Credit Constraints towards Agricultural Development in Ogun State, Nigeria.

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ABSTRACT

This study examines credit constraints towards agricultural development in Ogun State, Nigeria. A structured questionnaire was constructed to randomly collect primary data from 100 farmers in the study area using a multi-stage sampling procedure. The study specifically investigates the socio-economic characteristics of the rural farmers, and tries to identify factors influencing farmers' credit constraint conditions. Data gathered for this study has been analyzed using descriptive statistical tools and a binomial logit regression model. The sigma of the binomial logit regression model, which has the function of measuring the significance of the model, reveals that the data sufficiently fit the model.

Results obtained from the regression model suggest that there is a statistically significant relationship between education, marital status, annual farm income, high interest rate and the credit constraint condition towards agricultural development in this area. This study concludes that there is a significant need for improvement in credit accessibility by rural farmers in Ogun State, Nigeria. Financial institutions should help look into the issue of high interest rate, as it has been a consistent challenge with agricultural development in Nigeria.

Keywords: rural, agriculture, credit, socio-economics, logit, Ogun State, Nigeria.

ÖZ

Bu çalışmada Nijerya'nın Ogun eyaleti için tarım sektöründeki kredi kısıtlarının ölçümü amaçlanmaktadır. Çalışma için bir anket oluşturularak 100 çiftçiden oluşan bir örneklem sayesinde veriler toplanmıştır. Çalışma kırsal kesim çiftçilerinin sosyo-ekonomik özelliklerini ve kredi kısıtlarına etkiyen faktörleri belirlemeyi hedeflemektedir. Çalışma için toplanan veriler betimsel analiz yöntemi ile ve binom dağılımlı logit regresyon modeli kullanılarak analiz edilmiştir. Binom dağılımlı logit regresyon modelinin varyans değeri modelin güvenilirliğini ölçmekte olup, çalışmada bulunan değer itibarıyle veri setinin modeli doğru olarak tahmin ettiği gözlemlenmiştir.

Regresyon modelinin sonuçları eğitim düzeyi, medeni hal, yıllık tarımsal gelir ve de yüksek faiz oranı ile kredi kısıtı arasında anlamlı bir ilişkiye dikkati çekmektedir. Sonuç olarak Nijerya'nın Ogun eyaleti için kırsal kesim çiftçilerinin kredilere ulaşabilmesinde ciddi faiz yapılandırılmalarına ihtiyaç duyulduğu gözlemlenmiştir. Finansal kuruluşların yüksek faiz oranında bir düzenlemeye gitmesi Nijerya'nın tarımsal kalkınmasındaki ciddi bir güçlüğü çözmede yardımcı olacaktır.

Anahtar Kelimeler: kırsal, tarım, kredi, sosyo-ekonomik, logit, Ogun State, Nigeria.

DEDICATION

This thesis is dedicated to God and my Family.

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I give special thanks to the almighty God for sparing my life to attain this level of education. I am exceedingly grateful to my supervisor and my co-supervisor; Assoc. Prof. Dr. Fatma Güven Lisaniler and Asst. Prof. Dr. Kemal Bağzıbağlı, respectively, for their effort, positive inspiration and meticulous supervision during the course of this thesis.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

ACGSF: Agricultural Credit Guarantee Scheme Fund

GOP: Government of Pakistan

GDP: Gross Domestic Product

NACRDB: Nigeria Agricultural and cooperative Rural Development Bank

NGO-MFIS: Nongovernmental Organizations - Microfinance Institutions and Cooperative Societies

ROSCAS: Rotating Savings and Credit Associations

Chapter 1

INTRODUCTION

1.1 Background of the Study

Attainment of a sustainable economic growth as well as development is usually the major target of most developing countries. Governments endeavor to take precaution for the development of their country as the poor population of these countries tries to become richer. Economic growth and development are dependent on some economic, political and social factors such as, to name a few, institutions, openness to trade, physical and human capital, and technological improvement. There are several measures for these, e.g. increase in gross domestic product (GDP), the income per capita and poverty level. In order to experience development there is the need for some structural changes where the application of some strategies is a necessary condition. (Zuvekas Clarence, 1979).

Agricultural development has been discovered to be one of the major tools for the development of a developing country. Agriculture plays several roles towards development especially in low-income countries. It obviously plays key roles in food provision as well as raw materials. It serves as a market for products and bi-products of industrial sectors, helping in the area of savings supply and provision of employment for other sectors of the economy (Ibid). A number of studies have proved the significant role of agriculture towards the development processes of a nation. (Bliss and Stern 1978; Strauss 1986; Williamson 1993; Fogel 1994; Wichman

1995; Olagunju and Adeyemo 2013). The studies argue that there is a positive relationship between nutrition and economic development. It is true that insufficient and lack of steady access to food promotes malnutrition, decreases labor productivity and investment in human capital. However, agriculture possesses the potential to stabilize domestic food production as well as to promote food security that in turn has a strong impact on the economic development. It is also considered as the backbone of the economies; especially in developing countries, e.g. Nigeria, India, Mali, etc. (Johnston and Mellor, 1961).

There are evidences that agricultural sector contains very important income generating activities in low–income countries. In most of these countries, about 60% of the labor force are engaged in agricultural production. Statistics show that about 3 billion of the 5.5 billion people who live in developing countries live in the rural areas (Ake, C. 2001, Berdegué and Escobar 2001, IFAD 2001).

In Nigeria, agriculture was formally the mainstay of the economy, it accounted for more than 60 percent of GDP as well as 90 percent of exports before independence in 1960. Unfortunately, agriculture was abandoned in favor of the oil sector. However, due to the fact that oil wealth and the available natural resources have not been well managed to improve the living condition of the people, more than 54 percent of the population continues to live below the national poverty line. (Olokundun, Falola and Ibidunni 2014).

Nigeria, occupying an area of about 356,669 square miles is one of the greatest countries in Africa, following its GDP revision in 2014; it is the biggest economy of

the continent. It is among the developing countries with the greatest economicpotentials. (Jerven et al. 20 potentials.

 In Nigeria, agriculture sector employs about two-thirds of the workforce, and it provides livelihood for about 90 percent of the rural population. According to the 2013 annual report from the National Bureau of Statistics of Nigeria, the contribution of agriculture to the real GDP is around 22%, which is almost equal to that of the industry. This clearly shows the importance of the sector relative to the industry sector excluding crude petroleum and natural gas that has a total of 8% contribution to the real GDP in the same year

As highlighted by Downs (2007), in 2007 and 2008, Nigeria was the largest recipient of FDI in Africa. In the year 2009, FDI inflows were about US$8.6 billion. The development of the oil sector has significantly affected FDI in Nigeria. Nigeria is the largest exporter of oil, having the biggest natural gas reserves in Africa hence, majority of her FDI has gone into the oil and gas sectors.

Despite the huge agricultural resources and the potential of the country, Nigeria is still a big importer of food and agricultural products. Between 2005 and 2007, the value of agricultural exports decreased significantly each year from US$654 million to US$591 million. (Alfaro, 2003).

Agricultural credit has been studied and discovered to be vital for the achievement of a sustainable agricultural development in any nation of the world, especially in

developing countries (Kuwornu, Ohene-Ntow, and Asuming-Brempong, (2013). It is an important tool for the expansion of farm business upon which poor households largely depend. It equally leads to an increase in agricultural productivity, income generation and household welfare. Inadequate formal national credit policies and credit institutions are among the reasons of poor contributions of agriculture to the economy. These factors play a big role in determining the total components of all the resources that farmers rely on (Shepherd, 1979; Von Pischke and Adams, 1980; Adegeye and Dithoh, 1985, Olagunju 2007, Iqbal, Munir, Abbas and Mustafa 2003).

Agricultural development refers to the process involving the adoption of new and better practices by farmers especially peasant farmers.[1] Most of the new machineries have to be purchased, however majority of the farmers do not have the financial resources to finance it. (Kwanashie Ajilima, and Garba 1998, Orebiyi, 2002). Therefore, Federal Government of Nigeria established credit institutions and schemes that facilitate the flow of agricultural credit to farmers. (Adegeye and Dithoh, 1985). One of such schemes is called Agricultural Credit Guarantee Scheme Fund (ACGSF), providing a fund of ₦100 million, of which 60% was subscribed by the Federal Government and 40% by the Central Bank of Nigeria. The fund was increased to ₦1 billion on December 8, 1999 and later increased again by early 2006 to the present level of ₦4billion. (Phillip, Nkonya, Pender, and Oni, 2009).

Credit institutions in Nigeria are classified into three major classes;

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[1] Peasant farmers are smallholding farmers, engaged in the production of crops for family consumption as well as for market exchange, they utilize family labor all through the farming cycle.

- Formal credit institutions e.g. commercial banks, microfinance banks, the Nigeria Agricultural and cooperative Rural Development Bank (NACRDB) and the state government credit institutions. It was established by decree 20 of March 1977.

- Informal credit institutions e.g. Rotating Savings and Credit Associations (ROSCAS) and money lenders.

- Semiformal credit institutions e.g. nongovernmental organizations - microfinance institutions (NGO-MFIS) and cooperative societies.

In Nigeria, although 80% of the adult population resides in the rural communities and most of them are engaged in agricultural practices, there is little or no support for them in the area of acquisition of credit facilities. Agricultural productivity is therefore deterred because of inadequate access to credit facilities. (Odoemenem and Obinne, 2010, Ayegba and Ikani 2013, Oyewole and Ojeleye, 2015). Rural credit, which has been discovered to be a substitute for personal savings as well as helping in the improvement of agricultural productivity, is not sufficient. In order to boost agricultural production and utilize improved technologies, farmers need sufficient credit. (Klein et al., 1999).

However, despite the recognition of the importance of agricultural credit towards the development of agriculture as well as the existence of the credit institutions and schemes in Nigeria, little or no effort is tailored towards helping the vast Nigerian rural population. Therefore this condition hinders the contribution of agriculture towards the development of the Nigerian economy.

1.2 Aim of the Study

This study aims at investigating the credit constraint factors among rural farmers in Ogun State, Nigeria. In particular, the study examines the credit constraints towards the development of agriculture among rural farming households in Abeokuta North Local Government Area (ABN LGA), Ogun State Nigeria. Specific objectives of the study are as follow:

- To identify the socio-economic characteristics of the rural farmers.
- To examine the factors affecting access to credit by the rural farmers.
- To identify constraints faced by rural farmers in credit acquisition.
- To examine the role of agricultural credit.

1.3 Structure of the Study

The rest of the study is structured as follows. Chapter 2 reviews the relevant literature on agricultural development and credit constraints towards agricultural development in Nigeria. Chapter 3 explains the research methodology. Chapter 4 presents the regression models and the empirical results of the study. Chapter 5 concludes the thesis by giving policy recommendations for improving the contribution of credits institutions to the development of the Nigerian agricultural sectors.

Chapter 2

LITERATURE REVIEW

2.1 Importance of Credit for Agricultural Development

Due to the fact that credit plays a key role in improving the productivity and rural living condition in less developed countries, there are numerous of studies on agricultural development and credit constraints towards the development of agriculture. Among others, see (Olagunju and Adeyemo, 2007; Alene and Manyong 2007; Cao, 2009).

Stiglitz and Weiss (1981) define credit constraint as "the condition where certain individuals obtain loans while apparently identical individuals, who are willing to borrow at precisely the same terms, cannot" (pp. 393-410). This is because the lenders are liable to taking risky project applications only at high interest rates, therefore they fail to reduce the interest rate in order to eliminate or offset excess demand that may consequently ration their credit supply. (Kochar, 1997, Petrick, 2004, Boucher and Guirkinger 2008; Boucher, Guirkinger et al., 2009; Fletschner, Guirkinger et al., 2010).

In line with the fact that credit is the backbone for any business, agricultural credit is an integral part of the process of agricultural modernization and commercialization. This is the orientation of, for example, the Government of Pakistan (GOP). In Pakistan, although other sectors display very high annual growth rates, agriculture

remains the largest sector of the economy. It accounts for about 45% of the workforce, about 22% of the national income (GDP), and about 67.5% of the population who resides in the rural areas relying mainly on agriculture as a means of livelihood. Hence, the GOP focuses on improving the agricultural productivity as well as farmers' income. (Abedullah and Kouser 2009).

Credit is likely to provide the opportunity to earn more money and improve the living condition of farmers; therefore, it was the primary policy of all successful governments to provide the credit necessities of the farming communities in Pakistan. This is because Pakistan recognized a positive and a significant relationship between institutional credit and agricultural productivity (Saleem 2011).

Carter (1989) shows that there is a positive relationship between credit and agricultural productivity in Nicaragua. He argues that credit is capable of reducing the structurally unbalanced agricultural growth and improving living conditions experienced in Nicaragua and other less developed countries.

According to Zeller and Mataya (1998), agricultural credit programs in Malawi help promoting shares and income obtained from crops like hybrid maize and tobacco, which in turn has a substantial positive effect on the level of crops in Malawi. This increases farmer's income and improves agricultural development of the country as a whole by increasing crop productivity in the long run. Findings of the study suggests that farmer's credit inaccessibility negatively affects the agricultural productivity of a nation, since farmers facing binding capital constraints would have no other choice than to utilize little or no inputs compared with farmers without constraints. Zeller et al. (1998) show that rural development as well as agricultural productivity is greatly influenced by numerous factors such as credit, household resources, farmers'

demographic characteristics, physical, social and economic environment, and household income.

Feder et al., (1990), examine the impact of credit facilities on the agricultural productivity in Gongzuhuling, Jilin province of China using the data collected in the year 1987. In this research, it was discovered that the household responsibility system had just started. However, dramatic changes have manifested and affected about 20 years of development. To name a few, rural financial reforms, grain market reforms, and the exemption of agricultural tax are among such changes.

Ruttan (2002) established an innovative model which stresses the importance and relevance of the technical change for agricultural growth. The authors clarify that such a model is endogenous to the economic system of a country. The impact of this is a successful dynamic agricultural innovation in Asia during the late 1960s and early 1970s that was able to round up the orientation that agriculture plays a passive role in development. He highlighted the potency of agriculture as a growth sector having been transformed from traditional stage to a modern sector.

Obilor (2013) connects low agricultural productivity in the Nigerian agricultural sector to the challenges of manpower development. He recommends personnel development through training, and highlights the importance of funds being made available for the sector.

Shephard and Collins (1982) states that credit has to do with farmer's accessibility to all the resources upon which farmers rely on. Moreover, Omotola (2008) emphasizes more on this that adequate macroeconomic policies and enabling institutional finance

towards agricultural development is capable of keeping agricultural development intact, which will in turn enhance employment generation, income and foreign exchange.

Despite the significant benefits of the access to credit summarized above, it is unfortunate that farmers in underdeveloped countries continue to experience a lot of difficulties in the area of acquisition of credit. There is no doubt that this leads to the discouragement of most farmers which consequently have negative effects on the productivity of the agricultural sector.

2.2 Credit Constraints towards the Agricultural Development in Nigeria

Similar to most sub-Saharan African countries, agriculture in Nigeria employs about three quarters of its labor force. Agriculture, being the major source of food and livelihood in Nigeria, is a vital tool to reduce poverty and enhance security attainment in the country. (Phillip et al., 2009).

Despite a number of economic reforms in Nigeria, agricultural credit facilities have witnessed stagnancy. According to EFLnA (2008), in Nigeria about 23% of the adult population are able to access formal financial institutions, 24% have access to informal financial institutions, mean while about 53% do not have access to any financial institution.

Philip (2001) argues that agricultural credit facilities are yet to reach the peasant rural farmers in Nigeria. Friends, cooperatives and family members majorly form sources of farm credit. This is because bank and credit institutions with large loan funds are

usually difficult to access, because collateral and high interest rates are often used to screen out majority of the rural farmers. Another problem with rural farmer's accessibility to agricultural credit is the short term nature of agricultural loans with fixed repayment periods, and of course short term loans is not favorable to annual cropping and livestock production.

According to Ugwumba and Omojola (2013), high interest rate charged and cumbersome loan processing procedures has been a consistent challenge with farmers' access to credit facilities in Nigeria. In their study, they suggested that the introduction of concessionary interest rates and removal of cumbersome loan administrative procedures would help improve farmers' access to credit facilities, agricultural productivity as well as food security. The study further suggested that; in order to ensure that credit facilities are readily available and affordable to farmers, government need to empower the extension services delivery system. This will lead to enhance productivity and sustainability of the enterprise.

This thesis closely follows the study by Ololade and Olagunju (2013) on "The Determinants of Access to Credit among Rural Farmers" in Oyo state, Nigeria. In this study, the authors try to (i) identify the socio-economic characteristics of the rural farmers, (ii) examine the factors affecting access to credit by the rural farmers, and (iii) identify constraints faced by rural farmers in credit acquisition. The authors collected primary data with the aid of structured questionnaires, administered on 210 respondents using multistage sampling procedure. The data was analyzed with the use of descriptive statistics and a logit model.

The findings of the study show that there are significant relationships between sex (2.0187), marital status (-1.9786), lack of guarantor (2.1517), high interest rate (6.8263) and access to credit. The study concludes by recommending to the financial institutions to help look into the conditions for obtaining credit by farmers. While the demographic features of the samples proposed for this study is quite similar to those of the Ololade and Olagunju, (2013), it is of particular interest to see if the analysis from this study will produce similar outcomes.

Chapter 3

RESEARCH METHODOLOGY

3.1 Study Area

This study has been carried out in Abeokuta North, a Local Government Area in the Ogun State of Nigeria. This part of this great country was created in the year 1991, headquartered at Akomoje in the Iberekodo Area of Abeokuta, Ogun State capital, having a land area of about 808km2 with a population of about 201,329 (2006 census).

Its climate is suitable for the production of crops like cocoa, palm produce, coffee, rice kola nut, cashew etc.

The main means of livelihood and occupation of the people of this area are farming, artisan work and quarrying. The state, accounting for about 2.5 percent of the Nigerian population, has a land mass of about 1.7 million hectares and occupies about 1.9 percent of the total land area of Nigeria. It is made up of 20 local government areas, which spread across the four main agricultural zones of the state, i.e. egba, Ijebu, Remo, and Yewa/Awori. Ogun State shares a boundary with the Republic of Benin to the west. Within Nigeria, it shares borders with Oyo state to the north, Lagos state to the south, and Ondo state to the east.

There are two distinct seasons in the state namely, the rainy season and the dry season and two main types of vegetation which are the tropical rain forest and the

guinea savannah. The tropical rainforest is found in the coastal areas, mainly in Ogun waterside and part of the Yewa zone. Rainforests are found in some parts of the Ijebu zones of the state. Guinea and derived savannah are found in most of the western and northern parts of the state. The concentration of livestock production, poultry egg production in particular in these areas could be traceable to the favorable characteristics of the vegetation in the area which is predominantly rainforest and derived savannah.

3.2 Data Source and Method of Data Collection

Following Ololade and Olagunju (2013), a primary data set has been constructed through the administration of a structured questionnaire and collecting information from the farmers on their socio-economic conditions and credit awareness. The respondents were active farmers consisting of two groups who have or have never applied for credit.

3.3 Survey Techniques and the Sample Size

A multi-stage sampling procedure was used to select 100 farmers from Idiori, Ilewoorile, Isagaorile, Oke-ata, Olorunda and Ponkoko farm settlements, out of which only ninety two were analysed. These selected settlements are known for major farming activities including livestock farming.

These service centers were visited on selected days within the week for the period assigned for each of the zones. Farmers were approached and interviewed on their way to their farm with the help of four data collectors and an extension agent.

The data collection took a period of four days and was taken early as the farmers were on their way to their farms, i.e. 7am, and evening when they returned at around 4pm daily.

3.4 Method of Data Analysis

The data obtained from this study has been analyzed using both descriptive and quantitative methods. Descriptive analytical techniques used in the study involve the use of frequency tables, multiple responses tables, and percentages. Binomial logit regression model was used in the study in order to identify the factors determining the credit constrained condition of the farmer.

3.5 Conceptual Framework

3.5.1 Binomial Logistic Regression

The binomial logit model has been used as the regression method in the study due to the fact that it is characterized by asymptotic characteristics that constrains the predicted probability to a range of 0 and 1.i.e. a dichotonomous variable; 1 indicates when a farmer have access to credit and 0 indicates when a farmer has no access. Usually the logit model is used in situations where by the dependent variable is binary, since the data source gave individual information instead of repeat observations, therefore the usual method of estimation is the maximum likelihood method (Gujarati, 1999). Maximum likelihood has the characteristics of providing the consistent estimation and asymptotically efficient parameter estimates. (Pindyck and Rubinfield, 1991).

The empirical model used in this study is of the assumption that, as shown below, the probability of a farmer to be credit constrained , Y_i, depends on a vector of independent variables (X_{ij}) with a vector of unknown parameters, β.

$$Y_i \ = \ F(Z_i) \ = \ F(\alpha \ + \ \beta X_i) \ = \ 1/[1 \ + \ exp \ (-Z_i)] \hspace{2cm} \text{...eq (1)}$$

$$P(Y|X) = \frac{e^z}{1+ e^z}$$

Where:

- $i = 1, 2, ..., 100$ *are* the respondents, i.e. farmer;

- $j = 1, 2, ..., 8$ are the variables;

- $F(Z_i)$ stands for the value of the logistic cumulative density function associated with each possible value underlined by index Z_i;

- Y_i is the probability that a farmer is credit constrained;

- α is the intercept;

- βX_i is the linear combination of the independent variables.

    $$Z_j \ = \ log[Y_J/(1 - Y_J] \ = \ \beta_1 X_1 \beta_0 + \beta_2 X_2 + ... + \beta_i X_i + \varepsilon \hspace{1cm} \text{...eq (2)}$$

    Where; j=1, 2,…………92 are observations

- Z_j= represent the unobserved index level or the log odds of choice for the ith observation;

- X_{ij} = the nth explanatory variable for the jth observation;

- β = the parameters to be estimated;

- Ɛ = the error or disturbance term

    The following are the independent variables considered to be important in the specified model as shown in eq (2).

- X_1 = Education in (years)

- X_2 = Gender (male=1, female=0)

- X_3 = Farm size (hectares)

- X_4 = Farm income (Naira)

- X_5= Marital status (Married=1, single =0)

- X_6 =Collateral (Yes = 1, No = 0)

- X_7 =Farm experience in (years)

- X_8= High interest rate. (High= 1, Low = 0)

3.5.2 Marginal Effect

It is a usual occurrence to report marginal effect after reporting the coefficient when estimating logit or probit models. The marginal effect measures the changes in the probability of the dependent variable, Y (credit constraint as in this study), as a result of a unit change in an independent variable, e.g. X.

The marginal effect for the logit model is calculated as:

$$\partial Y / \partial X_j = \Lambda(X'\beta)[1 - \Lambda(X'\beta)]\beta_j = \frac{e^{X'\beta}}{\left(1 + e^{X'\beta}\right)^2}\beta_j$$

The marginal effect depends on the value of X, therefore we need to estimate the marginal effects at a specific value of X. Marginal effect has the same sign, since $F'(X'\beta) > 0$.

It is worth noting that marginal effect is better estimated at the average of the individual differentials rather than at their means. The estimation of marginal effect at the means could result to a problem whereby there may not be such a person in the sample.

Marginal effect is interpreted as an increase (decrease) in the dependent variable (Y) in percentage terms as a result of an increase in an independent variable. For dummy independent variables, the marginal effect is expressed related to the base category (X=0). For continuous independent variables, the marginal effect is expressed for a one-unit change in X, and we often interpret both the sign and the magnitude of the marginal effects. There is a consensus in the literature that the probit and logit

models produce almost identical marginal effects. (Greene and Hensher 2010, Greene and Hensher 2008, Boes and Winkelmann 2006).

3.5.3 Goodness-of-fit of the Model

When analyzing a logit model, we are to check the goodness-of-fit of the model. If the predicted probability yields an estimate greater than   0.5, then there is more likelihood that the outcome of *Y* will be *success* (i.e. *Y*= 1). The possible outcomes of *Y* is presented in the table below.

	Actual y= 1	Actual y =0
Predicted ŷ =1	True	False
Predicted ŷ =0	False	True

In the table above, there are four cases taking the values of either 0 or 1. Two of the classes are correct predictions while the other two are wrong predictions. The predicted probability provides a measure of fitness for the actual Y outcome. (Dunaway, 2013, Sagbo, 2014)

Chapter 4

EMPIRICAL RESULTS AND DISCUSSION

This chapter presents the empirical findings of the thesis obtained using the logit regression technique described earlier.

4.1 Socio-economic Characteristics of the Farmers

Table 1 below shows the socio-economic characteristics of our data set constructed by sampling 92 farmers consisting of 65 (70.7%) male and 27 (29.3%) female. This shows that most of the respondents are male. The data also show that majority of the farmers are married 83 (4.3%), and there are only 4 (4.3%) single and 5 (4.5%) widow farmers in our sample. More than half of the farmers (about 66.3%) are between the age of 21-60. Majority of the farmers have formal education (70.7%), while 29.3% have no formal education. Majority of the respondents are male, married between age 21-60 and have formal education.

Survey results show that cassava is the main crop type the farmers in the study area cultivate. (75%), while few farmers cultivate maize (20.70%) and yam (4.30%). Farmers in the area value cassava due to the economic benefits they obtain from its production. Crop farming is the major occupation of the farmers and 90% of them are not engaged in a secondary occupation. 9.8% of the farmers are engaged in the secondary occupation.

Table 1: Socio-economic characteristics of farmers

Variables	Frequency	Percentage distribution
Gender:		
Male	65	70.70%
Female	27	29.30%
Total	**92**	**100%**
Age:		
21-40	15	16.30%
41-60	46	50.00%
Above 60years	31	33.7%
Total [mean =32]	**92**	**100%**
Education level:		
No education	27	29.30%
Primary education	29	31.50%
Secondary education	25	27.20%
Tertiary education	11	12.00%
Total	**92**	**100%**
Marital Status		
Married	83	90.20
Single	4	4.30
Window	5	5.40
Total	**92**	**100**
Years of Farm Experience:		
1-10 years	24	26.20%
11-20 years	29	31.50%
Above 20years	39	42.60%
Total [mean = 35]	**92**	**100%**
Crop Type		
Cassava	69	75.00%
Yam	4	4.30%
Maize	19	20.70%
Total	**92**	**100**
Livestock		
Poultry production	8	9.80%
Goat Production	84	90.30%
Total	**92**	**100**

Source: Field Survey, 2014

4.2 Estimation of Results

Table 2 presents the empirical results of the Logit model that was used to determine the factors affecting credit constrained conditions of the farmers. The empirical findings show that high interest rate and annual farm income, education and marital status, all significantly impact credit constraint condition.

From the result obtained, we can deduce that interest rate is a major determinant of credit constraint condition. The study shows that high interest rate reduces the ability of farmers to access credit. A 1% increase in interest rate reduces the probability of farmers' access to credit by about 31%. This is a considerable effect on credit accessibility. The result is statistically significant at 1%. This result is in line with previous empirical findings (See Ololade and Olagunju, 2013, Ugwumba and Omojola, 2013).

Annual farm income is found to positively affect farmers' access to credit. The estimation results show that if annual farm income increases by 1 million naira, the probability of access to credit will increase by 0.115%. The coefficient is found to be statistically significant at 10%. This conforms with the findings of Philip (2001). Farmers with higher income are likely to be able to provide adequate collateral and pay higher interest rate, thus making it easier for them to access credit.

The coefficient (-0.113511) on education indicates that an additional year of schooling decreases the likelihood of getting access to credit by approximately 11%. This result is statistically significant at 10%. This negative relationship between farmers' education and access to credit might be due to the fact that a large proportion of agricultural intervention credit schemes are targeted at poor farmers as

a matter of government policy in Nigeria. There by creating a form of correlation between low levels of education and ability to access credit.

Empirical findings also suggest that marital status negatively affects farmers' access to credit. This implies that being married decreases the probability of being able to access credit by about 35%. This is probably because married farmers have larger family responsibilities and as a result may have a larger drain on resources, thus limiting their willingness to pay high interest rate.

Although results from the other four variables; (gender, collateral, farm size and farmer's experience) show the expected signs, the results are inconclusive because the variables are found to be statistically insignificant.

The sigma value of the binomial logit regression model of the study is; $\sigma^2 = 91.30\%$. This statistic measures the significance of the model and the findings suggest that the data sufficiently fit the model. It is very important for binary regression models.

Table 2: Binomial Logit Estimate of the factors affecting access to credit

Variable	Coefficient	Z- Statistic
Gender	0.0170421	0.22
Education	-0.113511*	-1.74
Marital status	-0.3491107**	-2.49
Farm experience	0.0003042	0.11
Annual farm income	0.000000115*	1.68
Size of farm	0.0115237	0.38
High collateral	-0.029267	-0.41
High interest rate	-0.313327***	-13.43
Numbers of observations	92	
Correctly classified	91.30%	

*- 0.1 level of significance   ** - 0.05 level of significance*
*** - 0.01 level of significance.*

Chapter 5

CONCLUSION AND POLICY RECOMMENDATIONS

This study examined credit constraint condition among rural farmers in Ogun State, Nigeria. In particular, the study examined the credit constraints towards the development of agriculture among rural farming households in Abeokuta North Local Government Area (ABN LGA), Ogun State, Nigeria. Specific objectives of the study are as follow:

- Identify the socio-economic characteristics of the rural farmers.

- Examine the factors affecting access to credit by the rural farmers.

- Identify constraints faced by rural farmers in credit acquisition.

- Examine the role of agricultural credit.

A structured questionnaire was used to randomly collect primary data from 100 farmers in the study area using a multi-stage sampling procedure. The study specifically tried to identify the socio-economic characteristics of the rural farmers, and the factors influencing farmers' credit constraint condition. Data used for this study was analyzed using descriptive statistic and Logit model.

Empirical findings of the study reveal that factors that significantly influence access to credits are the interest rate, education, marital status, and annual farm income. This result supports the findings of similar previous studies. For example Ololade & Olagunju (2013), which this thesis closely follows, also found that interest rate and

marital status significantly affect farmers' access to credit. Similarly, the negative coefficient on interest rate and collateral in this study is consistent with the conclusion by Philip (2001) where it was disclosed that collateral and interest rate are often used to screen out majority of the rural farmers from accessing credit.

Thus, based on the findings above, the policy recommendations of our study are as follow:

Finacial institutions should help verify the procedures in getting credit facilities, such that rural farmers could equally have access to credit facilities. Financial institutions should also help look into the issue of high interest rate, as it has been a consistent challenge with agricultural development in Nigeria. Our empirical findings show that in Nigeria, the smaller scale farmers are not just constrained by credit but also the credit packages available to farmers come at a very high cost. For some of the farmers interest rate on credit facilities was as high as 21 percent per month and in the best case for the sample studied, the interest rate was around 7 percent which happens to be case where some forms of securitization are present. Two major problems identified here are the high cost of borrowing which deprives most farmers from getting access to credit, and the no collateral which also eludes the majority of the farmers in this area from benefiting from the low interest rate credits that are provided by the more conventional banks. This situation creates imperfection in the Nigerian agricultural industry.

One way of correcting or reducing the impact of this imperfection on credit accessibility is to put a proper regulatory framework that can foresee the activities of the financial operators in the agricultural industry. Although, the establishment of the regulatory framework hinders pure competition in the industry, the cost of imposing

25

regulations on the financial participants in the agricultural sector, as suggested in this case, would not be close to the social cost that is due to the distortions in the financial market serving the agricultural industry.

Another way to promote the accessibility of farmers to credit is by government to get directly involved in financial activities of the industry. If government, by directly participating in the industry provides subsidized low interest rate loans to the farmers and at a large scale to cover as many farmers as possible, the private financial institutions will be faced with a bigger competition from the government operations and with time the high interest rate will be strategically forced to go down and more farmers will be able to have access to credit. The success of this policy will ultimately depend on how effective the government's mode of service delivery is in this region.

One interesting finding from this study is that the level of education significantly affects the chance that a farmer will get access to credit facilities. One reason for this could be that the less educated people are not well informed about the financial operations in the agricultural sector. In this regards it may take a structural policy from the government to improve farmers access to credit through education since policies to improve the literacy level of the people in the society usually takes a long time to show effect on real activities. Nevertheless, the government can provide out grower schemes support system through which the grass root (the very illiterate) farmers can be able to access information about the available credit facilities that can help improve their earnings for farming activities.

As noticed during the field study, 60 out of the 92 respondents had no access at all to credit facilities. Most of these farmers had no information about how credit can be accessed or how credit facilities could help expand their farming activities and scope. The out grower schemes suggested could help inform the non-participating farmers as well.

Moreover, based on the findings from this study farmers' access to credit facilities would be improved if government could endeavor to strengthen institutional support to the agricultural sector particularly in terms of subsidized inputs and extension services to farmers.

Finally, if the agricultural financing policies established by the government must actualize her aim on rural development in Nigeria, there is the need for a sufficient level of strategically targeted investment in agriculture. This will in turn upgrade rural infrastructure, boost productivity, and increase competitiveness of the farm output. This is very important because most of Nigeria's farmers reside in the rural areas and gain their livelihood from the farm and other rural based economic activities

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APPENDIX

Appendix A: Questionnaire Used for this Study

EASTERN MEDITERRANEAN UNIVERSITY, FAMAGUSTA, NORTH CYPRUS DEPARTMENT OF ECONOMICS

Dear Respondent,

I Jegede Samuel O, a masters' student of the above named department from Eastern Mediterranean University, Famagusta, North Cyprus carrying out a research project, purposely to: (a) examine the role of agricultural credit (b) and to examine the effects of credit constraints towards the development of agriculture among rural Nigeria.

This questionnaire is meant to help me collect data and information that are necessary for the successful completion of this research work, and you have been selected as one of the respondents.

All information provided by you is purely for academic purpose and am assuring you that it will be treated confidentially.

Thanks for your anticipated cooperation.

DIRECTION: Tick (√) or complete the appropriate spaces below for the corresponding questions.

Section A

The Socio-economic characteristics of the farmers

1. Name of community or village ………………………………………………

2. Gender of the farmer   (a) Male (   )   (b) Female (   )

3. Age of the respondent (years) …………………

4. Level of education

(a) No formal education (   )   (b) Primary school level (   )

(c) Secondary school level (   ) (d) Tertiary education (   )

5.   Marital status

(a) Married (   ) (b) single (   ) (c) Divorced (   ) (d) Widowed (   )

6. Primary occupation   (a) Farming (   ) (b) Trading (   ) (C)
Craftsmanship/artisan/handiwork (   ) (d) Civil servant (   ) (e) Others………………

7. Secondary occupation (a) Farming (   ) (b) trading (   ) (c)
Craftsmanship/handiwork (   ) (d) Civil servant (   ) (e) Others…………………

8. What is your farming experience (years)? ....

9. What is your annual farm income? N̶.......................................

10. What is the amount you borrowed from indigenous finance for the past one year?
……………………………………

SECTION B

Sources of Agricultural Credit

11. What is the source of fund for financing your farming activities?

(a) Private savings/self financing (   ) (b) Friends, relations and/or neighbors (   )

(c) Personal money lenders (   ) (d) Local credit associations (e.g. Isusu or trade associations) (   )

(e) Traditional leasing (   ) (f) Tied credits (   ) (g) Cooperative societies (   )

(h) Ministry of Agriculture (   ) (i) Commercial bank (   )

(j) Others, please specify …………………………………………………………………

12. Which ones among them do you prefer? …………………………………………

13. Why do prefer them? ……………………………………………………………

SECTION C

Characteristics of Agricultural Credit

14. What is the duration of loan borrowed from indigenous sources? ....

15. What form of collateral do you pay for money borrowed from indigenous sources?

(a) Land (   ) (b) Crop/animal (   ) (c) Farming equipment (   ) (d) Household appliance/personal assets (   ) (e) No collateral (   ) (f) Others, specify………………………

16. What do you use borrowed money to do? (a) Finance adaptation to climate change ( )

(b) Increase scale of farm production (   ) (c) Feeding (   ) (d) School fees (   )

(e) Home maintenance/necessities (   ) (f) Others, Specify …………………………

17. What is the interest rate of money borrowed from indigenous finance?
....

SECTION D

Constraints associated with the use of Agricultural credit

19. What problems do you generally encounter in obtaining fund from indigenous sources?

(a) They are very few in number and so inadequate (   ) (b) Do not lend enough money (   )

(c) High interest rate (   ) (d) Exorbitant collaterals (   ) (e) Poor accounting knowledge among lender (   ) (f) Ignorant about the existing indigenous credit sources   (   )   (g)   Unreliable   (   )   (h)   Inconsistency   (   )   (i) others………………………………………. (j) No problem (   )

20. Do lenders supervise loans granted to you?   Yes (   )   No (   )

21. What are your suggestions on how to improve access to indigenous finance?

(a)………………………………………………………………………….

(b)…………………………………………………………………………