sample of firms, domestic and exporting. Differently from previous results, the analysis suggests that exporters are more resilient to short-run drops in the supply of bank credit.

Although pointing in the same direction, their results are indeed stronger than the ones mentioned above: finding that export is not elastic, at least in the short-run; to credit supply does not suggest that credit constraints affect exports simply via an overall negative impact on firm total production.

Manova (2008) provides a more detailed analysis using industry level data for a large number of countries and studies the empirical connection between shocks to the availability of external finance and export behavior. The result shows that equity market liberalizations increase exports disproportionately in financially vulnerable sectors that require more outside finance or use fewer collateral assets. The analysis first establishes that weak financial development and financial vulnerability reduce both domestic output and export; 20% to 25% of the impact of credit constraints on trade is driven by reductions in total output.

F. Bellone et al.(2009) show that financial constraints act as a barrier to exporting. The empirical analysis makes use the data from 25,000 French firms over the period 1993-2005. They found that exporters enjoy better ex-ante financial health compared to non-exporters. The computed pre-entry premium of future exporters is statistically significant, both one year before entry and three years before entry. According to their model, access to external finance is a significant determinant of the probability to start exporting due to the presence of sunk costs. Moreover, they show that the availability of financial resources significantly shortens the time leading to the entry of foreign

markets. The authors also explore the learning-by exporting effect. They do not find evidence of an improvement in firms' financial score after entering the export market.

The most evident highly researched illustration for the strong relationship between credit and international trade (export and import) is the financial crisis that began in 2007 that ushered in the world's largest recession since the Great Depression was associated with a collapse of international trade. The collapse of credit markets in the crisis of 2008-09 has hit exporters harder than other firms, explaining why international trade fell much more strongly than GDP (Chor and Manova, 2011). The volume of exported goods and services fell by a staggering 11.2% in developed and 7.6% in emerging and developing economies (S. Contessi and F. Nicola, 2012). The immediate conjecture was that the credit crunch in that was prevalent in the period may have caused the large decline in international trade by reducing exporters' access to finance. Eaton et.al (2011) found that up to 30% of the export contraction is attributed to a serious of factors, among which the contraction of trade finance during the crisis, while the other 70% was attributed large drop in international demand.

Many papers have evaluated the effectiveness of export credit and other exporter support programs and have consistently shown that they boost aggregate and firm-level exports (Martincus and Carballo 2008), in particular by helping existing exporters enter new product or destination markets (Martincus and Carballo, 2010). They also help firms survive on export markets, for example during a cyclical downturn (Biesebroeck, Konings, and Martincus 2016). However, Cadot et al, 2015) suggest that effects are not durable and ongoing support is needed to maintain the elevated exports.

Together, these papers support the view of a positive link between export credit and trade at the country and industry levels. However, there were exceptions Muûls (2008) does not find a significant relationship between financial constraints and starting to

export for Belgian exporters. Her explanation for this result is that firms starting to export may prefer internal financing or for Belgium, being a small open economy, the fixed entry costs for exporting are relatively small.

One of the most important caveats of these researches is that the correlation between credit and export may be affected by reverse causality because an increase in relative foreign demand for exporters goods with export credit might lead to both higher exports from these exporters and to more borrowing in the economy, as measured by private credit. Therefore, financially developed economies may result in increased exporting of the more financially dependent goods even if there were no credit constraints.

Many firms that are willing to expand often find it difficult to obtain financing from financial institutions and are thus credit constrained. This essentially constitutes the 'financing-gap' faced by firms and this gap is more prevalent in developing countries while it is not such a problem in advanced economies because various risk-coping strategies have been adopted by banks for lending to firms (OECD, 2006).

Thus, the financing-gap is essentially a problem for developing countries. It is well known that out of the group of developing countries, African countries are severely disadvantaged in financial development (Allen et al., 2011; Beck et al., 2009; Fowowe and Abidoye, 2013). Thus, the firm-financing gap is likely going to be a bigger problem for African countries than for countries in other developing regions.

This has indeed been observed from available survey data as access to finance has consistently ranked as one of the top constraints cited by firms. In Gelb et al.'s (2007) study of 26 African countries, it is seen that on average, the percentage of firms citing access to finance as a major or severe constraint was higher than for any other constraint (electricity, corruption, macro-economic instability, and labor regulations). Also, in the

study by Dinh et al. (2012) which used a sample of over 39,000 firms across 98 countries, it was found that access to finance was ranked as either the biggest or second biggest obstacle by firms in Eastern Europe and Central Asia, Sub-Saharan Africa, East Asia and Pacific, Middle East and North Africa, and South Asia. It was only in Latin America and the Caribbean that access to finance was ranked as the third biggest obstacle. Looking closely at the 38 Sub-Saharan African countries in Dinh et al.'s (2012) study, it is seen that electricity was the top ranked constraint in 16 countries while access to finance was the top ranked constraint in 11 countries.

Export financing resources relate to specific resources available to exporting firms and allowing them to be in an effective competition in foreign markets. Financial support is considered a fundamental resource to exporting firms in view of the international markets. Financial resources are one of the most important elements for Borch, Huse and Senneseth (1999) in the research based on exporting firms' resources and strategies. These resources allow to finance the production, in a stage that precedes exports and to get financing in advance since importers are often in arrears.

This study conducts an empirical investigation of the effects of export credit on the performance of export value. In order to achieve this, the study makes use of data set from the balance sheets of commercial banks annual and reports of NBE.

First, this research deviates from existing studies by constructing objective relationship between export credit and export performance following the method described in Kuntchevet al. (2013) and this offers a more comprehensive understanding of how credit access affects the performance of export. Thus, in the determination of the effects of the Export credit on the growth of Export the research will use the data of Export as a dependent variable and Export credit as the determinant variable, while the domestic

inflation rate and the national output growth will serve as control variables for the model.

Second, its focus on aggregate-level data for Ethiopia offers new insights into understanding the behavior and performance of export credit, and this would assist in developing new and innovative ways for achieving sustainable economic growth which is important in alleviating poverty.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Introduction

This chapter presents research design, sources of data, methods of data presentation and analysis. This research used the qualitative and quantitative approach to address the research questions.

3.2. Research Design and Approach

3.2.1. Research Design

The study employed descriptive as well as inferential statistics to assess the effect of export credit on export earnings. Descriptive analysis was conducted using Microsoft Excel and the output presented in tables and graphs. Furthermore, the inferential statistics employed to identify the magnitude of export credit has on the export earning using Stata version-14 statistical software.

A panel framework is designed to estimate the above equation during a period of 2007/08-2017/18. Panel estimation reveals several advantages over cross section data and time series data as it controls for individuals heterogeneity (whereas time and cross section studies do not control for this heterogeneity and it may give biased estimated results). Furthermore, more degree of freedom reduces the co linearity among explanatory variables, therefore improving the efficiency of econometric estimates. More importantly, panel data can measure effects that are not detectable in cross sections and time series data (Baltagi, 1995). Secondary data from the annual report of national bank about the aggregate level of export credit, national export value, and real GDP and Inflation rate have been used in this study. The data is analyzed to show the trend of export credit and national export.

Panel data of export credit collected from seventeen banks representing 94.44% of banks and 56% of the average outstanding export credit for the period between 2008 and 2016 fiscal year were collected.

3.2.2. Data Source and Type

Data used in study is collected from the respective publicly disclosed annual reports of sixteen commercial banks namely Abay Bank, Abyssinia Bank, Addis International Bank, Awash Bank, Birhan International Bank, Bunna International Bank, Cooperative Bank of Oromia, Dehub Global Bank, Lion International Bank, Nib International Bank, Oromia International Bank, United Bank, Wegagen Bank and Zemen Bank and the annual reports by the National Bank of Ethiopia for the year and 2018/19.

3.3. Method of Analysis

There are three main models can be used to estimate in panel data: pooled model, random effects model (REM) and fixed effects model (FEM). In order to decide to choose which model, we need to consider the properties of the data as well as base on the results of tests. Based on test, the first consideration is the decision between fixed and pooled OLS or random effect and pooled OLS.

The basic framework for the panel data is a regression model of the form

$$Y_{it} = X'_{it}\beta + Z'_i\alpha + \varepsilon_{it}$$

There are K regressors in x_{it} not including a constant term. The heterogeneity, or individual effect is $z'_i\alpha$ where z contains a constant term and a set of individual or group specific variables, which may be observed, such as race, sex, location, and so on or unobserved, such as family specific characteristics, individual heterogeneity in skill or preferences, and so on, all of which are taken to be constant over time t . As it stands, this model is a classical regression model. If z_i is observed for all individuals, then the

entire model can be treated as an ordinary linear model and fit by least squares. The various cases we will consider are:

3.3.1.1. The constant Coefficients Model/ pooled regression model.

One type of panel model has constant coefficients referring to both intercepts and slopes. In the event that there is neither significant Banks nor significant temporal effects, we simply pool all observations and estimate the grand regression, ignoring the cross-section and time series nature of the data and run an ordinary least squares regression model. Although most of the time there are either bank or temporal effects, there are occasions when neither of these is statistically significant. The main problem of the pooled model is that it does not allow for heterogeneity of Banks. It does not estimate Banks specific effects and assumes that all Banks are homogenous. It is a restricted model.

3.3.1.2. The Fixed Effect Model (FEM)

In Fixed effect model, the intercept in the regression is allowed to differ among individual Banks in recognition of the fact that each Banks might have some special characteristics of its own. Therefore, the models assume that, it captures unobserved heterogeneity among Banks. The FEM is appropriate in situations where the individual specific effect might be correlated with one or more regressors (Wooldridge, 2013, Gujarati, 2009).

3.3.1.3. Random effect Model (REM)

In contrast, in random effects model, the individual-specific effect or variation across Banks is assumed to be a random variable that is uncorrelated with the explanatory variables. The main distinction between fixed effect and random effect is whether the unobserved individual effect is correlated with the predictors in the model.

Again, the crucial distinction between these two cases is whether the unobserved individual effect embodies elements that are correlated with the regressors in the model, not whether these effects are stochastic or not.

3.4. Specification of the model for the Study

This study focuses on supply side determinants of Ethiopia's export performance. Hence, the study signifies Ethiopia's export performance as a function of real GDP of Ethiopia, domestic inflation rate, and financial development. The model that has been used in this paper is thus the adopted Goldestien and Khan (1985) which is expressed as follows:

$Ex = f$ (outstanding export credit; individual control variables; exchange rate, Inflation rate and RGDP),

$$ExUSD_{it} = f(ExCr_{it}, RGDP_{it}, Inf,)----- (1)$$

Where:

ExUSD: Export is the annual values (in USD million) of Ethiopian export.

ExCr: Export credit is the total outstanding credit that were disbursed to the export sector

RGDP: Real gross domestic product (GDP) is an inflation-adjusted measure that reflects the value of all goods and services produced in Ethiopia in a given year, expressed in base-year prices.

Inf: inflation rate is a measurement of **inflation**, the **rate** of increase of a price index. It is the percentage **rate** of change in prices level over time. The **rate** of decrease in the purchasing power of money is approximately equal.

Thus the relationship between export credit and export is described as

$$\ln(Exp_{it}) = \alpha_{it} + \beta \ln(Cr_{it}) + X_{it} + \varepsilon_{it} \text{-----} (2)$$

Where Cr_{it} represents the amount of credit granted and X_{it} represents all determinants of exports other than export credit. We want to estimate the elasticity of export trade to credit:

$$\beta = \frac{\partial Exp}{\partial Cr} \frac{Cr}{Exp}$$

The theoretical model proposes an empirical prediction concerning the influence of the export credit on the export performance. It surmises that the financial development has positive effect on the dependent variable.

3.5. Panel Data Diagnostic Test

3.5.1. Normality Test

One of the assumptions in panel regression analysis is whether variables in the model are obtained from normally distributed population or not. If the disturbances are normal allows exact inference about the estimate and standard error of estimated coefficients. The study employed the relevant normality tests.

3.5.2. Test for Multicollinearity

Multicollinearity referees to the situation where two or more of the predictors in a regression model are highly correlated. It implies that one can be linearly predicted from the others with a substantial degree of accuracy. In presence of multicollinearity, the coefficient estimates of the multiple regressions may change erratically in response to small changes in the model or the data. If there is multicollinearity in the model, the estimated coefficients possess large standard error, which means the coefficients cannot be estimated with great precision or accuracy (Gujarati, 2004). To alleviate this problem one or more of the correlated variables must be dropped from the model. Therefore, the study checked for the presence of Multicollinearity in the model.

3.5.3. Heteroscedasticity test

The test for heteroscedasticity investigates whether the variance of the error in the model are constant or not. In a presence of heteroscedasticity, the estimators are no longer of minimum variance or efficient. As a result, the tests based under the standard assumptions may not be reliable, resulting in erroneous conclusions regarding the statistical significance of the estimated regression coefficients.

Assuming homoscedastic disturbances when heteroscedasticity is present still result in consistent estimates of the regression coefficients, but these estimates will not be efficient. The loss of efficiency leads to biased standard error and hence the inferences

from this estimate become invalid (Baltagi, 2005). Under this test the null hypothesis is the error term is homoscedastic while the alternative is heteroscedasticity of the error term.

3.5.4. Test for Autocorrelation

Autocorrelation normally occur while employing in long panel data. This problem occurs when two or more consecutive error terms are correlates. If there is autocorrelation problem in model, the estimator no longer efficient. In consequence, the tests may not be valid. When the covariance between two or more consecutive error terms is correlated the error term is subject to autocorrelation. If there is autocorrelation in the data the estimates become inefficient and standard errors are estimated is invalid.

Chapter Four: Results and Discussions

4.1. Introduction

This chapter presents results of the empirical analysis of the research. This research used textual, tabular and graphical methods to present the results.

4.2. Descriptive Statistics

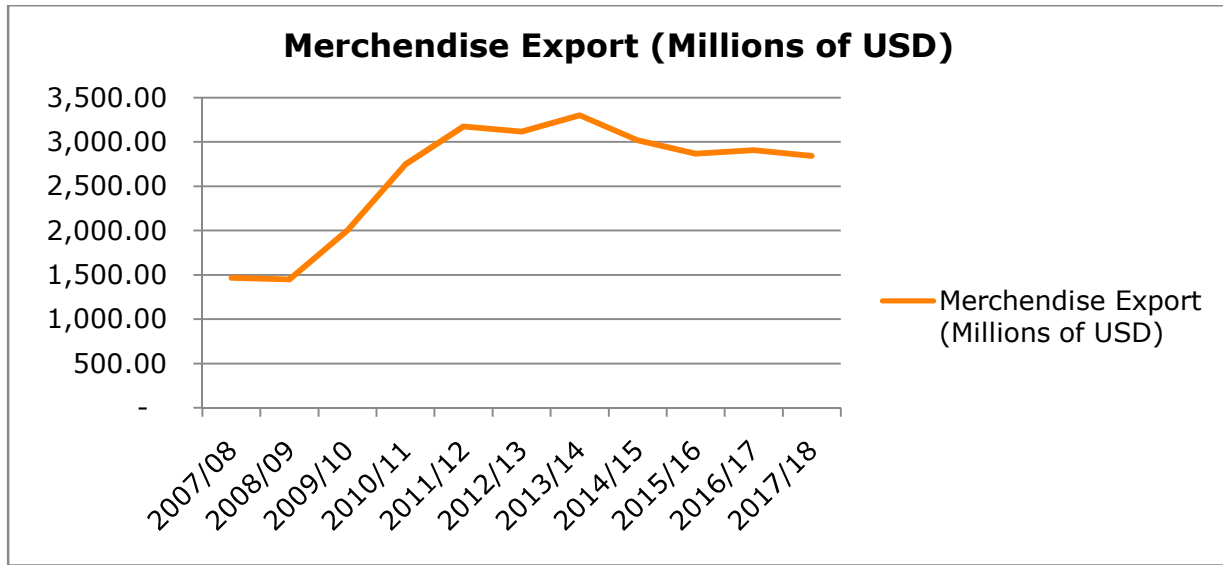
This part presents the findings for each variable using graphs and analysis is done accordingly to observe the trend of export credit and export value for the period of 2007/08-2017/18. Trends of performance for each variable is presented and discussed separately.

4.3. Pattern of Export Credit and Export Earning

Data from the national bank of Ethiopia shows that the export sector of Ethiopia is growing steadily from 2007/08 fiscal year with a blink of stagnation and decline in the recent years, particularly between the year 2011/12 and 2017/18.

As the graph below shows, real exports has been steadily improving during the period 2008/09 –2011/12 but with ups and downs during 2011/12 –2017/18. The country' total export value reached a value of 3.3 billion dollars in 2013/14 from a value of 1.46 billion USD in 2007/08 and down to 2.81 billion USD in 2017/18, showing an average growth rate of 12% per annum first and declining 4% on average on the later segment of the years.

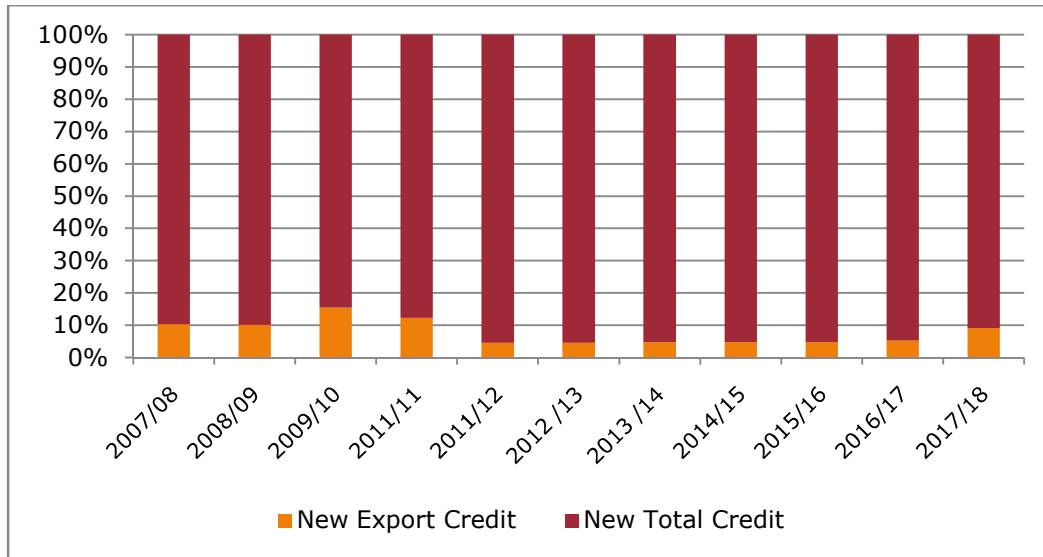
Figure 1: Ethiopian National Export in '000



Source: National bank and Own compilation

The stagnation and decline was largely attributed to increasing political unrest in the major exporter regions, decline in the volume and international price of major agricultural export commodities.

Figure 2: Share of new export credit from total new credit disbursement

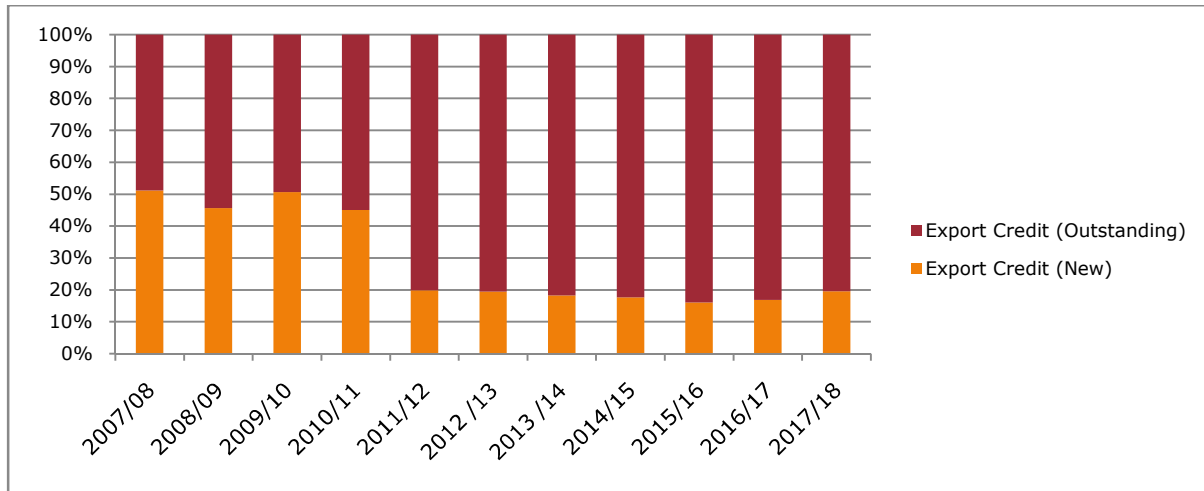


Source: National Bank of Ethiopia and own compilation

On the other hand, the share of new export credit disbursement from the total new credit disbursed showed no signs of stability. The total new credit disbursed stayed more than 10% of the total new credit disbursed for the first eight years after its introduction. However, after 2010/11 the share stayed low well below five percent of new credit disbursement.

The phenomenon is apparent despite the comparatively open quota for export credit in banks budget and low interest rate paid for the credit (8.5% in DBE and 9% in other commercial banks). The data shows that despite opportunities to provide more credit for the export sector and the relatively cheaper cost of credit banks are providing lesser proportion of export credit, which might have a much needed liquidity for the operation of export activities of the sector.

Figure 3: Share of new export from outstanding export credit



Source: National Bank of Ethiopia and own compilation

The decline in new export credit disbursement is also apparent when compared with outstanding export credit. According to the data from national bank the share of new export credit disbursement declined from an average of 44% between the years 2003/04 and 2010/11 to 18% afterwards. The trend shows that banks are collecting more of previously disbursed export credit than they are disbursing new after the year of 2010/11. The data indicates banks are putting brakes in the expansive growth rate of new credit availed to exporters and decreasing the growth of the stock of credit available for exporters to work with. This phenomenon forces the increase use of internal financial resources to finance its export activities that will severely limit/delay the expansion of the exporting firms and the export of Ethiopia at large.

4.4. Choosing the model

The Breusch and Pagan Lagrange multiplier (BP-LM) test is applied to check whether the Bank-specific effect error variance components are zero. It is tested in order to select between random effects and pooled OLS. The Hausman specification test is the classical test of whether the fixed or random effects model should be used. The research question is whether there is significant correlation between the unobserved bank-specific random effects and the regressors. If there is no such correlation, then the random effects model may be more powerful and parsimonious. If there is such a correlation, the random effects model would be inconsistently estimated and the fixed effects model would be the model of choice.

Accordingly, the Hausman specification test result on the variables of the model as specified under annex 6 and annex 7 showed that the P value is 0.0169 which is less than 0.05, thus rejecting the null hypothesis that there is a significant relationship between the unobserved bank-specific random effects and the regressors. The existence of no significant correlation between the unobserved bank-specific random effects and the regressors (i.e.) indicating the Fixed Effects model is more powerful and prudent in estimating the model.

4.5. Panel data Diagnostic Tests

Before analyzing the impact of credit on export, it is necessary to test panel regression assumptions testing due to the fact that violation of these assumptions may lead to inaccurate results.

4.5.1. Normality Tests

There are several methods available for assessing whether data are normally distributed or not .i.e. graphical and statistical. However, in thesis the study a test for normality of

the residual was performed with the aid graphical methods. As shown in Annex 1 and 2, the result tests indicated the residual is close to normally distribution.

4.5.2. Multicollinearity Test

As indicated in Annex 3, the variance inflation factor (VIF) shows a mean VIF of less than 2.0 for the whole variables. The larger the value of VIF, the more troublesome or collinear the variables and as a rule of thumb a VIF greater than 10 is unacceptable (Guajarati, 2009). Generally there was no Multicollinearity problem in this study.

4.5.3. Heteroscedasticity Test

Breusch-Pagan/Cook-Weisberg test for heteroscedasticity was used for testing whether the error variances are constant or not. As shown in Annex 4, its null hypothesis (error variance are homoscedastic) was rejected because statistically significant (Prob> chi2 = 0.00) at 5% level of significance. The result shows that the error variances are heteroscedasticity (not constant). As a result the estimator was measured using cluster robust standard error for avoiding the hetroscedastic problem.

4.5.4. Serial correlation/Autocorrelation

Durbin Watson d-statistics test for autocorrelation test was used test for residual serial correlation up to some specified lag order. As shown in Annex 5, its null hypothesis (No first-order no autocorrelation) was rejected because statistically significant (Prob> chi2 = 0.00) at 5% level of significance. To deal with problem, the autocorrelation effect of error variance was handled by using cluster robust standard error in order to get unbiased estimators.

4.6. Results Fixed Effect Model

The study was conducted using 16 banks for the period of 2007/08 to 2017/18. It has a total of 145 observations. To achieve its objective fixed effect panel data model was applied. The Hausman statistic is used to test the null hypothesis that the regressors

and individual effects are not correlated in order to distinguish between fixed effects model and random effects model. Failure to reject the null hypothesis implies that the random effects model will be preferred. If the null hypothesis is rejected, the fixed effects model will be appropriate. The results in Annex 7 show that the Hausman specification test rejects the null hypothesis and this indicates that Bank specific effects are correlated with regressors. This suggests that the fixed effects model is preferred. Since the fixed effects model is the appropriate one, interpretation of the results will focus on the fixed effects model.

Table 1: Fixed Effect Regression Model

Export	Coef	Std.Err	P-value
lnExpCr	0.054	0.018	0.004
LNGDP	0.157	0.046	0.001
Inflation rate	-0.001	0.001	0.475
R-Square	50.56		
N	145		
F-Test	0.00		
Hausman Test	0.000		

Source: Stata result,2018

As shown in the above table model result, increase in export value is driven by financial incentives. Financial incentives help in increasing the volume of exports as evidenced by a statistically significant positive coefficient for financial.

The result of fixed effect model shows that the provision and expansion of export credit have positive and significant effect on export performance. The variable along with the other control variable contribute 50.56% variation export performance.

In the equation, the positive and statistically significant coefficient (at 5% critical level) of the export credit variable once again supports the hypothesis that providing and increasing export credit leads to export earnings growth. In addition the control variable Real GDP growth's positive and significant coefficient (at 5% critical level) suggests that a large production expansion may raise export sector earnings through surplus production for export.

In order to produce, manufacturers need working capital that is used to pay for upfront costs that are due ex-ante production and sales are realized. When pockets are deep upfront costs are paid with a manufacturer's internal resources, but when the available working capital is limited, an active manufacturer is left with two options: 1) downsize the scale of production until the upfront costs are fully paid with internal resources, or 2) use an external financing source (bank) to meet its financial needs. Access to an external financing source not only enables the export sector to avoid the under-investment problem of producing at a lower scale, but it also offers the sector the possibility to be active even in the cases when upfront costs are higher than the available internal resources.

Results are also in line with the theoretical findings that current access to bank financing enables exporters to increase their current export revenue. Not only the estimated coefficient for bank financing is positive and significant at 5%, but our results suggest that disregarding the reverse causality problem between exports and bank credit produces a downward bias in the estimated coefficient that is corrected, but the reported magnitude of the estimated F-statistic suggests that our estimation strategy does not suffer from a weak instrument problem as the estimated value of the F-statistic is in all cases greater than 10.

Hence, our estimates suggest that an increase in one percent of export credit level implies an increase of national export revenue of 0.054%.

CHAPTER FIVE: Conclusions and Recommendations

Conclusion

Recent theoretical and empirical research on international trade provides evidence of the importance of external financing for exporters. As explained different publications, when variable costs are financed with external sources of credit, one may find that the external financing has a significant effect on an exporter's export revenue, and on an exporter's export margins.

Inspired by these literatures, this paper used export credit and export earnings data to test whether access to bank financing has a significant effect on the export revenue of Ethiopia. Descriptive analysis results suggest that the total new credit disbursed to the export sector and the total outstanding export credits are increasing but both are expanding at a decreasing and lower phase than the total credit disbursement and the rate of collection of export credit. This coincides with the bad performance of the export sector which shows declining trend since 2011/12. Economic analysis results also suggest that access to bank financing has a positive and significant positive effect on export earnings of the nation. Results suggest that bank financing increases exporting sector's export revenue generation capacity.

While future research depends on the data availability of detailed financing sources, further empirical evidence should take a look at the substitution or complementary effect among exporters' different external sources of financing. The possibility for a exporters to use supplier trade debt instead of debt with financial institutions may be a key factor that smoothes out potential negative effects of a sudden reduction in access to bank finance.

Recommendation

Since exports were found to be credit elastic in the study, it is important for commercial banks in Ethiopia to concentrate on making provision of more credits export

- The supply of new export credits shall be increased in order to improve the flow of new working capital for the exporters.
- Allocate greater credit share of credit towards the export sector to increase the supply of working capital and investment costs of exporters.
- Banks shall decrease the rate of collection of export credit so as to decrease the strain of loan repayment on the exporters so as the exporters utilize the loan servicing funds into the exporting activity.
- Banks shall increase the loan period of export credits to balance the rate of decline of the total outstanding loan to the export sector.

In addition studies conducted regarding the relationship between export credit and the export performance of Ethiopia is very rare and descriptive in their method and mostly conducted at an aggregate level. More studies should be conducted to determine the precise impact of credit provision on micro level to account for the heterogeneity of the impact among sectors and individual exporters.

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Annex

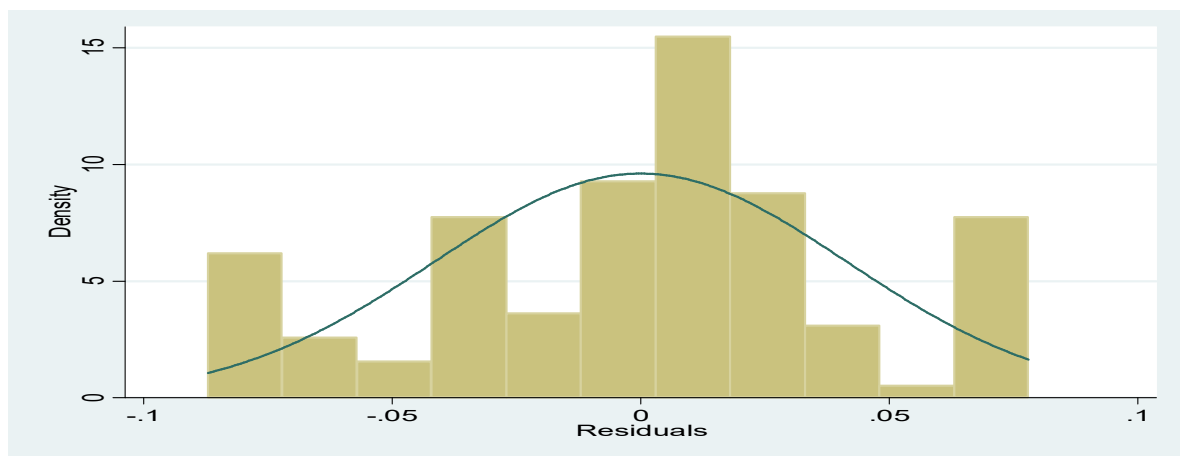
Annex 1: Normality Test

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. swilk e
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Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
e	131	0.76646	24.207	7.173	0.00000

Annex 2: Histogram for Normality Test



Annex 3: Multicollinearity Test

Variable	VIF	1/VIF
LNGDP	1.67	0.597963
lnxp_credit	1.51	0.663355
inflationr~e	1.24	0.806355
Mean VIF	1.47	

Annex 4: Heteroscedasticity Test

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

chi2(1)      =    41.38
Prob > chi2  =    0.0000
```

Annex 5: Auto correlation

Wooldridge test for autocorrelation in panel data

H0: no first-order autocorrelation

F(1, 15) = 38.923
Prob > F = 0.0000

Annex 6: Serial correlation/Autocorrelation Test (old)

Durbin-Watson d-statistic(4, 145) = .8022731

Annex 7: Fixed Effect Vs Random Effect Model

OLS VS Random

Breusch and Pagan Lagrangian multiplier test for random effects

$\lnexp_service[bank,t] = Xb + u[bank] + e[bank,t]$

Estimated results:

	Var	sd = sqrt(Var)
$\lnexp_s\sim e$.0441202	.2100482
e	.0235673	.1535163
u	0	0

Test: Var(u) = 0

chibar2(01) = 0.00
Prob > chibar2 = 1.0000

Random

Random-effects GLS regression
 Group variable: bank

Number of obs = 145
 Number of groups = 16

R-sq:
 within = 0.4211
 between = 0.5649
 overall = 0.4199

Obs per group:
 min = 5
 avg = 9.1
 max = 11

corr(u_i, X) = 0 (assumed)

Wald chi2(3) = 102.06
 Prob > chi2 = 0.0000

lnexp_service	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lnxp_credit	.0143861	.0103435	1.39	0.164	-.0058869	.034659
gdpgrowth	-.082894	.0127532	-6.50	0.000	-.1078899	-.0578981
inflationrate	-.0086837	.0014912	-5.82	0.000	-.0116063	-.005761
_cons	9.487151	.1690524	56.12	0.000	9.155814	9.818487
sigma_u	0					
sigma_e	.15351633					
rho	0	(fraction of variance due to u_i)				

Fixed

```

Fixed-effects (within) regression      Number of obs   =      145
Group variable: bank                  Number of groups =      16

R-sq:                                Obs per group:
    within = 0.5056                    min =          5
    between = 0.1207                   avg =         9.1
    overall = 0.3897                   max =         11

corr(u_i, Xb) = -0.2012                F(3,126)       =      42.95
                                        Prob > F       =      0.0000

```

lnexp_service	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
LNGDP	.1578924	.0466146	3.39	0.001	.0656435	.2501414
lnxp_credit	.0549767	.0188625	2.91	0.004	.0176483	.0923051
inflationrate	-.0010645	.0014861	-0.72	0.475	-.0040053	.0018764
_cons	6.194968	.5501889	11.26	0.000	5.10616	7.283776
sigma_u	.0918177					
sigma_e	.15086938					
rho	.27027683	(fraction of variance due to u_i)				

F test that all u_i=0: F(15, 126) = 1.04 Prob > F = 0.4185

```

Fixed-effects (within) regression      Number of obs   =      145
Group variable: bank                  Number of groups =      16

R-sq:                                Obs per group:
    within = 0.4881                    min =          5
    between = 0.2944                   avg =         9.1
    overall = 0.2930                   max =         11

corr(u_i, Xb) = -0.3658                F(3,126)       =      40.05
                                        Prob > F       =      0.0000

```

lnexp_service	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnxp_credit	.0779236	.0158223	4.92	0.000	.0466117	.1092356
gdpgrowth	-.0384845	.0147872	-2.60	0.010	-.067748	-.009221
inflationrate	-.003512	.0017348	-2.02	0.045	-.0069451	-.0000789
_cons	8.605858	.2335792	36.84	0.000	8.143611	9.068104
sigma_u	.11953132					
sigma_e	.15351633					
rho	.37743329	(fraction of variance due to u_i)				

F test that all u_i=0: F(15, 126) = 2.03 Prob > F = 0.0182

OLS

Source	SS	df	MS	Number of obs	=	145
Model	2.66774308	3	.889247693	F(3, 141)	=	34.02
Residual	3.68557027	141	.026138796	Prob > F	=	0.0000
				R-squared	=	0.4199
				Adj R-squared	=	0.4076
Total	6.35331335	144	.044120232	Root MSE	=	.16167

lnxp_service	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnxp_credit	.0143861	.0103435	1.39	0.166	-.0060624	.0348345
gdpgrowth	-.082894	.0127532	-6.50	0.000	-.1081063	-.0576817
inflationrate	-.0086837	.0014912	-5.82	0.000	-.0116316	-.0057357
_cons	9.487151	.1690524	56.12	0.000	9.152946	9.821356

Annex 8 : Hausman Test

	— Coefficients —			
	(b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
lnxp_credit	.0779236	.0143861	.0635376	.0119732
gdpgrowth	-.0384845	-.082894	.0444095	.0074845
inflationrate	-.003512	-.0086837	.0051716	.0008865

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\begin{aligned} \text{chi2}(3) &= (b-B)' [(V_b-V_B)^{-1}] (b-B) \\ &= 28.10 \end{aligned}$$

Prob>chi2 = 0.0000

(V_b-V_B is not positive definite)

Table 1: Outstanding Export Credit of Ethiopian Banks

<i>Banks</i>	Awash	Dashen	Abyssinia	Wegagen	United	NIB	CBO	Lion	OIB	Zemen	Birhan	Bunna	Abay	AdIB	DGIB	Enat
<i>2007/08</i>			238,467	520,210	247,651	184,478		14,436								
<i>2008/09</i>	338,025		275,413	522,749	286,759	217,820	45,938	23,792	1,315							
<i>2009/10</i>	349,372	452,325		534,876	401,814	389,551	68,044		37,073	68,192	55,790					
<i>2010/11</i>	839,614	378,221	498,173	310,205	493,731	392,579	65,866	28,987	101,924	150,877	72,347	28,593	24,507	17,882		
<i>2011/12</i>	979,019	522,119	585,807	357,928	682,700	624,537	70,570	75,757	153,301	324,280	110,255	36,648	44,271	17,882		
<i>2012/13</i>	1,244,427	588,367	543,548	526,768	720,598	714,105	453,139	130,689	308,543	429,249	149,186	51,087	106,092	57,797	3,266	
<i>2013/14</i>	1,467,694	637,546	980,863	389,539	887,870	1,097,527	751,023	215,005	402,462	322,640	230,608	85,613	226,936	130,981	8,381	118,027
<i>2014/15</i>	2,120,724	1,023,674	1,209,229	953,598	1,355,447	1,137,311	764,862	574,443	941,904	380,076	357,145	100,631	476,910	275,727	19,702	225,333
<i>2015/16</i>	2,985,528	1,087,044	1,976,718	1,423,192	1,764,723	1,157,198	1,198,639	828,903	1,061,419	523,475	1,122,403	174,441	542,890	449,122	48,567	303,254
<i>2016/17</i>	3,587,188	1,858,207	3,538,030	2,308,563	2,521,608	1,644,138	2,144,192	884,122	1,334,321	710,996	1,205,465	241,469	796,812	688,700	50,634	377,800
<i>2017/18</i>	7,095,734	2,676,817	5,129,619	5,186,792	3,578,585	2,045,423	4,301,072	2,086,029	2,687,653	757,404	1,326,403	2,168,780	1,590,548	939,237	507,013	623,975

Source: Annual Reports of Banks

Table 2: Annual Export Credit and Export Value of Ethiopia ('000,000)

<i>Items</i>	2007/08	2008/09	2009/10	2010/11	2011/12	2012 /13	2013 /14	2014/15	2015/16	2016/17	2017/18
<i>Export Credit (New)</i>	3116.30	2858.50	5279.50	5921.40	2659.50	2569.10	2973.30	3780.40	4404.90	6062.20	11603
<i>Export Credit (Outstanding)</i>	2973.80	3409.20	5137.30	7222.80	10720.60	10616.10	13312.00	17581.30	23028.40	30017.50	47774
<i>Total Credit (New)</i>	27254.50	25477.00	28905.10	42207.90	56102.10	54251.50	59965.40	75481.00	88023.10	109011.20	115398
<i>Total Credit (Outstanding)</i>	48241.80	51633.50	62292.20	77690.50	116346.10	151203.20	171324.60	231769.50	280319.00	365601.20	448951
<i>Exports (Birr)</i>	28317.00	35233.00	52168.00	85949.80	102887.00	108227.10	123496.00	121532.20	122366.00	139805.00	
<i>Exports (USD)</i>	3127.90	3399.50	4050.33	5343.12	5993.41	5978.47	6451.62	6057.81	6077.30	6257.16	7059.3

Source: National Bank of Ethiopia, Annual Report 2017/18