CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Agriculture remains the bedrock of the Nigerian economy. It is the critical sector, capable of providing solutions to the socio-economic crisis and hunger that constitute the major bane in the country's economic progress. This is through the provision of food, employment for labour force, income generation and supply of arable and cash crops, woods and timbres, livestock and fisheries (Esobhawan, et al 2013). Despite its decline in the 1970s, which many policy analysts attributed to the sector's neglect, following the discovery of petroleum, agriculture still provides employment for 70% of the nation's population, foreign exchange for the country and raw materials for the industries.

The agricultural sector has a multiplier effect on any nation's socio-economic and industrial fabric because of its multifunctional nature. The performance of the sector is also important in the country's food security and poverty alleviation efforts, since majority of the poor are located in the rural areas and depend directly on agriculture and its related economic activities for their means of livelihood (Olukoya, 2003).

Rural areas in Nigeria are characterized by small scale farmers that are poor. Increase in rural poverty is attributed to low agricultural productivity. Rural farmers' returns on their efforts are constrained by a number of factors, including inadequate capital. Buttressing this, Esobhawan and Alabi (2011) opined that farming production business in Nigeria is characterized by small-scale farm holders with fragmented farm holdings, rudimentary farming system, low capitalization and low yield per hectare. They further added that small farm holders constituted about 80% of the farming population in Nigeria. Obasi and Agu (2000) stated that about 70% of Nigeria's population are involved in agriculture, while 90% of the total food production are from small farms with 60% of the populace earning their living from these farms (Oluwatayo et al, 2008).

The agricultural sector serves as market for products of the non-farm sector as well as major contributor to the nation's Gross Domestic Product (GDP) but small-scale farmers play a dominant role in this contribution. However, their productivity and growth are hindered by limited access to credit facilities (Rahji and Fokayode, 2009; Odomenem and Obinne, 2010). Despite its importance, Fakayode, et al (2008), stated that agriculture in Nigeria is still faced with

numerous problems such as inadequate funding, non-availability of inputs in the right quantity and quality, underdeveloped marketing system and inadequate infrastructural facilities for production which in turn warrants farmers' need for credit. Inadequate flow of funds (credit) into agriculture has been identified as the most limiting problem to increasing agricultural production in Nigeria (Okorie, 1998). This has resulted in slow development in the sector with attendant increase in food import (Enoma, 2010; Adetiloye, 2012). Also, Yunus (2000) revealed that micro-credit has proved to be an effective and popular measure in the ongoing struggle against poverty, enabling those without access to lending institutions, to borrow at bank rates to start business. According to him, on the average, developing countries have fewer than 20 bank branches per 100,000 adults, and people deposit money at the rate of one-third of what obtains in developed countries. This lack of formal financial services, along with many other factors, have inhibited farmers and other entrepreneurs, particularly in rural areas, from increasing savings, capital formation and investments, with consequent reduction in household consumption. Financial services could help farmers to accumulate funds to purchase input such as fertilizer which are helpful for increasing the production of food crops such as yam, cassava, rice, maize, cocoyam etc.

According to IITA (2009), the crop cassava, *manihot esculenta*, a woody shrub of the Euphorbiaceae (spurge) family, a native of South America, is extensively cultivated as an annual crop in tropical and subtropical regions of the world. It stated that cassava is the third largest source of food carbohydrates in the tropics, after rice and maize. Similarly, it has been proved that cassava is a major staple food in the developing world, providing a basic diet for over half a billion people. IITA, in its extensive research work has documented that cassava is also one of the most drought

tolerant crops, capable of growing on marginal soils. It also asserted that Nigeria is the world's largest producer of cassava, while Thailand is the largest exporting country of dried cassava. In the same analysis, IITA (2009), claimed that more than 228 million tons of cassava was produced worldwide in 2007, of which Africa accounted for 52%. In 2007, Nigeria produced 46 million tons making her the world's largest producer. According to FAO (2002), Africa's export is estimated to be only one ton of cassava annually. It also stated that nineteen million hectares of cassava were planted worldwide in 2007, with about 63% in Africa.

Since cassava occupies a unique position as a food security crop to small-scale farmer in Edo State in particular, and Nigeria in general, the production of the crop needs to be encouraged

by removing or minimizing all the constraints surrounding its production. Among the myriads of problems affecting the production of the crop; limited access to credit by the farmers has been identified as the most serious problem.

Hence, Nwaru (2004) opined that one important factor responsible for the declining agricultural productivity in Nigeria is the limited access of farmers to credit facilities. He also stated that micro finance has proved to be effective and efficient mechanism in poverty reduction all over the world.

1.2 Statement of the Problem

The provision of credit has increasingly been regarded as an important tool for raising the production of small-scale farmers, (Emereole, 1995). Also, Nwaru (2004) reported that the major input necessary for the sustainable application of superior technology that would transform traditional agricultural production system by resource poor households in a developing economy is credit. One problem that arises

is the extent to which credit can be offered to small-scale farmers at low interest rates, at the right time and amount, and without any pre-condition, to facilitate agricultural production in Edo State. The importance of credits to small-scale farmers cannot be over-emphasized, hence, Eswaran and Kotwal (1990) stated that, availability of credit to households increases farmer's risk bearing ability so as to enable them move towards optimum production. This consideration made the Federal Government, in the 1970's to set up the farmers' Agricultural Credit Guarantee Scheme Fund (ACGSF) to ameliorate the effects of agricultural risks. Yet, the majority of small-scale farmers in Edo State are not considered credit-worthy by many formal financial institutions. Inadequate flow of funds (credit) into agriculture has been identified as the most limiting problem to increasing agricultural production in Nigeria; this has resulted in slow development in the sector with attendant increase in food import (Okorie, 1998).

Furthermore, to increase productivity, efficient use of credit in addition to its provision is an important factor to be considered. Buttressing this fact, (Nwaru, 2004) stated that credit can by itself grow no crop. It can best be seen as an instrument whose effectiveness depends on how well it is used. The German Foundation for International Development (1988) said that granting credit is not a panacea to poverty as every social group is not automatically helped by just being given a loan. Therefore, availability of adequate credit to finance agricultural production is essential for meaningful agricultural practice. In recognition of the crucial role of credit in farming, from 1964 till date, different governments in Nigeria had implemented several

agricultural credit programmes, they include: Agricultural Credit Guarantee Fund Scheme (ACGSF) in 1977, the Agricultural Credit Scheme (ACS) in 2006, Commercial Agricultural Credit Scheme (CACS) in 2009 and Nigerian Incentive Risk Based Sharing System for Agricultural Lending (NIRSAL) in 2012 (Fakayode, et al 2009).. The Central Bank of Nigeria (CBN) in a bid to promote lending to the agricultural sector has employed several policies ranging from tax waiver on interest earned by Deposit Money Bank (DMBs) on agricultural credit to prescription of these banks' minimum loan portfolio to the agricultural sector.

In spite of these programmes and policies aimed at channeling credit to farmers, credit problems still persisted amongst farmers (Fakayode et al, 2009). Furthermore, most of the credit programmes have been criticized based on their low recovery rate and inadequate diversified portfolio.

Onwudinjo (2012) identified seasonality and time-lag in agricultural production, high rate of default, lack of collateral, high cost of loan administration, ignorance of some farmers, urban locations of the lending institutions, lukewarm attitude of most lending institutions towards lending to productive sectors as some of the reasons why farmers found it difficult to access funds from formal financial institutions in Nigeria.

This study attempted to answer the following questions:

(a) What are the socio-economic characteristics of small scale cassava farmers in the study area?

(b) What is the volume of credit accessed by the farmers and what is their repayment capacity?

(c) Has access to micro credit increased the profitability of cassava farming?

(d) What are the variables that determine the profit of the cassava farmers?

(e) Are resources efficiently utilized by micro credit beneficiaries?

(f) What are the problems faced by small scale cassava farmers.

1.3 Objectives of the Study

The overall aim of the study was to analyze the effect of micro-credit on arable crop (cassava) production among small-scale farmers in Edo State. The specific objectives were to:

a. examine socio-economic characteristics of cassava farmers in the study area,

b. determine the loan volume accessed and repaid by the farmers,

c. determine and compare the profitability of cassava production by loan beneficiaries and non-beneficiaries,
d. analyze the variables that determine profit of cassava production,
e. examine and compare resource use efficiency of loan beneficiaries and non-beneficiaries,
f. examine the problems faced by the farmers.

1.4 Hypotheses of the study

The following hypotheses were tested:

Ho_1: There is no significant difference in the socio economic characteristics of the micro-credit beneficiaries and non-beneficiaries

Ho_2: There is no significant difference in the amount of credit requested and the amount granted

Ho_3: There is no significant difference in the amount granted and amount repaid.

Ho_4: There is no significant difference in the profit earned by beneficiaries and non beneficiaries of micro credit.

Ho_5: The variables employed in cassava production are not significant determinants of respondents' profit.

1.5 Justification of the Study

The study is important because it will provide relevant information about micro credit to small scale farmers and policy makers in formulating developmental policies in agriculture. The CBN (2005) had observed that the relevance of such credit would:

make financial service accessible to a large segment of potentially productive farmers who otherwise, would have little or no access to formal financial service,

enhance service delivery of micro finance institutions to agriculture for agricultural production and

harmonize operating standards and provide strategic platform for the evolution of micro finance institutions to adopt best practices.

It will reveal to farmers that micro-credit can be a means of

boosting agricultural productivity and reduces agricultural production risks. It will also help the conventional banks especially the commercial banks to know that small-scale farmers can make effective use of agricultural credit.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Theoretical Framework

Credit in agriculture is assuming increasing importance in many parts of the world because it is now seen as a tool for agricultural development and production efficiency (Omonona, Lawaland and Oyinlana, 2010).

Capital has been among the prevailing problems that are frequently raised in relation to the stagnation of agriculture in general, and small holding farming in particular (Atkilt and Isaac, 2010), and according to Alegieuno (2010), an increase in capital to the agricultural sector would raise labour productivity as it enhances division of labour and by implication, generate more employment. A typical capital for investment in agriculture majorly comes from personal savings of the farmers and farm credit. Agriculture demands different forms of inputs in order to be productive, among which, credit is indispensable (Alkilt and Isaac, 2010) and due to the subsistence type of agriculture practiced by Nigerian farmers (in which to save is quite difficult), they have to rely majorly on credit in order to be able to expand the scale of their operation.

Udoh as cited by Nwaru, Essien and Onuoha,(2011) reported that demand for credit tends to be a derived demand which indicates that the borrowers will demand for credit based on the need for it and the satisfaction to be derived. Thus with no access to credit it will be difficult to purchase the inputs needed for production let alone maximizing output from given resources or minimizing the resources required for producing a given level of output (Ololade and Olagunju, 2013).

Olagunju and Ajiboye (2010) state that the provision of agricultural credit can be a powerful economic force for development if used to inject appropriate capital for the purchase of agricultural inputs that are not otherwise available to farmers from their own financial, physical and labour resources, therefore if inadequate, it impedes the transfer of technology and investment into agriculture. In line with this statement Ololade and Olagunju (2013) stated that the mere recognition of credit as a condition for agricultural growth is not sufficient to guarantee increase agricultural productivity and farm income, that unless production credit is made available on suitable terms, the majority of the small scale farmers will be seriously handicapped in adopting profitable technology. Credit is pertinent to increasing the efficiency required by the small scale farmers and to advantageously use inputs and factors of production, thus serving as a

catalyst driving the machinery of production to optimum performance because a well-motivated farmer without credit cannot buy improve seeds, fertilizer and chemicals (Ammani, 2012, Ololade and Olagunju, 2013) and credit availability to agriculture according to Nwaru is justified when farmers are faced with low saving capacity, poorly developed rural financial markets and limited availability of appropriate farm technologies whose adoption is constrained by shortage of funds (as cited by Nwaru et al, 2011). Finance is the poverty trap breaker which allows the active poor to access more funds than current incomes would allow. In contrast, lack of access to financial services is one of the main constraints to the growth of small and medium enterprises. A review of the literature of credit markets reveals that small enterprises have less financial opportunities than large scale enterprises. Lack of access to credit by small farmers is due primarily to the reluctance of banks to lend to them; on the assumption that the risk associated with lending to small enterprises is high; the presence asymmetric information and the resulting adverse selection and moral hazards (Soludo, 2008). In agreement with Soludo, Anyanwu (2004) stated that the expected low return from small loans; the inability of small enterprises to provide basic information on their selves and their inability to raise acceptable collateral for loans remove small scale farmers from credits by the formal banking institutions.

The main goal for credit facilities is the improvement of the standard of living of the active poor via enhanced access to small scale financial services. Thus microfinance mobilizes savings and fulfils other financial service needs of the active poor, integrates the informal activities of the poor into the financial system, promotes entrepreneurship, enhances employment generation and speed up economic growth and development (Adebusuyi et al 2008).

The small scale farmers belong to the segment of Nigeria population and therefore cannot make meaningful investment. These small farm households although individually insignificant collectively form an important foundation upon which the nation's economy rest. The small scale farmers are indispensible, not only because they provide a more equitable distribution of income as well as effective demand structure for other sectors of the economy (Asogwa, Umeh and Ater, 2007).

The major constraint to growth of the agricultural sector is the fact that the structure and method of production have remained the same since independence more than four decades ago. The United Nation Food and Agricultural Organization rated the productivity of Nigeria's farmland as low to medium – but with medium to good productivity if properly managed. It has been argued that improvement in the agricultural sector via capital injection or credit provision is a

major thrust for poverty reduction and economic growth for an agrarian nation such as Nigeria (Muhammad-Lawal and Atte, 2006).

2.1.1 Theory of Agricultural Production and Productivity

Alabi (2004) opined that production takes place when scarce resources are used to make goods or provide services. This production is the output, while the scarce resources used are the inputs or factors of production. According to Olayide and Heady cited by Osifo (2012), the physical inputs in agriculture are usually land, labour, capital and management. These may be organized with the ultimate objective to attain profit maximization, output maximization, and cost minimization. The production process may be presented diagrammatically as follows:

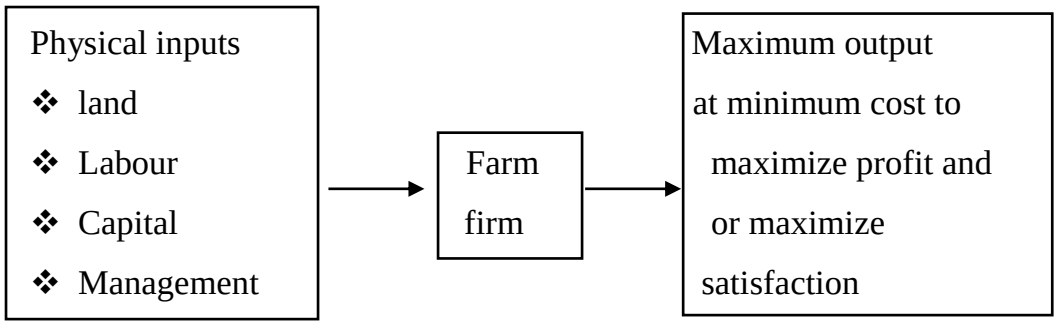

Figure 2.1: the production process

Source: Olayide and Heady, 1982

Credit is expected to influence the availability of factors of production such as land (L), labour (B), capital (K), technology (T) and management (M). All things being equal, productivity level is determined by the quality of these factors to the farmers.

The functional relationship between the inputs and output could be expressed as follows:

$$Q = F(L,B,K,J,M) \text{ - - - - equation (1)}$$

Let assume that Q is the cassava output which depends on all the factors of production put together. As one or more of these factors of production increases, output also increases proportionately; all things being equal and the production frontier will shift to the right i.e. to the higher level. Also, the decrease of one or more of these factors of production reduces output proportionately; this means that the above factors of production have a direct relationship with the output (Q).

From the foregoing, credit is expected to increase the purchasing power of the farmer in respect to these factors of production and lead to an outward or rightward shift in the production

possibility curve (PPC) as shown in figure 2.1.2 below. Conversely, lack of credit is expected to decrease the purchasing power of the farmers, in respect to these factors of production and lead to backward or leftward shift in the production possibility curve (PPC).

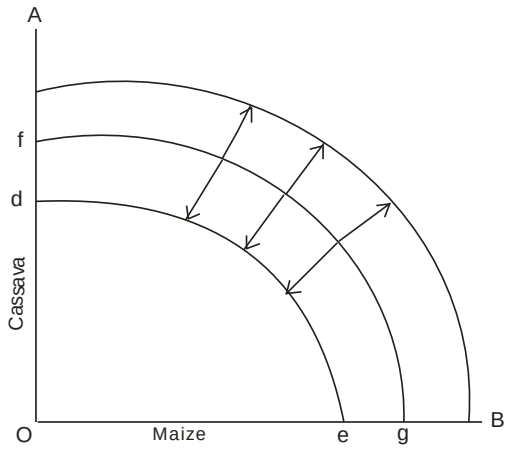

Figure 2.1.2: Effect of increase and decrease in capital (credit) on the production possibility frontier or curve

Source: Adapted from Anyanwu et al (1999)

Figure 2.1.2 shows how increase in capital (credit) lead to the shift to the right or outward shift of the production possibility curve or market supply curve. This means there is an increased market supply or increase in output with credit than without credit, which lead to the shift to the left or inward shift of the production possibility curve. This means that the advantage small scale farmers have for using micro credit is the purchase or increase in supply of improved biological, chemical and other technology which would hitherto translate into increased output and improve standard of living.

2.1.2 Conceptual Review

There is the argument that the nature of credit market in African is such that lending units are unable to meet the needs of borrowers interested in certain types of credit which has resulted in creating a credit gap that captures those borrowers who cannot get what they want from the informal market, yet they cannot gain access to the formal sources because of restrictive lending practices (Ajagbe, 2012).

The agricultural policy of Nigeria (as cited by Isa, 2009), estimated that more than 90% of the total cultivated land in Nigeria was in the hands of small scale farmers, who constitute the bulk of agricultural producers and provide 95 percent of the food supply in the country and 87% of crop exports. These small scale farmers according to Alegieuno (2010) are severely faced with lack of financing for productive and practical engagement in commercial farming, a situation that has

relegated them to low productivity, low income, low investment and endemic vicious cycle of poverty. Buttressing this fact, Heidhues and Schrieder (2005) stated that the credit concept stems from the necessity to break the vicious circle of low capital formation, as presented in the diagram below.

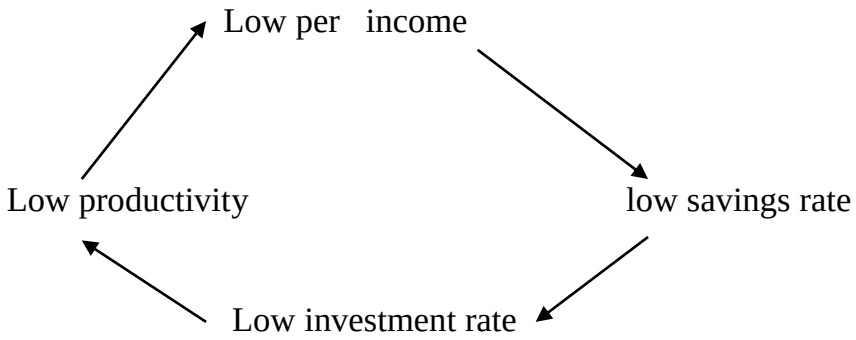

Figure 2.1.3: The vicious circle of low capital formation (Heidhues and Schrieder, 2005).

The diagram shows that the formation of capital is influenced by per capital income, saving rate, investment rate and productivity. A low level in any of these factors will impact on capital formation. It is argued that the role of credit programmes is to break the circle, resulting in an increase in per capital income and thus an increase in saving rate, investment rate and productivity (Heidhues and Schrieder, 2005).

Aku (as cited by Ijaiyi, 2003) sharing the same view, stated that the failure of agriculture to meet its objectives in Nigeria is due to limited use of purchase inputs and mechanization which has been tied to under capitalization or lack of credit. Most farmers are not aware of how, when and where to seek credit. In support, Ike (2009) stated that the problems of agricultural credit in Nigeria include sources, availability and use because the usefulness of any agricultural credit program depends on availability of funds and proper utilization by the intended beneficiaries not the diversion of credit to non-agricultural purposes by farmers. Thus to reap the benefit of credit, farmers need information relating to sources and terms of loans.

Credit is procured for the purpose of investment. John Maynard Keynes noted that when a firm obtains an investment or capital asset with credit or fund, it also acquires the right to a stream of returns or benefit. The stream of returns or benefits comes from selling the outputs of the firm after adjusting for operational cost. In addition, credit is acquired for investment, the net benefit of which is a function of optimum application and efficient allocation to area of need that will have impact on returns. These facts are supported by the postulation of the quantity theory of money that money loses value through excessive abundance and idleness of credit or funds are tied to velocity of money which could be influenced by the operator and his ability to efficiently

allocate or apply the credit or funds to various units in a firm (Geoff, 1986, Jhingan, 2003).

The credit theory asserted that sale or purchase is the exchange of commodity for credit. From this main theory springs the sub-theory that the value of credit or money does not depend on the values of any metal. Rather, it depends on the utilization. Such is the fundamental theory, but in practices it is not necessary for a debtor to acquire credits on the same persons to whom he is a debtor. Human beings are all both buyers and sellers; so that they are all at the same time both debtors and creditors to each other. In practices, therefore, any good credit will pay any debt. In theory, firms create a debt every time they buy, and acquire a credit every time they sell.

Government's regulation of issues of money /credit often constitutes obstacles to flow of money. When these obstacles emerge, one of the results is to force the public to use perhaps less convenient forms. It is for this reason that small firms in particular resort to semi-formal and informal financial intermediaries which are not fully regulated by the government for investment purposes (Mark, 2001).

According to Tyokever and Nyam (2010), informal financial intermediaries are most useful for emergencies as they are easily accessible to small operator as the transaction is often swift. Credit is part of the capital required by most investors (farmers).

Capital can be divided into two broad categories, fixed capital (the money needed for permanent investment such as the purchase of land, fertilizer, erection of silos, purchase and installment of equipment, etc.) and circulating capital (the money needed for defraying the recurrent expenditures of inventory).

The sources of credit can either be formal/institutional (subject to Central Bank's control) or informal/non-institutional (purely on personal basis). Formal credit sources include government credit institutional commercial banks, micro-finance banks, agricultural development banks etc.) While the informal include cooperative, money collectors and keepers, associations of acquaintances, etc. both vary widely in the interest rate charged, security required and lending procedure. Commercial bank are one of the most important formal credit institutions and they rely on fours (4) basic criteria, capacity to repay, collateral, character and credit record (Isa, 2009). One of their main objectives is to give credits but they tend to make credit available only to medium and large farmers and mostly with establishment credit experience.

According to the Central Bank of Nigeria, bank credit is the amount of loans and advances given by the banking sector to economics agents and Obilor (2013) defined it as the borrowing capacity provided to an individual, government, firm or organization is often accompanied with some

collateral that help to ensure the repayment of the loan in the event of default.

2.1.3 Origin of Microfinance

The concept of microfinance is not new. Savings and credit groups that have operated for centuries include the "Susus" of Ghana, "chit funds" in India, "tandas" in Mexico, "arisan" in Indonesia, "cheetu" in Sri Lanka, "totines" in West Africa, and ""Pasanaku" in Bolivia, as well as numerous savings clubs and burial societies found all over the world. Formal credit and savings institutions for the poor have also been around for decades, providing customers who were traditionally neglected by commercial banks a way to obtain financial services through cooperatives and development finance institution.

One of the earlier and longer-lived micro credit organizations providing small loans to rural poor with no collateral was the Irish loan fund system, initiated in the early 1700s by the author and nationalist Jonathan swift. In the 1800s, various types of larger and more formal savings and credit institutions began to emerge in Europe, organized primarily among the rural and urban poor. These institutions were known as people's banks, credit union and savings and credit cooperatives. (www.globalenvision.org/library/4/1051)

2.1.4 A brief history of micro-finance

Micro finance has existed in various forms for centuries, and even longer in Asia were informal lending and borrowing stretches back for several thousand years. However, the birth of modern micro-finance is said to have accorded in the mid-1970sin rural Bangladesh. There, in the midst of a famine, Dr Muhammad Yunus, professor of economics at the University of Chittagong was becoming disillusioned with the abstract, theories of economics that failed to explain why so many poor people were starving in Bangladesh.

Determined to find practical solution, Yunus began visiting local villages. In one nearby village, Jorba, he found a group of 42 women who made bamboo stools. Because they lacked the funds to purchase the raw materials themselves, they were tied into a cycle of debt with local traders, who would lend them the money for the materials on the agreement that they would sell the stools at a price barely higher than the raw materials. Yunus was shocked to find that the entire borrowing needs of the 42 women amounted to the equivalent of US $27. He lend them the money from his own pocket at zero interest, enabling the women sell their stools for a reasonable price and break out of the cycle of debt.

The Grameen bank project, which translate literally as 'village bank' was born, and today works and over eighty thousand villages with more than six million borrowers. In 2006 both

Yunus and Grameen were awarded the Noble Peace Prize for their work with the poor.

Inspired by the Grameen bank, the 1970s and 80s saw rapid growth in the number of new micro-finance institutions appearing around the world, many of them started by NGOs and funded by grants and subsidies from public and private sources.

They demonstrated that the poor could be relied on to repay their loans, even without collateral and hence that micro-finance was a potentially viable business. www.microworld.org/en/about-microwo...

2.1.5 Classification of Micro Credit

Micro credit can be broadly classified into the following:

a. Traditional Informal microcredit (such as money lender's credit, pawn shops, loan forms from friends and relatives, consumer credit in informal market, etc.)
b. Microcredit based on traditional informal groups (such as, tontine, Susu, ROSCA, etc.)
c. Activity-based microcredit through conventional or specialized bank (such as agricultural credit, livestock credit, fisheries credit, handloom credit etc)
d. Rural credit through specialized banks
e. Cooperative microcredit (cooperative credit, credit union, savings and loan association, savings banks, etc)
f. Consumer microcredit
g. Bank-NGO partnership based microcredit
h. Grameen type microcredit or Grameen credit
i. Other types of NGO microcredit
j. Other types of non-NGO non-collateralized microcredit.

This is a very quick attempt at classification of microcredit. (www.grameen-info.org/index.php3Fop...)

2.1.6 Loan Payment Ability by Small Scale Farmers

Magnus (as cited by Ogbanje, Ashiko and Ezihe, 2013) held that financial intervention in agriculture is targeted mainly at small holders, who are low-income persons, provide the sole income for their household, and most often utilize own labour resources. These features, among others, have orchestrated low loan repayment and, sometimes outright default among small holders (Igben, 1981; Bailey et al; 1986). Hence, credit institutions have diverse strategies of effectiveness loan recovery. Another important dimension of credit administration to small-scale farmers in Nigeria is utilization. In other words, the effectiveness of credit advancement is the

result it produces. For small scale farmers, efficient credit utilization should be expressed in increased cropped area and yield. Researchers are of the view that proper credit utilization increased farmers output (Onah, 1994; Okpukpara, 2005).

Onyebinama (as cited by Ogbanje et al, 2013) stated that the transformation of smallholder agriculture in Nigeria from subsistence to market orientation required the injection of more capital. This is agreeable because farmers need financial capital to acquire real capital (plant, machinery, implement), working capital goods (seeds, cuttings, breeding stocks) and manufactured goods (fertilizer, pesticide). Where capital accumulation is elusive, small-scale farmers resort to credit.

Ugwumba and Omojola (2013) opined that loan repayment by the livestock farmers was statistically and significantly influenced by age, farming experience, delay in disbursement and interest rate. He stated further that the major constraints to loan repayment in the area where delay disbursement high interest rates, lack of collaterals, natural disaster, pests and diseases infestation and excessive bureaucratic procedures. According to him policy measures such as timely disbursement of loans, introduction of concessionary interest rates, agricultural insurance scheme and broadening of extension services would mitigate the problem and ensure increase in lending capacity of the credit scheme.

2.1.7 The Concept of Agricultural Credit

The importance of agricultural credit varies widely from country to country. In the developed countries, it has been seen as a basic tool of production which provides the farmers with capital to acquire resources in time, in advantageous amount and efficient manners whereas, in credit is closely related to providing needed resources which farmers cannot sources from their own available capital. Hence the promotion of agricultural development through the provision of agricultural credit has been one of the most important government activities (Olagunju and Ajiboye, 2010). In view of this, the central bank of Nigeria in collaboration with the federal government has initiated different credit schemes which include the Agricultural Credit Guarantee Schemes (ACGS) and Agricultural credit Guarantees Scheme (GCSS) to ensure farmers access to agricultural credit.

Ozowa (1997) explained that agricultural credit encompasses all loans and advances granted borrowers to finance and service production activities relating to agriculture, fisheries and forestry and also for processing, marketing, storage and distribution of products resulting from these activities. It was defined by Nwaru (as cited in Nwaru et al, 2011) as the present and

temporary transfer of purchasing power from a person who owns it to a person who want it, allowing the later the opportunities to command another person's capital for agricultural purposes but with confidence in his willingness and ability to repay at a specified future date (p.130).

Agricultural credit is categorized into three (3) - short term (credit taken as a working capital to finance the current etc and mostly repaid at the end of the season). Medium- term (taken for a longer period for the purpose of breeding stock and equipment) and long term (much longer and used for the purpose of machines and other necessary improvement of the farm and buildings).

The World Bank (as cited by Ololade and Olagunju, 2013) opined that credit is necessary for the small-scale farmers to increase their agricultural productivity and farm income; however their access to institutional credit is limited. The Central Bank of Nigeria disclosed that lending to the agricultural sectors had dipped to a deplorable 1.7 percent of total bank credit whereas the commercial banks (handling a substantial part of the country's fund) are expected to participate substantially in the provision of financial services to the development of the sector (the Punch Editorial Board, June, 2012).

Similarly, for effective administration of agricultural credit, financial institution while granting credit to farmers for agricultural purposes consider a number of factors (Okerenta and Orebiyi, 2005). They include the profit ability of the investment level of assets of the farmer, interest rate, availability of credit, loan transaction costs and level of risk bearing. The factors that influence the availability of credit to small scale farmers according to Isa (2009) and Nwaru et al (2011) can be divided into:

Supply factors-commercial banks willingness to lend which is associated with the gross income risk involve, total cost of lending, worth of loan application and previous loan repayment.

Demand factors - farmer's willingness and ability to apply for and accept credit from commercial banks and more strongly associated with interest rate, educational level of farmer amount borrowed previously, from size and gross savings.

Also some of the factors that have been identified that influences banks' provision of credit to small-scale farmers include:

1. The uncertainties such as Natural hazards, attack from pest and diseases involved in agricultural activities.
2. The non existence of a full-fledged agricultural finance departments and deficiency of skills in agricultural credit appraisal, monitoring and administration in most of the banks.

3. The absence of rural branches. The ratio of rural branches to total branches of formal credit institutions and this constitutes a limitation of small-scale farmers' credit access in Nigeria (Badiru, 2010).
4. The inability of farmers in writing bankable proposal and lack of awareness on banking opportunities.
5. The smallness of operation, inability to present acceptable collateral for loans from banks and lack of good records and data, access their credit worthiness.

2.2 Reviews of Analytical Techniques

This section reviews the basic econometrics, which include the budgeting analysis, regression analysis, using the ordinary least square multiple regression, marginal value productivity analysis and the likert scale.

2.2.1 Regression Model

Regression is the amount of change in one variable called the dependent variable associated with a unit change in the values of other variables called the analyses or independent variables (Olayemi and Olayide 1931). The regression analysis is used to estimate the parameters of a population from random samples. The model could be simple or multiple and linear or nonlinear in its linear and multivariate form is explicitly stated as,

$Y_i = B_o + B_j \sum X_{ji} + Ei$ …….……....(16)

Were Y_i is the dependent variable

X_J are the independent variable

B_J are the parameters to be estimated

B_O is the constant term

E_i = are the error terms

J = 1, 2 …..k are the number of independent variables in the model the error term in the regression model may be due to these sources.

1. Specification errors due to approximation of functional form, omitted variables, inclusion of irrelevant variables and omission of relevant variables.
2. Arise from defective sampling design, actual measurement of values of variables and data processing.
3. Random or stochastic errors are beyond the control of the decision unit. In agricultural

random errors could be due to the interplay of weather, soil and environmental failures.

2.2.2 Assumption of Regression Model

The linear multiple regression models must satisfy some basic assumptions before they can be useful in economic analysis. The assumptions includes,

(i) That Y_i have constant variance, $Y - N (u\ \delta^2)$

The variances of Y_i values are constant at all levels of X_i, while the expectation of Y_i values at a given level of X_i is obtained from a regression equation.

$E (Yi) = \beta_o + \beta E (X_i)$ ……. (17)

(ii) The error terms are statically, independently and normally disputed that is ϵ ˜ N (0, δ^2), the expectation, E (ϵ), is zero, and the variance is constant (ϵ_i ϵ_1) = if this constant variance assumption breaks down, there is the problem of heteroskedasity. Heteroskedasity leads to large values of estimated parameters (β) and it also renders the use of OLS formulae for computing the variances of the parameter estimated in applicable.

(iii) The explanatory variables must to be independent of each other as possible to avoid the problem of multicolinearity. There must not be linear relationship between any pair of explanatory variables and the covariance between two explanatory variables should be zero. That is, Cov (X_i X_i) = 0 for $1 \neq j$…….20

A simple test for multicolinearity is the examination of correlation matrix of the explanatory variables. If the correlation coefficient (r) of two variables is greater than 0.75 there is multicolinearity.

2.2.3 Estimation Method of Regression Analysis

There are two basic estimation methods used in regression analysis. They are the ordinary least square (OLS) and the maximum likelihood estimates (MLE).

The OLS is a minimization method, which chooses the estimate, which minimizes the sum of squares of error ($\sum e_i^2$), where ei are the residual or deviation from the estimated line. Each e_i could be positive or negative depending on its position around the estimate line. The sum of squares of these deviations is a function of the estimated population parameters β_0 β_1, that is,

$\sum (e_i^2) = f (\beta_0\ \beta_1)$ ……(18)

Therefore the principle of OLS is that the β_0 and β_1 values should be chosen so as to make $\sum e_i^2$ as small as possible (Johnston 1982 and Agbadudu 1994).

The least square normal equation are obtained by employing the necessary or first order

condition for minimization, which is setting the partial derivatives of the sum of squares with respect β_0 and β_1 equal to zero and then solve the ensuring simultaneous equations for the values of β_0 and β_1 .

The MLE is a maximization method. It consist of the maximization of the likelihood function which defined the joint probability of any variable being observed under the assumption that the variables is normally distributed and its probability function is the equation of the normal curve (Koutsoyiannis, 1977).

That is

$$f(X_i) = \frac{1}{\sqrt{2\pi\delta^2}} \exp \left[\frac{-1 / 2 (X - u)^2}{0} \right] \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 19$$

From a sample of n independent observations, of X_i (X_i X_2…..Xn) the likelihood function (L) or the joint probability functions of all the values X_i to X_n is the product of the individual probabilities given that each observation is independent of the others,

That is,

$$L = f(Xi, X2\ X3 \ldots Xnu\delta^2) = \pi \frac{1}{} \exp \left[\frac{-1 / 2 ((X - u)^2}{\delta} \right]$$

The MLE equations are obtained by employing he necessary condition for maximization and then solve for the values of the estimated parameters.

2.2.4 Statistical test of Goodness of fit

To confirm whether the estimated parameters conform with statistical and economic rules or principles as to whether the data fit well, the algebraic functional forms chosen, the following criteria can be considered.

1. The magnitude of coefficient of multiple determination (R^2) and adjusted (R^2).
2. The significance of the overall hypothesis model using the F-ration test

3. The significance of each estimated coefficient using the student's T-ration test
4. The Magnitude of the standard error of overall model.

2.2.5 Stochastic Production Function

The stochastic production function was first introduced in 1978 by Just and Pope who made use of an input conditioned output distribution (Gardner and Rausser, 2001; Just and Pope 1978). This function goes beyond the scope of classical inputs and allows for random elements associated with production uncertainty to enter the functional relationship. Further work contributed by Aigner, et al (1977) used the stochastic production function framework as a process that includes a random element corresponding to inefficiencies in a firm's technical production as well as predicted element (Battese, 1977). In this case, the function is no longer deterministic or explained within the model but also includes a variable to account for production uncertainty. In production agriculture, a stochastic production is used to account for random elements of production: such as, weather, price fluctuations and soil quality. The stochastic set-up also allows certain variables to be treated as deterministic, while incorporating random components (Gardner and Rausser, 2001). According to them, random components, or stochastic factors, which are outside of the farmers' control, have been examined for decades and are of great interest for management and policy decisions. In the case of Nigeria, a stochastic production function can be used to incorporate the underlying fact that production is often stochastic and depends upon outside random variables, such as rainfall. They also emphasized on the use of a stochastic production function which allows the random element to be analyzed despite any decision made. When looking at Nigeria specifically, production uncertainty is a component of everyday farming practices. This uncertainty, especially when considering weather, is likely, to impact the input choice mix (Jones and Smith, 2011; Isk, 2002 & 2003; Ramaswami, 1992). Uncertainty must be taken into account when making decisions, both at the producer level, as well as at a policy level in distributing aid or designing policies to help combat production risk (Battese, 1997; Jones and Smith, 2011). In 1997, Battese argued that production risk was a major component lacking in the stochastic production function. Production risk can be made clear by analyzing the input mix and management decisions of a farm, and, therefore, should not be omitted from the stochastic production function framework. Once inputs have been determined, the amount of specific inputs in the production function will result in a given output. These input differences can also account for differing yields from year to year, (Kumbhakar, 2010).

2.2.6 The Cobb-Douglas Production Function.

The Cobb-Douglas production is usually fitted with the survey data. It is expressed as:

$\text{Log } Y_i = \text{Log}\beta_o + \beta_i \log X_{1i} + \beta_2 \log X_{2i} + \ldots\ldots\ldots \beta_n \log X_{ni} + V_{i-} U \ldots\ldots\ldots 7$

Log = (applied when linearizing Cobb- Douglas Production Function).

Y = Output

β_o = Constant

$X_i + X_2 + \ldots X_n$ = Quantity of factor input

B_{1-n} = Scalar quantities to be estimated (parameters)

$i = i^{th}$ number of respondents

V_i = Stochastic or random error which are assumed to be identically, independently and normally distributed with mean zero and constant variance N(0, δ2v) and represents those shocks that cannot be controlled by the farmers such as weather failure, flooding, pests and disease, pilfering etc.

U_i = Disturbance term of technical inefficiency effect or non-negative random variables which are assumed to account for technical inefficiency in production and assumed to be independent of V_i. They capture the random variation in output of the farmers such as computational error, wrong application of inputs etc. If Ui = 0, there is no inefficiency effect but if $U_i > 0$ the production lies below the stochastic frontier and it is inefficient. It is often assumed to be normally distribution that is N (0, $\delta^2 u$).

2.2.7 The Budgeting Analysis

The budgeting analysis is an important tool in farm planning analysis because it can be used to calculate the overall performance of the farm. The existing types of budgeting include complete or whole farm budgeting, partial budgeting, break even budgeting, partial cash flow, profit budgeting, parametric and risk budgeting. The whole farm profit budgets are prepared in gross margin terms. The level of the farm activities and the gross margin per unit level of each activity are used to calculate the total gross margin (TGM), while the fixed cost (FC) can be deducted from the GM to show the net farm earnings (Dillions and Hardakar, 1993). The major statistics that are commonly derived from budgeting analysis are the Gross margin and the farm income or returns.

The Gross Margin of an enterprise is the difference between the total value of production (Total Revenue) and the Total Variable Cost of Production (TVC), that is, GM = TR – TVC.

The farm profit or net returns is the gross margin minus the fixed cost, that is

π TR – (TVC + TFC), where π = Profit, TR = Total Revenue, TVC = Total Variable Cost and TFC = Total Fixed Cost.

2.2.8 The Marginal Value Productivity

The marginal value productivity is used to determine resource-use efficiency in production process. Resource-use efficiency or allocative efficiency of firm input is the ability of firm to choose optimal level of inputs for the given input prices or the market acquisition prices for the given input. Hence at the level of optimal input utilization or at the point of resource-use efficiency of input utilization, the ration of input-output prices must be equal to the marginal physical product of each of the input used. The criterion is expressed as:

$$d_y/d_x = P_{xi}/p_y \text{ or } MPP_x = P_{xi}/p_y \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(9)$$

Where:

d_y/d_x = Marginal physical product (MPP) of the input (Xi) used

P_{xi} = Market price of the input

P_y = Markey price of the output

Hence, d_y/d_x = MPPxi ……..(10)

Multiplying both sides of equation 1 by P_y/P_{xi} will yield,

$$MPP_x \text{ X } \frac{P_y}{P_{xi}} = \frac{P_{xi}}{P_y} \text{ X } \frac{P_y}{P_{xi}}$$

$$\text{Or } (MPP_{xi}) \text{ X } \frac{P_y}{P_{xi}} = 1$$

$$\text{Or } P_y \frac{(MPP_{xi})}{P_{xi}} = 1 \text{ or } P_y (MPP_{xi}) = P_{xi} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(11)$$

But Py (MPPxi) = MVPxi (Marginal Value Product of input)

Hence, if MVPxi = 1; resources is efficiently used

2.3 Empirical Review of Past Studies

Several empirical studies have been carried out on the effect of micro credit on agricultural production in Nigeria.

Ashaolu et al (2011) in their work titled; micro credit effect on agricultural productivity in Ogun State, Nigeria, revealed that total cost per hectare of credit user farmers is higher (N41,632.53) than that of non-credit user farmers (N32,667.79) indicating misallocation of resources by credit-user farmer. Again, profit per hectare of credit users farmers is greater (N44,

466.59) that that of non-credit users (N27,833.03), suggesting that access to credit could lead to improved farmer's productivity and higher income in form of revenues and profit.

Also, in a study carried out by Fabiyi and Osotimenhin (1984) on the impact of credit on rice production in Ondo and Oyo State and particularly using the Ordinary Least Square (OLS) multiple regression models to determine the factors influencing the amount of loan, output of rice and revenue accruing from rice in the area. The results showed that the linear model satisfactorily fitted the relationships in line with a priori expectation. The amount of loan taken was found to have a positive contribution to both output and income.

Again, Yazani (1995) used the production function to measure the impact of credit. This was done by fitting a production function for borrowers, non-borrower pooled sample respectively. The chow test was also carried out to measure the significance of borrower differences in production function and efficiency between borrower and non-borrower. The results showed that the borrower's production function had a neutral upward shift when compared to the function of non-borrower. The functions therefore differed in terms of slope or marginal productivity of input.

Also, Agom (2001) in a study on the impact of micro credit on performance of agricultural enterprises in Cross River state, Nigeria used the ordinary least square multiple regression, discriminate analysis, simple descriptive statistical tools and ANOVA in his analysis.

The results however indicated that there was a significant difference in interest rate, loan duration and disbursement lag among micro credit sources. There was a significant difference between the mean returns of credit users and non-credit users, with non-users having higher returns. Loan amount was found to have a significant positive contribution returns but users failed to harness this optimally. There was therefore increased mean total cost due to interest payment without a corresponding increase in total investment as most times the loans were used outside the farm business. Again, the production function provides that for a certain level of output to be maximally and optimally produced will depend on the efficiency of the inputs, be it a locative or technical. Agricultural and of cause non-agricultural credit has been seen as an input used in production as well as facilitator of the efficiency of other inputs. This is corroborated by Obwona (2006) who identified education, credit accessibility and extension services as variables that contribute positively towards the improvement of efficiency, and of productivity of 65 sampled small and medium-scale tobacco farmers in Uganda. According to Rahji (2005), credit access for adopters and non-adopters of improved management practices

were found to be significant determinants to the production efficiency of rice in Niger states, north centre Nigeria. The stochastic frontier production function was being used. This is the statistical and econometric approach used for production efficiency analysis. Bhasin and Akpalu (2001), also noted from the result of their work that business experience, training program and credit among other variables were found to be statistically significant to the efficiency of micro enterprises (hair dressers, dress makers and wood processor) in Cape Coast.

Examining the impact of agricultural credit on the growth of the Gross Domestic Product (GDP) in Nigeria, Enoma (2010) suggested from his study that; just as in most developing countries, agricultural credit is an effective instrument for counter-cyclical agricultural output, non-oil export and GDP stabilization in the Nigeria economy although the policies deteriorate with time. In support, Ijaiya (2013) suggested from his study that commercial banks can increase their credits to the agricultural sector if solutions are proffered to the over-valued exchange rate and high interest rates which have been a stumbling block to the commercial banks credit extension to agricultural sector, thus encouraging commercial banks to increase credits to the agricultural sector. He further stated that the goal of an increased commercial bank credits to Nigeria agricultural sector is in essence, to achieve an increase in total Gross Domestic Product which has been in its lowest ebb judging from the percentage of Nigerians engaged by the sector and therefore recommended the allocation of increases in commercial banks lending ceiling to the agricultural sector and the introduction of agricultural saving schemes in their rural and urban branches to mobilize savings from the farmers.

Empirically examining the impact of the Agricultural Credit Guarantee Scheme Fund, agricultural product prices, government fund allocation and commercial bank's credit to agricultural sector on agricultural productivity, Obilor (2013) revealed from his study that agriculture credit guarantee scheme fund and government fund allocation to agriculture, produced a significant positive effect on agricultural productivity and thus recommended the encouragement of farmers to apply for loan from banks that participates in agriculture in order to enhance their agricultural activities and productivity. Explaining further, he stated that the joint action of commercial banks credit to the agricultural sector, agriculture credit guarantee loan by purpose, government financial allocation to agricultural sector and agricultural products prices can significantly influence agricultural production in Nigeria.

The main factors that have been identified from different studies significantly influencing farmers' (especially rural farmers) access to credit include gender, age, level of education,

marital status, location and value of assets, guarantor, high interest rate, dependency ratio of farmers. With the lack of collateral security, lack of guarantor and high interest rate posing as the major constraints and that majority of the farmers were credit constrained which has negative influence on their production efficiency (Adebayo and Adeola, 2008; Omonona et al, 2010; Ajagbe, 2012; Ololade and Olagunju, 2013). The coming together of farmers as a group to seek credits from banks and also banks reviewing the conditions of acquiring agricultural credit in the area of interest rate, collateral security and guarantor were recommended.

Ibrahim and Aliero (2012) studying farmers from rural area of Kaduna state agreed with the level of income, collateral, educational attainment and marital status having a significant positive influence on farmers' access to formal credit but that of the interest rate and transaction negative. He recommended the use of both group lending arrangement and character lending in credit approval to rural farmers. Also that since the possession of collateral is one of the major obstacles to the rural farmers' access to finance, alternative arrangement for securing loans in the rural areas should be initiated.

Also studying the effects of socio-economic and demographic factors on the rate of credit allocation to the farm sector by arable crop farmers in Benue state, Nigeria, Oboh and Ekpebu (2011) revealed that length of loan delay and visitation by bank officials are among the factors that significantly affected the rate of credit allocation to farmers. And from the survey, only about 56 percent of the loans granted to farmers were invested directly in farm activities. They therefore recommended the disbursement of loans on time and regular supervisory visits to these farmers by bank official to reduce the rate of loan diversion and its effective use.

The non-patronage of commercial banks has been related to the presence of few of their branches in the rural area coupled with inadequate security on the part of farmers which prevent them from obtaining loan in the banks (Adebayo & Adeola, 2008, Omonona et al, 2010, Olalade and Olagunju, 2013). Therefore in line with the findings from their study, recommended the establishment of branches and financial institution such as agricultural and community banks in the rural areas, also the reviewing of the procedures for securing loans to make it easier for the farmers and the mobilization of the rural farmers by the relevant government agencies to form themselves into formidable group to be able to obtain the maximum benefit of collective investment of group savings.

Onwudinjo (2012) identified seasonality and time-lag in agricultural production, high rate of default, lack of collateral, high cost of loan administration, ignorance of some farmers, urban

locations of the lending institution, lukewarm attitude of most lending institution towards lending of productive sectors as some of the reasons why farmers found their end it difficult to access funds from formal financial institutions in Nigeria.

Olagunju and Ajiboye (2010), using two commercial banks in the south-western Nigeria as a case study, reveal the relatively farm sizes as one of the major criteria for giving loans to the farmers and that a study of some of these institutions has shown that rising operational cost is a major factor militating against their effective performance.

Awotodunbo (2008) examining the finance constraints to small scale farming, found from his study that only 7% of farmers have access to banks loans while most (93%) access loan from other sources like cooperative societies, personal savings and relations and also, farmers' net income is significantly related to finance constraints. Ammani (2012) investigating the relationship between agricultural production and formal credit supply in Nigeria, agreed with productivity of the crop, livestock and fishing sectors of Nigerian agriculture and therefore recommended the expansion of formal credit sources to reach as much farmers as possible. Also, analyzing the trends and pattern of institutional credit supply to agricultural during pre-and post-financial reforms along with their determinants, Onoja, Onu and Ajodo-Ohiemi (2012) found the existence of significant difference between the credit supply function during the pre-reform and that of the post reform periods indicating an exponentially increasing trend of agricultural credit supply in the economy after the reformed began. They also identified from their study, stock market capitalization, interest rate and immediate pat volume of credit guaranteed by ACGSF significantly influenced the quantity of institutional credit supplied to the agricultural sectors over the period in review. It was therefore recommended that government must consider interest rate regulation as a veritable tool for making credit accessible to farmers at affordable levels.

The results from the evaluation of the critical factors that are considered by financial institution in disbursement of credit to farmers in the Nigeria delta area of Nigeria by Okerenta and Orebiyi (2005), show that the availability of credit was considered an extremely important factor in the supply of agricultural credit to farmers and transaction costs to be the least important factor.

CHAPTER THREE

METHODOLOGY

3.1. Study Area

The study was carried out in Edo State, Nigeria. It is one of the 36 states in Nigeria, created from the former Bendel state on the 27th August, 1991. It is bounded on the East by River Niger, on the South and Southeast, by Delta State, on the West, by Ondo State, on the North and North East by Kogi State. It lies between latitude 5'.80^0 South and 7'.50^0 North of the equator and Longitude 6'.2^0 West and 7'.5^0 East of the Greenwich Meridian. It occupies an area of 19,283.93km^2 with a population of 3,218,332 people made up of 1,640,461 males and 1,577,871 females by the 2006 population census (National Population Commission, 2006). It has an annual rainfall that varies from 2,500mm in the Southern part to 1,500mm in the extreme Northern part. It is drained by many rivers which empty into the sea through the Bight of Benin. The state is rich in fertile soil of the sandy loam type which is favourable for the growth of cash and arable crops. The cash crops include: palm produce, pineapple, cocoa, plantain, rubber and cashew. The arable crops include yam, cassava, potatoes, tomatoes, melon and okra. This favourable condition made majority of Edo people engage in farming especially cassava production. Artisanal fishing is carried out by riverine communities. Fish farming is fast becoming an important occupation of the people.

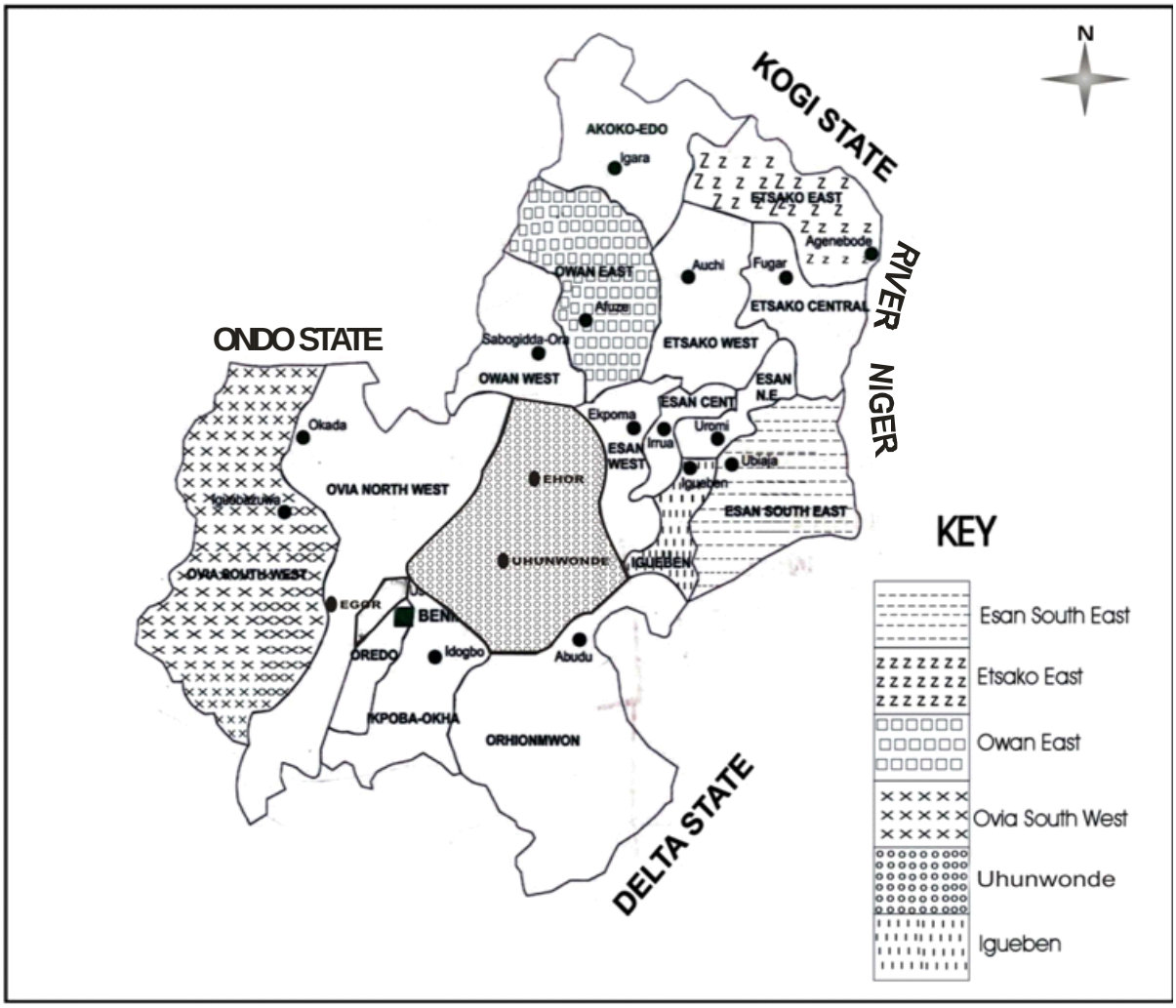

Fig 3.2: MAP OF EDO STATE SHOWING STUDY AREA

3.2 Research design:

The research design adopted was the survey method. This design is one in which a group of people or items are studied by collecting and analyzing data from only a few of the people or items of investigation that are considered to be representative of the entire group or population. This method was chosen because it was considered to be more economical in terms of resources required and the time needed for the study. It has an accurate assessment of the characteristics of the population of the study through random sample drawn from the population.

3.3 Scope of the Study

The study focused on the effect of credit on cassava output during the 2014 production

season and it covered the registered farmers that produce this crop on commercial basis in the selected Local Government Areas.

3.4 Population of the Study

The study covered registered farmers in six local government areas of Edo State. The lists of these farmers were obtained from Ministry of Agriculture and Natural Resources and Agricultural Development Projects (ADPs) to form the sampling frame. The list revealed that there were 11,826 registered farmers in the study area (EDADP, 2009).

3.5 Sampling Techniques

A multistage sampling technique was adopted in selecting the respondents for the study. The first stage of selection was the purposive selection of two (2) Local Government Areas from each of the 3 Agricultural Zones based on the prominence of cassava production activities. The selected LGAs were: Ovia South West and Uhunmwode from Edo South, Esan South East and Igueben from Edo Central, Etsako East and Owan East from Edo North. In the second stage of selection, three (3) communities were purposively selected from each of the Local Government Area, also based on prominence of cassava production activities, to give a total of eighteen (18) communities that were studied. The communities are shown in Table 3.1.2. The third stage was the stratification of the farmers into credit beneficiaries and non-beneficiaries, the forth and the final stage was the random sampling techniques to select 2% from the population of registered farmers in the study area. This came to a total of two hundred and thirty eight (238) questionnaires administered; where two hundred and eighteen (218) were retrieved representing 91.6% response rate. Details are shown in table 3.1 below.

Table 3.1.2: Sampled Areas.

Agricultural zone	Local Govt.	Communities	Population	Farmers sampled with 2% of the population
Edo South Agricultural Zone	Ovia South West, Uhunmwode	Udo Iguoriakhi Iguobazuwa Ehor Eyaen Egba	468 583 985 1310 250 380	10 12 20 26 5 8
Edo Central Agricultural zone	Esan S. E Igueben L.G.A	Ewohimi Ewatto Ohordua Igueben Ewosa Ekpon	1000 820 623 1075 650 400	20 16 12 22 13 8
Edo North Agricultural Zone	Etsako N. E Owan East	Agenebode Ibhioghe Igiode Otuo Ikao Ikhin	1030 438 372 650 400 392	21 9 7 13 8 8
3	6	18	11,826	238

Source: Field survey (2014)

3.6 Sources of Data and Data Collection Method

The data for the study were obtained from primary source, the data were obtained from the respondents through the administration of structured questionnaire for the literate farmers and interview schedule for the non-literate farmers.

Questions covered the areas relating to the farmers' socio-economic characteristics, sources of capital, and accessibility of farmers or otherwise to microfinance institutions, production inputs and output obtained. The secondary data were obtained from text books, journals and internet.

3.7 Data Analysis Techniques

Data collected were analyzed as follow:

a. **Descriptive statistics**

Descriptive statistical tool, involving frequencies, percentages, means and standard

deviation, was used to analyze the socio- economic characteristics of the respondents. The tool was also used to determine the proportion of micro credit obtained from the various sources and the amount repaid by the beneficiaries to achieve objectives one and two. The estimation technique for the analysis is given as:

Amount of loan requested = A

Amount of loan granted = B

Amount of loan repaid = C

Amount of loan outstanding = D

Amount of interest paid = E

Hence, proportion of loan granted **Pg.** = B/A × 100/1

Proportion of loan paid **Pp.** = C/B ×100/1

Proportion of loan outstanding **Po.** = D/B ×100/1

(a) Budgeting analysis

The enterprise budgeting technique involving the estimation of the costs involved in cassava production, the output and revenue derived was used to determine the profitability of cassava production business by the beneficiaries and non-beneficiaries. This is expressed mathematically as:

Cost Analysis

This was expressed as:

TC = TFC + TVC…….. (1)

Profitability Analysis

The net revenue analysis was used to determine the profitability of the enterprise. This is expressed as:

NR = TR – TC……... (2)

Where

NR = Net revenue

TR = Total revenue from cassava sales during the production year

TC =Total cost incurred in carrying out cassava production. Total cost is made up of Total Fixed Cost (TFC) and Total Variable Cost (TVC). This was used to achieve objective three.

The profitability analysis also involved the determination of the feasibility and the riskiness of cassava production in the study area. The tool used to determine the enterprise feasibility is the Net Return on Investment (NROI) analysis expressed as

$$NROI = \frac{NI}{TC} \times \frac{100}{1}\ \% \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3)$$

The higher the proportion obtained, the more feasible is the enterprise. The tool used in determining the riskiness of the enterprise is the Break-Even Analysis and Coefficient of Variation.

$$\text{Break-Even Analysis, BEA} = \left\{ \left[\frac{TFC}{1 \left[\frac{TVC}{TR} \right]} \right] \Big/ TR \left[\frac{100}{1} \right] \right\} \quad \ldots\ldots\ldots\ldots \ (4)$$

The smaller the proportion obtained, the less risky is the enterprise.

Coefficient of Variation is expressed as:

$$CV = \frac{SD}{\bar{X}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \ (5)$$

Where SD = the Standard Deviation of the mean net income and

$\bar{X}$ = mean of the net income.

(c) Analysis of the variable that determine the respondents' revenue.

The Production Function Analysis was used to analyze the variables that determined the two group of farmers' revenue. This tool was used to achieve objective four. It is expressed explicitly as:

$$TR = \beta_o+\beta_1X_{1i}+\beta_2X_{2i}+ \beta_3X_{3i}+ \beta_4X_{4i}+\beta_5X_{5i}+\beta_6X_{6i}+\beta_7X_{7i}+\beta_8X_{8i}+U_i \ \ldots\ldots\ldots\ldots\ldots \ (6)$$

Where:

TR= Value of output i.e. sales from unprocessed cassava (N)

X_1= Educational level (years of schooling)

X_2= Farming experience (years so far spent in farming)

X_3= Farm size (Ha)

X_4= Planting materials in Kg

X_5= Labour used (Man days)

X_6= Herbicides in litres

X_7= Fixed cost (N)

X_8 = Operating expenses (N)

Bo = Intercept or constant

β's= Coefficients of the parameters to be estimated

ei = Error term

i = i^{th} Number of respondents for i =1, 2, 3………238

Different functional forms, i.e. Linear, Exponential, Cobb-Douglas and Semi-log function were fitted with the survey data and the lead equation was selected for further analysis of the result based on the established criteria of economic, statistical and econometric criteria. Thus according to Olayemi (1998), the economic criteria recommended the appropriate function to use in a specific field of study. It therefore recommended Linear and Cobb-Douglas for production studies and Exponential for average cost and marginal cost studies.

The statistical criteria are based on the magnitude of coefficient of multiple determinations, R^2 and R^2-adjusted and the significance of the overall hypothesized model, using F-ratio test for goodness of fit, the correctness of signs and the magnitude of the regression coefficients. Statistical consideration also involves the significance of the regression coefficients of individual variables using t-ratio test. The important econometric criterion is the magnitude of the standard error of the overall model with the choice of the one with the least value. The results of the four functional forms are contained in the Table 4-17 for the beneficiaries and Table 4.18 for the non-beneficiaries. In the consideration of the criteria stated above, the Cobb-Douglas functional form provided the best fit equation and hence it was selected for the analysis of the results.

(d) Marginal Value Productivity (Allocative Efficiency)

The marginal value productivity analysis was used to determine resource-use efficiency in cassava production by the two groups of farmers to achieve objective five. This is optimum allocation of resources, taking into account, the prices of inputs and output. **At the point of efficient resource use in production, the ratio of input and output prices must be equal to the marginal physical product for each of the input used.** This criterion is expressed as:

$$MPP_{xi} = \frac{P_{xi}}{P_y} \quad \text{.....(7)}$$

$\frac{d_y}{d_x}$ = Marginal Physical Product (MPP) of the input used

X = inputs employed

P_x = unit price of inputs

P_y = unit price of output

i = number of inputs used

Multiplying each side of equation (7) by $\frac{P_y}{P_{xi}}$

$$MPP_{xi} \times \frac{P_{xi}}{P_y} = \frac{P_{xi}}{P_y} \quad \frac{P_{xi}}{\times P_y} \quad \text{or} \quad MPP_{xi} \times \frac{Py}{P_{xi}} = 1 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.. (8)$$

$MPP_{xi} \times \frac{P_y}{P_{xi}} = 1$ is also expressed as: $P_y \times MPP_{xi} / P_{xi} = 1$.

This can also be expressed as: $P_y \times MPP_{xi} = P_{xi}$ …………………………… (9)

But $P_y (MPP_{xi}) = MVP$ of inputs

hence $\frac{MVP_{xi}}{P_{xi}} = 1$ or $MVP_{xi} = P_{xi}$

hence $\frac{MVP_{xi}}{P_{xi}} = 1$, resources are efficiently used

$\frac{MVP_{xi}}{P_{xi}} > 1$, resources are inefficiently used (under utilization of resource)

$\frac{MVP_{xi}}{P_{xi}} < 1$, resources are inefficiently used (over utilization of resource)

$\frac{MVP_{xi}}{P_{xi}} < 0$, resources are inefficiently used (gross inefficient utilization of resource)

(e) Problems facing the farmers

The statistical tool used in measuring the respondents' constraints is the three-point Likert scale (Osuala, 1993, Esobhawan and Ogundele, 2011). The scale was used to determine the seriousness of the constraints using the format as:

* Very serious assigned the value of (3)
* Serious assigned the value of (2)
* Not serious assigned the value of (1)

The mean value which forms the benchmark on which the constraints is judged is obtained using the formula:

$$\bar{X} = \frac{\Sigma x_{ij}}{n} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..(10)$$

Where

$\bar{X}$ = mean value which will form the benchmark
X = the assigned value of constraints (x = 3, 2, 1)
n = number of occurrence (N = 3)

I = i^{th} number of identified constraints
J = j^{th} number of respondents

CHAPTER FOUR
RESULTS AND DISCUSSION

4.1 Socio-Economic Characteristics:

4.1.1: Age Distribution

The analysis of the age of respondents in Table 4.1.1 revealed the mean age of credit-beneficiaries (50.0) and non-beneficiaries (47.0). This result implied that older farmers need more credit to pay especially for labour. This is because as a farmer ages, his physical strength required for active farming decreases. Thus the dominant age group found in this study is indicative of the active demand for credit to supplement dwindling strength of the farmers as shown by Audu et al. (2009) that the ageing trend of the farmers is undesirable for agricultural production. Also, the mean

age of both groups of farmers which are 50 and 47 years respectively is in contrast with Obinne et al. (2009) who stated that the active farming age for Nigerian farmers was 37years, implying a certain level of demand for credit.

Table 4.1.2: Age Distribution of the Respondents

	Credit Beneficiaries			Non-Beneficiaries		
Age Range(yrs)	**Frequency**	**Mean**	**S.D**	**Frequency**	**Mean**	**S.D**
≤30	1 (0.90)			5 (4.7)		
31-40	20 (18.02)			28(26.2)		
41-50	36 (32.43)			30 (28.0)		
51-60	43 (38.74)			37 (34.6)		
>60	11(9.91)			7(6.5)		
Total	**111 (100.0)**	**50.0**	**9.0**	**107(100.0)**	**47.0**	**10.0**

Source: Field Survey data (2014).

Note: The figures in the brackets are the percentage values

4.1.3 Sex Distribution

The sex distribution of the respondents shows that the males dominated the farming operation among the loan beneficiaries. It shows that about 92% of the males and about 8% of the females were involved in cassava production. Also, among the non- credit beneficiaries, the males accounted for about 83% while the females accounted for about 7%. This is an indication that males are more involved in cassava production because of the energy requirement in the

operations. The study also shows that males have more access to credit are dominant in the sample. This finding confirmed that men tend to benefit more from agricultural innovations and interventions than women (Mohammed et al. 2009). However, Shaw (2004) had demonstrated that credit empowers women, promotes gender-equality and improves households' wellbeing.

Table 4.1.3: Sex Distribution of the Respondents

Sex	Credit Beneficiaries Frequency	Non-Beneficiaries Frequency
Male	102(91.9)	89(83.2)
Female	9(8.1)	18(16.8)
Total	**111 (100.0)**	**107(100.0)**

Source: Field Survey data (2014).
Note: The figures in the brackets are the percentage values

4.1.4: Marital Status

The marital status of the respondents revealed that majority of the loan beneficiaries as well as the non-beneficiaries were married with 81.1% and 78.5% respectively. The result agrees with Nasiru et al. (2006) findings that marriage is an asset to agricultural productivity in developing countries as a source of labour. It also indicates that the farmers involved in cassava farming were responsible people who generate money from cassava farming to cater for the families' numerous needs.

Table 4.1.4: Distribution of Respondents According to Marital Status

Marital Status	Credit Beneficiaries Frequency	Non-Beneficiaries Frequency
Married	90(81.1)	84(78.51)
Single	6(5.4)	10(9.34)
Widows/widowers	13(11.7)	12(11.22)
Divorce	2(1.8)	1(0.93)
Total	**111 (100.0)**	**107(100.0)**

Source: Field Survey data (2014).
Note: The figures in the brackets are the percentage values

4.1.5: Educational Level

The educational level of the respondents' shows that majority of them were literate with about 85% of the credit beneficiaries and 82% of the non-beneficiaries having formal education. The finding corresponded with Balogun et al. (2007), who stated that the average level of education among farmers was secondary. Idiong et al. (2006) also revealed that education facilitates the acquisition and utilization of appropriate technology this is also in agreement with

Muhammed-Lawal et al. (2006) who stated that level of education was expected to influence ability to adopt agricultural innovations and make decisions.

Table 4.1.5: Distribution of Respondents according to their Educational Level

	Credit Beneficiaries			Non-Beneficiaries		
Education Level	**Frequency**	**Mean**	**SD**	**Frequency**	**Mean**	**SD**
No Formal education	17(15.32)			19(17.76)		
Primary education.	27(24.32)			28(26.17)		
Secondary education.	49(44.14)			44(41.12)		
Tertiary education.	18(16.22)			16(14.95)		
Total	**111 (100.0)**	**9.4**	**5.2**	**107(100.0)**	**8.9**	**5.3**

Source: Field Survey data (2014).

Note: The figures in the brackets are the percentage values

4.1.6: Family Size

The respondents maintained a small family size with a mean family size of about 4 persons each for the credit beneficiaries and non- credit beneficiaries per household. The smallness in mean family size of the respondents is in contrast with the finding of Nmadu, *et.al*. (2011), that farmers maintained large family size and concluded that large size of respondents seemed to encourage seeking knowledge about the availability of credit. It however confirmed our findings that the respondents were educated who know the economies of maintaining small family size through birth control.

Table 4.1.6: Family Size

	Credit Beneficiaries			Non-Beneficiaries		
Family size	**Frequency**	**Mean**	**S.D**	**Frequency**	**Mean**	**S.D**
1-2	4(3.6)			16 (15.0)		
3-4	54(48.7)			52(48.6)		
5-6	46(41.4)			30(28.0)		
>6	7(6.3)			9 (8.4)		
Total	**111 (100.0)**	**4.0**	**1.5**	**107(100.0)**	**3.7**	**2.1**

Source: Field Survey data (2014).

Note: The figures in the brackets are the percentage values

4.1.7 Extension Access

The result shows that 80.2% and 95.3% of credit beneficiaries and non-beneficiaries

respectively had no access to extension services. This could hinder the farmer's knowledge of adopting modern farming technologies.

Table 4.1.7: Extension Access

Access	Credit Beneficiaries' Frequency	Non-Beneficiaries Frequency
had no access	89(80.2)	102 (95.3)
had access	22(19.8)	5(4.7)
Total	**111 (100.0)**	**107(100.0)**

Source: Field Survey data (2014).

Note: The figures in the brackets are the percentage values

4.1.8 Farm Size

The farm size of the farmers show that the credit beneficiaries cultivated larger hectarage (2.1ha) than the non-credit beneficiaries with hecterage size of (0.8ha). This could be the result that the beneficiaries have more financial empowerment to cultivate and maintain larger farm size.

Table 4.1.8: Farm Size

	Credit Beneficiaries			Non-Beneficiaries		
Farm size	**Frequency**	**Mean**	**S.D**	**Frequency**	**Mean**	**S.D**
≤1.0	9(8.1)			97 (90.7)		
1.1-2.0	89(80.2)			10(9.3)		
2.1-3.0	11(9.9)			-		
3.1-4.0	1 (0.9)			-		
4.1-5.0	1(0.9)			-		
Total	**111 (100.0)**	**2.1**	**0.54**	**107(100.0)**	**0.8**	**0.6**

Source: Field Survey data (2014).

Note: The figures in the brackets are the percentage values.

4.1.9 Land Acquisition Mode

The result shows that the respondents' mode of land acquisition for farming was mainly through rentage, accounting for 68.5% of the credit beneficiaries and 72.9% for the non-credit beneficiaries. This is an indication that the farmers are tenants who have no personal cultivable land to operate farming. This could hinder the scope and size of their farming enterprise.

Table 4.1.9: Land Acquisition

Land Acquisition.	Credit Beneficiaries Frequency	Non-Beneficiaries Frequency
Rented	76(68.5)	78 (72.9)

Lease	2(1.8)	0(0.0)
Inherited	33(29.7)	29 (27.1)
Total	**111 (100.0)**	**107(100.0)**

Source: Field Survey data (2014).

Note: The figures in the brackets are percentage values.

4.10 Type of Microfinance Accessed

Table 4.10 showed the frequency distribution of the respondents based on the type of microfinance accessed by them. The result revealed that the farmers' main source of microfinance was cooperative, which accounted for about 60%. The reason may be due to the fact that the interest rate by cooperative is comparatively lower and more convenient to payback. Microfinance bank accounted for about 31.5% as the source of micro credit to the farmers. This could also be because microfinance banks' main targets for credit are the poor and the low-income earners in the society which the small-scale farmers belong. Money lenders accounted for the least as sources of credit to the farmers, accounting for just 0.9%. This is contrary to the general belief that farmers patronize money lenders more because of its proximity and easy access but to credit rather, they may have acted on the basis of the high interest rate charge and on the tough and stringent method of loan repayment.

Table 4.10: Frequency Distribution of Respondent Based on the Type of Microfinance Accessed

Type of Microfinance	Frequency of beneficiaries
1. Cooperative	56(50.45)
2**.** Thrift and loan scheme	11(9.91)
3. Microfinance bank	35(31.53)
4. Association/ESUSU	8(7.21)
5. Money lenders	1(0.90)
Total	**111 (100.0)**

Source : Field Survey, 2014

Note: The figures in the brackets are the percentage values

4.11 Test of hypothesis of no significant difference in the socio-economic characteristics of credit beneficiaries and non-beneficiaries.

The socio-economic variables examined are age of the respondents, educational level and family size, farming experience and farm size cultivated. The result as contained in the Table 4.11 shows that out of the five (5) variables examined, only two (2) i.e. the family size of the respondents (t-cat= 2.41) > (t-tab=1.96) and the farm size cultivated (t-cat=16.41) > (t-tab=1.96) had significant difference in their socio-economic variables. However, the remaining three (3)

variables i.e. age of the respondents (t-cat=1.84 < t-tab=1.96), the educational level (t-cat=0.64 < t-tab=1.96) and their farming experience (t-cat=1.64 < t-tab=1.96) had no significant difference

Table 4.11: Test of hypothesis of no significant difference in some socio-economic characteristics of the credit beneficiaries and non-beneficiaries (t-test)

Socio-economic Characteristics	credit group	mean	S.D	df(n-2)	t-cat	t-tab	decision
Age (yrs)	Beneficiaries	49.61	9.10	109	1.84	1.96	N.S
	Non-beneficiaries	47.18	10.32	105			
Education (yrs)	Beneficiaries	9.35	5.16	109	0.64	1.96	N.S
	Non-beneficiaries	8.90	5.29	105			
Family size (No)	Beneficiaries	5.26	1.84	109	2.41	1.96	S
	Non-beneficiaries	3.66	2.00	105			
Experience (yrs)	Beneficiaries	15.60	8.37	109	1.62	1.96	N.S
	Non-beneficiaries	13.75	8.55	105			
Farm size (ha)	Beneficiaries	2.06	0.55	109	16.41	1.96	S
	Non -beneficiaries	0.78	0.60	105			

Source: Field Survey data (2014).

Note: N.S = Not significant at 5% level

S = Significant at 5% level

4.12 Test of no significant difference in credit requested and granted to the farmers

The result t-test i.e. (t-cal=3.22) > (t-tab=1.96) as contained in Table 4.13, shows that there is significant difference in the amount of credit requested (#240,900.90) and the amount of credit granted (#117,747.70) to the farmers. Therefore, the null hypothesis is rejected.

Table 4.12: Test of no significant difference in credit requested and granted to the farmers (t-test)

Variables	Mean (#)	S.D	t-cal	t-tab(0.025,109)	Decision
Amount requested	240,900.90	132,394.38	3.22	1.96	S
Amount granted	117,747.70	68,618.64			

Source: Computed from survey data (2014).

4.13 Test of no significant difference in the amount granted and the amount repaid

The result of t-test i.e. (t-cal=6.07) > (t-tab=1.96), shows that there is significant difference in the amount of credit granted to the farmers (₦117,747.70) and the amount of credit repaid by them (₦70,923.40). Since the result is significant, the null hypothesis of no significant difference is rejected, while the alternate hypothesis is accepted. Hence, there is significant difference in the amount granted and the amount repaid.

Table 4.13: test of no significant difference in the amount granted and the amount repaid

Variables	Mean (#)	S.D	t-cal	t-tab (0.025, 109)	Decision
Amount granted	117,747.70	68,618.64	6.07	1.96	Significant
Amount repaid	70,923.40	46,030			

Source: Computed from survey data, (2014).

The result as contained in Table 4.14 shows, that there is significant difference in the profit earned by the two groups of farmers i.e. the credit beneficiaries and non-beneficiaries. The t-test (t-cat=14.05) > (t-tab=1.96) is significant. Therefore, the null hypothesis of no significant difference is rejected, while the alternate hypothesis is accepted. Hence, there is significant difference in the net profit obtained by the two groups of farmers.

Table 4.14: test of no significant difference in the profit earned by the two groups of farmers (t-test).

Respondents	Mean profit N.I. (#)	S.D (#)	Sample size (n)	df (n-2)	t-cal	t-tab	Decision
Beneficiaries	201,267.1	91,489.3	111	109	14.05	1.96	Significant
Non-bene.	57,245.90	56,351.06	107	105			

Source: Computed from survey data (2014).
Note: significant at 5% level

4.15 Credit Analysis

Table 4.12 shows the summary statistics of the credit amount requested, the amount granted, the amount repaid and the amount outstanding. Their proportions to the total are also

contained in the table. The investigation shows that out of the total amount of ₦240,900.90 requested by the farmers, only 48.9% of the loan (₦117,747.70) was granted to them and the proportion of the loan repaid by the farmers was (₦70,923.40) representing 60.2%, while 39.8% (₦46,624.30) of the credit were outstanding. The above statistics show that the credit granted to the farmers was grossly inadequate to meet the financial needs of their farming operations. This situation could affect the scope of their farming business and invariably the productivity of the input used and the output obtained.

Table 4.15: Summary Statistics of Variables regarding to the Amount of Credit Requested, the Amount Granted, the Amount repaid and the Amount Outstanding

Variables	Min Value	Max. Value	Mean	S.D
(A) Amount requested (₦)	20,000.00	800,000.00	240,900.90	132,394.38
(B) Amount granted (₦)	15,000.00	600,000.00	117,747.70	8,618.64
(C) Amount repaid (₦)	10,000.00	350,000.00	70,923.40	46,030.29
(D) Amount outstanding (₦)	4,000.00	250,000.00	46,624.30	36,893.04
(E) Interest repayment (₦)	5,000.00	220,000.00	17,612.60	23,693.08
Proportion of amount granted, Pg (%) = 48.9				
Proportion of amount repaid, Pp (%) = 60.2				
Proportion of amount outstanding, Po (%) =39.8				

Source: Computed from survey data, (2014).

4.16 Cost and returns in cassava production / Ha.

The cost implication of farmers' cassava production activities in the study area is presented in Table 4.15. The mean annual Total Variable Cost (TVC) incurred by the credit beneficiaries was ₦295,461.80 per/ha, accounting for 82.2% of the Total

Cost (TC), while the corresponding mean annual Total Variable Cost (TVC) incurred by the non-credit beneficiaries was ₦163,521.10 per/ha, representing 86.3% of the Total Cost (TC). The high TVC indicates that variable costs are the dominant expenses in cassava production for the two groups of farmers. Labour variable was the dominant cost item accounting for 37.2% and 40.8% of the total cost for the beneficiaries and non-beneficiaries respectively. This shows the importance of labour

in agricultural production activities. The statistics also shows that the transportation cost was ₦89, 950.90, accounting for 25% for credit beneficiaries and ₦46, 451.10 accounting for 24.5% for the non-beneficiaries. Thus, labour shortage resulting from the migration of the young able-bodied people to the urban area to seek greener pasture and the result of the youth in the farming

communities, taking to motor cycle transportation (Okada) are the reasons for the high cost of labour. Also, the high cost

of transport could be the result of inaccessibility to the farming communities due to deplorable state of their roads; hence the few available means of transport charged exorbitant cost.

The result of the profitability of cassava production for the two groups of farmers is also contained in the Table 4.15. It reveals that with the mean annual net income of ₦201, 267.10 obtained by the credit beneficiaries and ₦57, 215.90 by the non-credit beneficiaries, the enterprise is more profitable for the credit beneficiaries. The reason could be the gains of the economies of large-scale production enjoyed by them because of the larger hecterage size cultivated by the credit beneficiaries which was made possible by the credit the farmers got which enabled them to expand their holding and acquire better farming inputs. On the basis of the net income per/ha, the credit beneficiaries had ₦95, 841.48 which is higher than the net income per/ha of the non-credit beneficiaries with ₦71, 519.99. Also, the credit beneficiaries net returns on investment was 56% while that of non-credit beneficiaries was 30.2%, indicating that for every ₦100.00 spent in the farming operation by the beneficiaries they will gain ₦56.00, while for the non- beneficiaries they will gain about ₦30.00. On the basis of the riskiness of the business, Break Even Point (BEP) analysis and the Coefficient of Variation (C.V) analysis were used for the measurements. The result also shows that it is less risky to obtain credit to undertake farming business because of the ability of the farmers to expand their farming business with the resultant benefit of the economics of large-scale production. The break-even point for the beneficiaries is 24% of the total revenue while that of the non-beneficiaries was 30% and hence, the lower the break-even point obtained, the less risky is the business. Also, for the coefficient of variation, the result indicates that the beneficiaries have 0.45, while the non-beneficiaries have 0.98, revealing that the enterprise is less risky for the beneficiaries than the non-beneficiaries

4.16: Cost and Returned Analysis of Farmers / Ha.

(A) Costs Analyses

Items of Cost	**Beneficiaries mean (₦)**	**S.D**	**Non-beneficiaries mean (₦)**	**S.D**
Land (Rent)	34,594.60 (9.6)	10205.51	17,962.60 (9.5)	812.57
Depreciation	11,569.00 (3.3)	2762.24	8,042.70 (4.2)	3670.88
Interest payment	17,612.60 (4.9)	23693.08	0.00 (0.0)	0.00
Total fixed cost (TFC)	63,776.20 (17.8)	28125.55	26,005.30(13.7)	10074.39
Cost of cassava stem	17,957.50 (5.0)	4995.87	8,199.00 (4.3)	3492.14
Labour cost	133,585.60(37.2)	44724.10	77,322.40 (40.8)	36006.06
Cost of herbicides	8,216.70 (2.3)	2290.71	3798.10 (2.0)	4014.53
Transportation cost	89,950.90 (25.0)	28137.32	46,457.10 (24.5)	14976.97
Maintenance & fuel cost	45,751.10 (12.7)	11761.68	27,750.50 (14.6)	18843.35
Total variable cost (TVC)	295,461.80 (82.2)	77914.43	163,521.1(86.3)	62421.55
Total Cost (TFC+TVC)	359,238.00 (100.0)	92690.41	189,526.40 (100.0)	70250.72
(B) Profitability Analysis				
Total Revenue (TR)	560,505.10	159491.55	246,742.30	104063.82
Qty of cassava produced (kg)	23,488.60	7035.42	10,569.30	4331.15
Total Fixed Cost (TFC)	63,776.20	28125.55	26,005.30	10074.39
Total Variable Cost (TVC)	295,461.80	77914.43	163,521.10	62421.55
Total Cost	359,238.00	92690.41	189,526.40	70250.72
Gross Margin (TR-TVC)	265,043.30	99731.63	83,221.20	61919.95
Net Income, NI (TR-TC)	201,267.10	91489.30	57,215.90	56351.06
Net Return on investment	56.0%		30.2%	
Farm Size (Ha)	2.1		0.8	
Net Income/Ha	95,841.48		71,519.99	
Break-Even Point BEP	24%		30%	
Coefficient of Variation CV	0.45		0.98	

Source: Data analysis (2014).

Note: The figures in the brackets are % of TC

4.17 Determinants of Profit in Cassava Production

Cobb-Douglas Production Function analysis, was used to ascertain the variables that determined the two groups of farmers' profit. In the Cobb-Douglas functional forms, the estimated coefficients of the explanatory variables are the direct elasticities of the dependent variable with which these variables are associated. The R^2 – adjusted of 0.89 for the beneficiaries and 0.95 for the non-beneficiaries obtained, showed that the explanatory variables were able to explain 89% of the adjusted total variation in the dependent variable for the beneficiaries and 95% for the non-beneficiaries. This shows goodness of fit of the survey data with function used. The F-value of 104.31 and 226.01 obtained for the beneficiaries and non-beneficiaries respectively were highly significant at any level of probability, indicating that the joint effects of the explanatory variables on the dependent variable were significant. This also shows the goodness of fit of the overall model with the data used. The Durbin Watson statistic value of 1.78 and 2.02 obtained for the two group of farmers shows that the regression equation is not spurious, that is DW $>R^2$, this also indicate the absence of autocorrelation among the explanatory variables.

All the variables except experience for the beneficiaries and operating expenses for the non-beneficiaries, contributed positively to the farmers profit in cassava production. The elasticity of production with respect to education, experience, farm size, planting materials, labour, herbicides, fixed cost and operation expenses are 0.002, -0.046, 1.107, 0.078, 0.061, 0.212, 0.034 and 0.009 for the beneficiaries and -0.017, 0.018, 1.080, 0.542, 0.028, 0.018, 0.052 and -0.027 for the non-beneficiaries. Hence, 1% increase in the employment of these variables in cassava production will increase the profit accruing to the farmers by this elasticity, but for negatively signed coefficients, they will contribute negatively to their profit. Five of the variables, that is, farm size (1.107) planting materials (0.078), labour (0.061), herbicides used (0.212) and fixed cost (0.34) are the significant determinants of the beneficiaries' income $P<0.05$ for the non-beneficiaries, four (4) of the variables, that is farm size (1.080), planting materials (0.542), labour (0.028) and fixed cost (0.052) are significant at 5% level $P < 0.05$, thereby rejecting the null hypothesis that they are not significant determinants of the respondents profits. In order of importance, farm size (1.107) herbicides

used (0.212), planting materials (0.078), labour used (0.061) and fixed cost (0.034) are the Important variables that determined the beneficiaries' profit, while farm size (1.080), planting materials (0.542), fixed cost (0.052) and labour (0.028) are the important variables that determine the non-beneficiaries' net income. The results of the four functional forms obtained are contained in the Table 4.17 for the beneficiaries and Table 4.18 for non-beneficiaries.

Table 4.17: Regression Analysis of the Beneficiaries of micro credit

Variables	Linear Coefficient	Exponential Coefficient	Cobb-Douglas Coefficient	Semi Log Coefficient
Constant	93053.832	12.085**	9.776**	-776457.131
	(1.923)	(90.027)	(18.315)	(294003.934)
Education	2859.945**	-0.002	0.002	7520.803
	(2.674)	(0.723)	(0.189)	(1.199)
Experience	1030.014	0.001	-0.046	-11142.220
	(0.908)	(0.248)	(-1.358)	(-0.599)
Farm size	183248.227**	0.250**	1.107**	867437.557
	(10.312)	(5.082)	(7.846)	(11.161)
Planting materials	1.754	1.005	0.078**	-3800.500
	(0.487)	(100.42)	(2.161)	(-0.191)
Labour	24.370	0.000	0.061**	20441.552
	(0.220)	(1.088)	(2.681)	(1.635)
Herbicides	23040.873*	0.051**	0.212**	-30611.662
	(5.567)	(4.737)	(2.202)	(-0.577)
Fixed cost	0.665	7.990	0.034**	31315.254
	(1.567)	(0.679)	(2.009)	(1.668)
Operating exp.	0.006	5.742	0.009	-11119.322
	(0.064)	(0.226)	(0.216)	(-0.484)
R =	0.962	0.907	0.950	0.952
R^2 =	0.926	0.823	0.903	0.906
R^2 Adjusted =	0.920	0.807	0.894	0.897
F-Value =	140.999	52.128	104.312	107.730
S.E =	45193.344	12535.150	0.0928215	51124.125
D.W Statistics	1.716	1.844	1.784	2.070

Source: Data analysis (2014).
**: Coefficients are significant at 5% level ($P < 0.05$)
Note: The figures in brackets are the t-ratios

Table 4.18: Regression Analysis of the Non- beneficiaries of micro credit

Variables	Linear Coefficient	Exponential Coefficient	Cobb-Douglas Coefficient	Semi Log Coefficient
Constant	36556.292	11.279**	8.164**	570430.973**
	(1.495)	(67.625)	(11.541)	(3.489)
Education	-389.720	-0.001	-0.017	-2184.331
	(-0.585)	(-0.280)	(1.209)	(-1.333)
Experience	997.293	0.003	0.018	14566.1
	(1.396)	(0.726)	(0.445)	(1.580)
Farm size	38188.608**	0.092	1.080**	810040.217**
	(2.839)	(1.004)	(4.381)	(14.212)
Planting materials	217.399**	0.001**	0.542**	-121378.433**
	(9.661)	(6.327)	(5.312)	(-5.149)
Labour	-48.844	0.000	0.028 **	-10725.595
	(-0.499)	(0.453)	(0.949)	(-1.578)
Herbicides	1784.972	0.031	0.018	-6207.945
	(0.746)	(1.924)	(0.654)	(-0.955)
Fixed cost	0.072	1.120	0.052**	9002.026
	(0.772)	(1.752)	(2.681)	(1.259)
Operating exp.	0.024	-1.759	-0.027	5610.065
	(0.690)	(-0.751)	(-0.653)	(0.590)
R =	0.914	0.941	0.977	0.974
R^2 =	0.948	0.885	0.954	0.949
R^2 Adjusted =	0.943	0.874	0.950	0.944
F-Value =	197.312	82.762	226.008	201.063
S.E =	24547.430	16891.120	0.1061641	24537.308
D.W Statistics	1.872	1.803	2.016	1.728

Source: Data analysis (2014).

**: Coefficients are significant at 5% level ($P < 0.05$)

Note: The figures in brackets are the t-ratios

4.19 Resources-use Efficiency Analysis

The Marginal Value Productivity analysis was used for the basis of determining resource-use efficiency in cassava production for the micro credit beneficiaries and non-beneficiaries. In this analysis, the ratio of Marginal Value Product (MVP_{xi}) of each of the inputs used and its market acquisition price (P_{Xi}) is computed. Resources is efficiently utilized if $MVP_{xi} = P_{xi}$ or $MVP_x / P_x = 1$. If $MVP_x/P_x > 1$, resource is underutilized and it is inefficiently utilized. If $MVP_x/P_x < 1$ resources is over utilized and hence it is inefficiently utilized if MVP_x.

If MVP < O, resources is grossly over utilized and it is highly inefficient. The results of the analysis are contained in Table 4.19 and 4.20.

4.20 Marginal Value Productivity Analysis for the Micro-credit Beneficiaries

For the beneficiaries shown in the Table 4.19, none of the resources examined was efficiently utilized because the ratios obtained were either less than unity or greater than unity. This result indicates that the resources were never efficiently utilized.

4.17 Determinants of Profit in Cassava Production

Cobb-Douglas Production Function analysis, was used to ascertain the variables that determined the two groups of farmers' profit. In the Cobb-Douglas functional forms, the estimated coefficients of the explanatory variables are the direct elasticities of the dependent variable with which these variables are associated. The R^2 – adjusted of 0.89 for the beneficiaries and 0.95 for the non-beneficiaries obtained, showed that the explanatory variables were able to explain 89% of the adjusted total variation in the dependent variable for the beneficiaries and 95% for the non-beneficiaries. This shows goodness of fit of the survey data with function used. The F-value of 104.31 and 226.01 obtained for the beneficiaries and non-beneficiaries respectively were highly significant at any level of probability, indicating that the joint effects of the explanatory variables on the dependent variable were significant. This also shows the goodness of fit of the overall model with the data used. The Durbin Watson statistic value of 1.78 and 2.02 obtained for the two group of farmers shows that the regression equation is not spurious, that is DW $>R^2$, this also indicate the absence of autocorrelation among the explanatory variables.

All the variables except experience for the beneficiaries and operating expenses for the non-beneficiaries, contributed positively to the farmers profit in cassava production. The elasticity of production with respect to education, experience, farm size, planting materials, labour, herbicides, fixed cost and operation expenses are 0.002, -0.046, 1.107, 0.078, 0.061, 0.212, 0.034 and 0.009 for the beneficiaries and -0.017, 0.018, 1.080, 0.542, 0.028, 0.018, 0.052 and -0.027 for the non-beneficiaries. Hence, 1% increase in the employment of these variables in cassava production will increase the profit accruing to the farmers by this elasticity, but for negatively signed coefficients, they will contribute negatively to their profit. Five of the variables, that is, farm size (1.107) planting materials (0.078), labour (0.061), herbicides used (0.212) and fixed cost (0.34) are the significant determinants of the beneficiaries' income $P<0.05$ for the non-beneficiaries, four (4) of the variables, that is farm size (1.080), planting materials (0.542), labour (0.028) and fixed cost (0.052) are significant at 5% level $P < 0.05$, thereby rejecting the null hypothesis that they are not significant determinants of the respondents profits. In order of importance, farm size (1.107) herbicides

used (0.212), planting materials (0.078), labour used (0.061) and fixed cost (0.034) are the Important variables that determined the beneficiaries' profit, while farm size (1.080), planting materials (0.542), fixed cost (0.052) and labour (0.028) are the important variables that determine the non-beneficiaries' net income. The results of the four functional forms obtained are contained in the Table 4.17 for the beneficiaries and Table 4.18 for non-beneficiaries.

Table 4.17: Regression Analysis of the Beneficiaries of micro credit

Variables	Linear Coefficient	Exponential Coefficient	Cobb-Douglas Coefficient	Semi Log Coefficient
Constant	93053.832	12.085**	9.776**	-776457.131
	(1.923)	(90.027)	(18.315)	(294003.934)
Education	2859.945**	-0.002	0.002	7520.803
	(2.674)	(0.723)	(0.189)	(1.199)
Experience	1030.014	0.001	-0.046	-11142.220
	(0.908)	(0.248)	(-1.358)	(-0.599)
Farm size	183248.227**	0.250**	1.107**	867437.557
	(10.312)	(5.082)	(7.846)	(11.161)
Planting materials	1.754	1.005	0.078**	-3800.500
	(0.487)	(100.42)	(2.161)	(-0.191)
Labour	24.370	0.000	0.061**	20441.552
	(0.220)	(1.088)	(2.681)	(1.635)
Herbicides	23040.873*	0.051**	0.212**	-30611.662
	(5.567)	(4.737)	(2.202)	(-0.577)
Fixed cost	0.665	7.990	0.034**	31315.254
	(1.567)	(0.679)	(2.009)	(1.668)
Operating exp.	0.006	5.742	0.009	-11119.322
	(0.064)	(0.226)	(0.216)	(-0.484)
R =	0.962	0.907	0.950	0.952
R^2 =	0.926	0.823	0.903	0.906
R^2 Adjusted =	0.920	0.807	0.894	0.897
F-Value =	140.999	52.128	104.312	107.730
S.E =	45193.344	12535.150	0.0928215	51124.125
D.W Statistics	1.716	1.844	1.784	2.070

Source: Data analysis (2014).
**: Coefficients are significant at 5% level ($P < 0.05$)
Note: The figures in brackets are the t-ratios

Table 4.18: Regression Analysis of the Non- beneficiaries of micro credit

Variables	Linear Coefficient	Exponential Coefficient	Cobb-Douglas Coefficient	Semi Log Coefficient
Constant	36556.292	11.279**	8.164**	570430.973**
	(1.495)	(67.625)	(11.541)	(3.489)
Education	-389.720	-0.001	-0.017	-2184.331
	(-0.585)	(-0.280)	(1.209)	(-1.333)
Experience	997.293	0.003	0.018	14566.1
	(1.396)	(0.726)	(0.445)	(1.580)
Farm size	38188.608**	0.092	1.080**	810040.217**
	(2.839)	(1.004)	(4.381)	(14.212)
Planting materials	217.399**	0.001**	0.542**	-121378.433**
	(9.661)	(6.327)	(5.312)	(-5.149)
Labour	-48.844	0.000	0.028 **	-10725.595
	(-0.499)	(0.453)	(0.949)	(-1.578)
Herbicides	1784.972	0.031	0.018	-6207.945
	(0.746)	(1.924)	(0.654)	(-0.955)
Fixed cost	0.072	1.120	0.052**	9002.026
	(0.772)	(1.752)	(2.681)	(1.259)
Operating exp.	0.024	-1.759	-0.027	5610.065
	(0.690)	(-0.751)	(-0.653)	(0.590)
R =	0.914	0.941	0.977	0.974
R^2 =	0.948	0.885	0.954	0.949
R^2 Adjusted =	0.943	0.874	0.950	0.944
F-Value =	197.312	82.762	226.008	201.063
S.E =	24547.430	16891.120	0.1061641	24537.308
D.W Statistics	1.872	1.803	2.016	1.728

Source: Data analysis (2014).

**: Coefficients are significant at 5% level ($P < 0.05$)

Note: The figures in brackets are the t-ratios

4.19 Resources-use Efficiency Analysis

The Marginal Value Productivity analysis was used for the basis of determining resource-use efficiency in cassava production for the micro credit beneficiaries and non-beneficiaries. In this analysis, the ratio of Marginal Value Product (MVP_{xi}) of each of the inputs used and its market acquisition price (P_{Xi}) is computed. Resources is efficiently utilized if $MVP_{xi} = P_{xi}$ or $MVP_x / P_x = 1$. If $MVP_x/P_x > 1$, resource is underutilized and it is inefficiently utilized. If $MVP_x/P_x < 1$ resources is over utilized and hence it is inefficiently utilized if MVP_x.

If MVP < O, resources is grossly over utilized and it is highly inefficient. The results of the analysis are contained in Table 4.19 and 4.20.

4.20 Marginal Value Productivity Analysis for the Micro-credit Beneficiaries

For the beneficiaries shown in the Table 4.19, none of the resources examined was efficiently utilized because the ratios obtained were either less than unity or greater than unity. This result indicates that the resources were never efficiently utilized.

Table 4.19: Marginal Value Productivity Analysis for the Micro credit Beneficiaries.

Variables	Ep (bi)	App_{xi}	Mpp_{xi}	P_y	MVP_{xi} ($MPP_{xi}.P_y$)	P_{xi}	$\frac{MVP_{xi}}{P_{xi}}$	Decision
Farm land	1.107	16.20	17.23	23.86	427. 81	16, 473.62	0.03	Over utilized
Planting Materials	0.078	31.21	2.43	23.86	57.98	8.99	6.45	Underutilized
Labour	0.061	420	0.26	23.86	6.20	914.34	0.01	Over utilized
Herbicides(liter)	0.212	68.22	14.46	23.86	345.02	944.45	0.37	Over utilized
Fixed Cost	0.034	8.79	0.30	23.86	7.16	2.72	2.63	Underutilized

Source: Computed from data analysis (2014)

Table 4.20: Marginal Value Productivity Analysis for the non Beneficiaries

Variables	E_p (bi)	App_{xi}	Mpp_{xi}	P_y	MVP_{xi} ($MPP_{xi}.P_y$)	P_{xi}	$\frac{MVP_{xi}}{P_{xi}}$	Decision
Farm land	1.080	13.74	14.84	23. 25	345.03	22, 453. 25	0.02	Over utilized
Planting Materials	0.542	30.09	16.31	23.25	379.21	9.39	40.38	Underutilized
Labour	1.080	3.19	0.09	23.25	2.09	911.82	0.002	Over utilized
Herbicides(litrs)	0.654	65.00	42.51	23.25	988.86	1005.03	0.98	Efficient
Fixed Cost	0.052	9.45	0.49	23.28	11.39	2.46.	4.63	Underutilized

Source: Computed from survey data (2014)

4.21 Marginal Value Productivity Analysis for the Non-beneficiaries

The resources efficiency analysis for non beneficiaries reveals that only one of the resources examined was efficiently utilized that is herbicides used because the ratio obtained for this resource is approximately, unity. The other resources employed were either less than unity or greater than unity implying that they were either over utilized or underutilized.

4.22: Production Constraints in Cassava Production

There were some production constraints that prevented the farmers from achieving maximum returns from the enterprise and hence, achieving efficiency in the resources utilized was hampered.

The Table 4.21 has revealed that for the beneficiaries and in order of seriousness, the identified constraints were: Transportation problems ($\bar{x}$=2.55), land scarcity ($\bar{x}$= 2.48), loan not granted on time ($\bar{x}$= 2.35), smallness of amount granted ($\bar{x}$=2.31) and high cost of labour ($\bar{x}$=2.12).

For the non-beneficiaries, the serious constraints identified by them were: lack of access to micro credit ($\bar{x}$=2.98), lack of capital ($\bar{x}$=2.92), transportation ($\bar{x}$=2.64), land scarcity (x=2.51) and high cost of Labour ($\bar{x}$=2.28). The other constraints did not pose serious problem to the micro credit beneficiaries and non-beneficiaries in the study area. **Table 4.21: Rating of Production Constraints by respondents**

Identified constraints	**Beneficiaries**		**No beneficiaries**	
By the respondents	**Mean score**	**S.D.**	**Mean**	**S.D.**
Transportation problem	2.55*	0.52	2.64*	0.48
Land Scarcity	2.48*	0.87	2.51*	0.84
Late timing of loan granted	2.35*	0.57	1.00	0.00
Smallness of loan granted	2.31*	0.64	1.00	0.00
High cost of labour	2.12*	0.32	2.28*	0.47
Stringent repayment terms	1.98	0.65	1.04	0.27
Lack of capital	1.82	0.49	2.92*	0.31
Poor sales	1.37	0.48	1.44	0.50
Exploitation by middlemen	1.21	0.41	1.26	0.44

Lack of microfinance access	1.15	0.45	2.98*	0.19

Source: Data analysis (2014)

* Serious constrain

CHAPTER FIVE

Summary, Conclusion and Recommendations

5.1 Summary

The study analyzed the effect of micro credit on cassava production in Edo state, and compared the beneficiaries and non-beneficiaries of micro-credit. Primary data were collected from 111 beneficiaries and 107 non-beneficiaries in two LGAs each of the three agricultural zones of the state, using multistage sampling technique. Data were analysed using descriptive statistics, budgetary analyses and inferential statistics, adopting Ordinary Least Square multiple regression analysis. The important findings from the study include:

* They were at their energetic and productive age with a mean of not more than 50 years.
* The males dominated cassava production and majority of them were married couples with small family size.
* They were literate farmers with majority of them having had formal education.
* They maintained small farm size holding with the credit beneficiaries cultivating larger hectarage size. Both group of farmers had no access to extension service.
* All the socioeconomic variables examined had positive relationship with revenue generations from cassava production by the two groups of farmers.
* There were no significant difference between the beneficiaries and non-beneficiaries with respect to age, educational level and farming experience. While there were significant difference in their family size and farm size.
* Cooperatives (59.5%) and Micro Finance Bank (35%) were the major sources of credits for the micro credit beneficiaries.
* There was a great disparity between the amount of credit requested (#240,900.90) by the farmers and the amount granted (#117,747.70) but their repayment ability was reasonably high (#70,923.40)
* Labour and transport were the major cost consuming items in the farming operations for the two groups.
* Cassava production was more profitable and less risky for the beneficiaries than the non-beneficiaries.

* All the variables except experience had positive contribution to the credit beneficiaries' profit with five of the seven variables examined had significant contributions. Among the non-beneficiaries, all the variables except education and operating expenses had positive contribution to the profit earned with three of the seven variables found to be significant.
* All the resource inputs were not efficiently utilized in cassava production by the credit beneficiaries, while for the non-beneficiaries, only herbicides was efficiently utilized.
* The serious constraints facing the credit beneficiaries were: transportation, land scarcity, lateness of the timing of the loan granted, smallness of the amount granted and labour scarcity, while for the non-beneficiaries lack of access to credit, shortage of capital, transportation, land and labour scarcity were the serious production constraints facing them.

5.2 Conclusion

The study concluded that access to micro credit could offer more opportunities to farmers in terms of higher profit, expansion of farm holding, reduction of risks and enjoyment of economies of large scale production with the associated benefits of reduction in the cost of operations and increase in returns.

5.3 Recommendations

Arising from the findings, the following recommendations are made:

* Farmers should form cooperative in their farming investment in order to enjoy credit facilities and the benefits of large scale production.
* Rural farmers should be educated through agricultural extension officers on the benefit of microcredit.
* Policies that would enable farmers to have easy access to credits, such as more rural outlets of existing banks, provision of soft, well timed and less bureaucratic loan process should be put in place by government.

  The amount of credit requested by farmers should be granted to those with good credit repayment history.
* Loan beneficiaries should repay as at when due so as to be considered for more credit in subsequent time.

* Farmers should avail themselves of credit facilities in their farming business so as to be able to expand their holdings and hence be able to graduate from small scale to large scale farming.
* Deliberate efforts should be made by the relevant authorities to release cultivatable land from land mongers and made available to the willing farmers. This can solve the problem of land scarcity which is presently facing the farmers.
* Farming communities should be transformed with the provision of basic amenities such as good motorable roads, water, electricity, schools and hospital. This will make transport to be available at reduced cost and make the youths to reside in their rural communities and offer their services in farming business.

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QUESTIONNAIRE

Questionnaire on the effect of micro credit on cassava production in Edo State.

About the questionnaire.

The purpose of this questionnaire is to obtain information on the subject matter above. The information supplied will be treated with strict confidence. The finding will be used for academic purposes. Therefore, your frank expression of option on each question/statement will be highly appreciated.

Thank you for your cooperation.

A. IDENTIFICATION

1. State of origin……
2. Local Government Area of Respondents……
3. Name of the community ……
4. Types of ownership (a) Sole ownership ( ) (b)partnership ( ) (c) cooperative ( ) (d) Joint Stock Company ( ) (e) Community
   Farming status (a) full-time ( ) (b) part-time ( ) (c) Occasional ( )
5. Age of respondents …….. years
6. Gender of respondents (a) Male ( ) (b) Female ( )
7. Marital status (a) married ( ) (b) single ( ) (c) widow/widower ( ) (d) divorced ( )
8. Level of Education (a) No formal Education ( ) (b) Primary Education ( )
   (c) Secondary Education ( ) (d) Tertiary Education ( )
9. Number of people that live and feed under you ……
10. How long have you been in cassava production business?..... years
11. Do you have access to extension agents (a) yes ( ) (b) No ( )

ECONOMIC ASPECT

12. Do you have access to Microfinance? (a) Yes (b) No ( )
13. If you have access to microfinance, indicate the microfinance you obtained credit.
    (a) Microfinance Bank ( ) (b) LAPO ( ) (c) co-operative ( )
14. (d) Thrift and loans ( ) (e) money lenders ( ) (f) Association/Esusu ( )
    (g) Govt's sponsored micro-credit scheme ( )
15. Please provide information on the loans you obtained.

Sources of loans	**Amount requested (₦)**	**Amount obtained**	**Interest per annum (₦)**	**Loan duration (Yrs)**	**Amount repaid (₦)**	**Amount outstanding (₦)**
Microfinance						
LAPO						
Co-operative						
Thrift and loans						
Money lenders						
Asso/Esusu						
Govt. micro credit						

16. What is the size of your cassava farm ( ) ha
17. Please provide information on the land you acquired for the farm

Types of acquisition	**Size of land (Ha)**	**Amount involved (N)**	**Expected life span (years)**
Purchased			
Rented			
Leased			
Inherited			
Others			

18. Please provide information on the fixed items you used

Items used	**Number purchased**	**Cost per item (₦)**	**Cost of transportation (₦)**	**Expected life span (yrs)**
Cutlass(es)				
Files(s)				
Sprayer				
Hoe(s)				
Basin(s)				
Basket(s)				
Wheel barrow(s)				
Motor cycle				
Bicycle(s)				
Motor vehicle(s)				
Cassava grinder				

19. Please provide information on the repairs of fixed items

Items repaired	**Amount spent on repair per month (₦)**	**No. of months repaired during production season**	**Total amount (₦)**
Cutlasses			
Files			
Sprayer			
Hoes			
Baskets			
Wheel barrows			
Motor cycles			
Bicycles			
Motor vehicles			
Cassava grinder			

20. Please provide information on the cassava cutting

Sources of supply	**Quantity planted (kg)**	**Amount spent on the purchased (₦)**	**Transport cost (₦)**
Own farm			
Markets			
APS			
Coops			
Govt. /Ministry			

21. Please provide information on the fuelling and lubrication of your vehicles

Types of vehicle	Cost of petrol per week (₦)	Cost of engine oil per week (₦)	Cost of servicing per month (₦)
Motor vehicle			
Motorcycle			
Cassava grinder			

22. Please provide information on your labour use

Types of labour	**No. employed per day**	**Hours worked per day**	**No. of times employed per week**	**Wages paid to a labourer per day (₦)**	**Transport and feeding cost for labourer per day (₦)**
a. Hired labour • Male • Female • Children					
b. Family Labour • Male • Female • Children					

23. Please provide information on the agro chemicals you used

Type agro-chemicals	No. of bags/tins used per 3 months	Qty per bag/tin (kg/litres)	Cost per bag/tin (₦)	Total transport cost per 3 months (₦)
Fertilizers				
Herbicides				
Fungicide				
Others				

Output and Disposal

24. Did you process cassava before sale? Yes ( ), No. ( )

25. If No. to question 23, please provide information on the sale of your cassava.

Measures used for sale per week	**No. sold per week**	**Weight per one per week (kg)**	**Amount obtained per one per week (₦)**	**Transport cost (₦)**	**Marketing cost (₦)**
Baskets/Basins					
Wheelbarrows					
Passat car					
Pick up van					

26. How many times (weeks) did you sell all the cassava output during the farming season?.....

27. How many times or weeks did you process all the cassava output during the farming season?.....

28. How many times or weeks did you sell the processed products during the farming season?.....

29. Please indicate the problems you faced in your cassava production business.

Degree of Seriousness

Problems faced by the farmers	Very serious	Serious	Not serious
Land scarcity			
No access to microfinance			
Smallness of the amount granted			
Loan not granted on time			
Labour scarcity			
Shortage of capital			
Poor sales			
Transportation problem			
Exploitation by middlemen			
Difficult term of loan repayment policy			