



EFFECTS OF AGRICULTURAL CREDIT DELIVERY ON INCOME OF ARABLE CROP FARMERS IN NIGER STATE OF NIGERIA

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ABSTRACT

The study examined performance of agricultural credit delivery on income of arable crop farmers in Niger State, Nigeria. Multi-stage sampling technique was used for the study and data were collected using structured questionnaires and interview schedules from a total sample size of 326. Data were analyzed using descriptive statistics, simultaneous equation model and Chow test. The result revealed that 60% of the respondents were within the age brackets of 31 – 50 years with average age of 45 years. Most (78%) of the respondents cultivated 0.5 – 3.0 hectares. The determinants of agricultural credit, potential credit demand and loan repayment were all significant at $P \leq 0.01$ probability level. Interest on loan, loan application cost, farm size and predicated loan repaid were all significant and important determinants of credit demand by farmers. However, coefficient of application form cost was negative; suggesting that high cost of loan application reduces credit demand among the beneficiaries. Furthermore, lending experience, transaction cost, credit source, interest on loans was significant at $P \leq 0.1$, $P \leq 0.1$ and $P \leq 0.05$ and $P \leq 0.01$, respectively, as the determinants of credit supply. The results revealed that late release of approved fund for disbursement, inadequate information and equipment, insufficient funds, loan diversion, illiteracy and lack of awareness; poor loan repayment and lack of infrastructure were the constraints affecting the loan beneficiaries. The constraints to credit by farmers included insufficient amount of loan, excessive bureaucracy, poor credit delivery, high interest rate, demand for collateral, short repayment period, favouritism, lack of supervision and advisory services and dishonesty among lenders were the constraints affecting loan delivery by the beneficiaries. It was recommended that, formation of cooperative societies, use of credible credit officers and increase in farm size be put in place to effect the needed change in credit delivery in the study area.

Keywords: Agriculture, Credit, Income, Arable Crops, Niger State.

INTRODUCTION

Nigeria has not been able to attain self-sufficiency in food production and self-reliant in the economy due to high population growth rate and the small scale nature of production. The country is among the countries in sub-Saharan Africa that experienced significant food shortages, as over 46 percent of the country's population is estimated to be food insecure (International Fund for Agricultural Development [IFAD] 2012). Food security is an inherent capacity of a nation to guarantee adequate (enough) and qualitative food to all citizenry at all times (Ndanitsa, 2005; Ndanitsa, 2013; and Ndanitsa, 2017). Despite Nigeria's significant natural and human resources, it was ranked 91st out of a total of 104 countries on the 2015 Global Hunger Index. According to World Development Indicator (WDI, 2015), an estimated



60 percent of Nigerians are living below the poverty line. The food shortage problem is indicative of the high food import bills, consistent rise in domestic food price, high annual growth rates of food demand when compared with food supply and nutritional problems among others (Fawole and Oladele, 2007). The problem of food shortage and insecurity is aggravated when we consider the fact that food production in Nigeria is in the hands of small scale arable crop farmers who cultivate between 1 – 2 hectares of farm land which are usually scattered over a wide area and depending on seasonal rainfall (Fawole and Oladele, 2007; and IFAD, 2015).

Over 70% of the entire mass of the country is arable, though only about 48 percent are presently been cultivated (Adesoji and Farinde, 2006). Some of the Arable crops cultivated in Nigeria include maize, sorghum, millet, cassava, yam, wheat, sugar cane, cocoyam, potatoes, cotton, pineapple, plantain, bananas, benniseed and castor oil. Nigeria rice production is estimated at 2.6 million tons in 2014-15, down from 2.8 million the year before. Incidentally, Nigeria is the world's largest producer of cassava, yam and cowpea; yet it is a food-deficit nation and depends on imports of grains, livestock products, and fish (IFAD, 2012). In other words, Nigeria is not food secured and is not economically self-reliant (Ndanitsa, 2013).

According to Adesoji *et al.* (2006), farmers' arable crop yield is hampered by non-availability and non-affordability of agricultural inputs such as chemical fertilizers, chemical pesticides, improve seeds, machineries and tools. Adesoji *et al.* (2006) posited that less than 40 percent of arable crop farmers could afford to purchase fertilizer even though majority could use fertilizer successfully on their farms. Inability to afford the price of some vital inputs may discourage production, hamper crop yield of farm and consequently jeopardize the confidence of the farmer. In spite of the importance of farm inputs in boosting farmers' productivity, poor rural households in Nigeria lack adequate access to credit, which is believed to have significant negative consequences on aggregate and household income, technology adoption, agricultural productivity, food security, nutrition, health and household welfare (Ogah, 2011).

Agricultural credit is defined as a type of financing used to provide funding to farmers for planting, harvesting, marketing, purchasing farm machinery, payment of labour wages, acquiring farm land and development of irrigation facilities (Alufohai, 2006). Credit is an important instrument for improving the welfare of poor directly through consumption smoothing that reduces their vulnerability to short term income. The provision of credit has increasingly been regarded as an important tool for raising the incomes of rural population whose main occupation is farming (Baba, 2004), mainly by mobilizing resources to more productive uses. It also enhances productive capacity of the poor through financing investments in their human physical capital (Okurut *et al.*, 2004). Every segment of agricultural production requires the availability of adequate capital, since capital determines access to all other resources on which the farmer depend ((Ndanitsa, 2013). This is to say that agricultural credit has been identified as the major input for the development of agricultural sector, as its traditional role in covering financial gap for increased productivity.

Evidently, development, food security and poverty alleviation will not be truly achieved without rapid agricultural growth. Assisting the rural poor to enhance their livelihoods and food security in a sustainable manner is therefore a great challenge (Ndanitsa, 2013).

Economic growth goes hand in hand with agricultural progress; stagnation in the agricultural progress is the principal explanation for poor economic performance, while rising agricultural productivity has been the most important concomitant of successful industrialization, food security, self-sufficiency and self-reliance (World Development Indicator, 2015). Increased agricultural output generally establishes forward linkage (multiplier effect) in terms of development to other sectors of the economy (Hazel, 2008).



In developing countries, the role of agricultural credit is closely related to providing needed resources which farmers cannot source from their own capital. In respect to this, the provision of agricultural credit has become one of the most important government and non-governmental activities in the promotion of agricultural development in Nigeria (Olagunju and Adeyemo, 2008). For example, Brazil, through agricultural financial incentives and agricultural financial intermediation to its farmers was able to change its development status to that of its new industrialized economy (Olagunju and Adeyemo, 2008). Ndanitsa (2014) and Dan-Masanin Kano (2017) posited that “Brazil has the best Agricultural Policy in the world”.

Expanding the scope of farm operations (especially through the substitution of physical capital for labour and increased use of purchased inputs) requires the use of capital which is not available on the farm and must be purchased. Agricultural growth and development cannot be achieved against the background of farmers’ poor financial position. Agricultural occupation and participation in agriculture is predominant in rural areas and it is engaged in by poor rural household who are characteristically arable farmers (Asogwa *et al.*, 2012). These agricultural activities include: crop production, animal husbandry, forestry, wildlife, fisheries crop and livestock marketing to mention but a few. However, insufficient credit has emerged the most limiting setback of agricultural production. This is because, as stated earlier, capital is the most important input in agricultural production and its scarcity or rationing to small scale farmers would lead to a decline in food production, because these small scale farmers account for the bulk of agricultural produce of the nation (Oluwatayo, 2008). The occurrence of food importation into the country to make up for the shortfall in food supply is a dangerous indication of the dwindling farm productivity (or poor agricultural sector performance) and a warning signal that if the nation continues with business as usual; the prospect of food security, economic growth and development as well as self-reliant in the economy will be black for millions of people (Nweze, 2003).

Credit is considered as a catalyst that activates other factors of production and makes under-used capacities functional for increased production. Thus, farm credit plays a crucial role in agricultural and rural development as it enables farmers reap economies of scale, venture into new fields of production, employ new technologies and empower them to provide utilities for a widening market. Agricultural credit is often seen as a process of obtaining control over the use of money, goods and services in the present in exchange for a promise to repay at a future date. Agricultural credits are adapted to the specific financial needs of farmers, which are determined by planting, harvesting and marketing cycles (Ayegeba and Ikani, 2013).

Agricultural credit programme is one of the unique development interventions primarily because of its social transformational effects and ability to reach a varied group of poor farmers in rural areas (Dulal, 2007). Agricultural credit is crucial for the rural farmer to create self-empowerment and reduce their poverty situation (Ahsan, 2005). Rural farmers with access to credit can make investments in agricultural enterprises/agribusinesses that bring them out of poverty (Shastri, 2009). Rural farmers can use the loans provided by numerous financial institutions to engage themselves successfully in various farming and trading activities to earn money/income and a living. The traditional money earned by farmer’s increases households’ disposable income that improves the consumption patterns and livelihood of the rural families. Ndanitsa (2013) in a study of the impact of microcredit providers to farm households in North-Central Nigeria reported that credit has improved their incomes, farm productivity, poverty alleviation, school enrolment of children, food (protein) intake, good health and participation in political activities in the area.

Nosiru (2010) in his research, provide that microcredit enabled farmers to buy inputs they needed to increase their productivity. He was however, quick to reveal that, the sum of



credit obtained by the farmers in the study area did not contribute positively to the level of output. This was as a result of non-judicious utilization, or distraction of credits obtained to other uses apart from the intended farm enterprises. Siddiqi and Kishwar (2004) reported that flow of credit to farmers had increased demand for inputs to increase crop production. The elasticity of amount of credit, number of tractors, irrigation, use of chemical fertilizers and pesticides with respect to dependent variable agricultural income on per cultivated as well as per cropped acre basis indicated that credit (production credit) and tube wells impacted positively and significantly at 95 percent confidence level. Number of tractors and use of fertilizers also contributed positively but insignificantly. It was because of inappropriate use of fertilizer and tractors.

Ahmed and Simeon (2006) examined the impact of advancing in-kind credit in the form of fertilizer and seed to smallholder farmers in the Ethiopian. They found that in kind input credit of fertilizer and seed increased crop output reasonably. In another study of Ayegba and Ikani (2013), on the impact assessment of agricultural credit on rural farmers in Nigeria discovered that much is yet to be done to boost agriculture by encouraging farmers via adequate agricultural credit without strings. The results also indicate that unregulated private money lenders (53.33%) constitute the major source of credit which is not healthy for an economy that is ready to grow. It was equally clear that the much needed banks in the rural areas are mainly found in the urban areas leaving the rural farmers without formal sources of credit.

Aliyu (2012) investigates the relationship between agricultural production and formal credit supply in Nigeria. The methodology employed in the study involved the development and estimation of three simple regression models relating agricultural output with formal credit while holding other explanatory variables constant. The findings indicate that formal credit is positively and significantly related to the productivity of crop, livestock and fishing sectors of Nigerian agriculture. Beckman and Schimmelpfennig (2015) examine the relationship between farm income and influential factors from 1964 to 2010 in District of Columbia (DC), US. Results of impulse response functions (IRFs) show a negative impact of interest rate, land prices, credit received on farm income; while technology and exchange rate had a positive impact on the long run.

Considering the significance of mechanization and improved farming activities to increase food self-sufficiency for the teeming population, as well as industrialized one, the government, over the years had prioritized the agricultural sector in its credit and expenditure policies. This is because as development takes place, one question that arises is the extent to which credit can be offered to the rural poor, to facilitate their taking advantage of the self-developing entrepreneurial activities (Nissanke, 1995). Adera (1995) observed that commercial banks and other formal institutions fail to cater for the credit needs of smallholder farmers, mainly due to their lending terms and conditions. It is generally the rules and regulations of the formal financial institutions that have created the myth that the poor are not bankable and since they cannot afford the required collateral, they are considered not credit-worthy. Despite efforts to overcome the widespread lack of financial services, especially the small-scale farmers in developing countries and the expansion of credit in rural areas, majority still have only limited access to bank services to support their private initiative. Ijere (2007) posited that, one factor inhibiting the attainment development goals in Less Developed Countries (LDCs) like Nigeria, is the populace's general inability to access factors of production especially finance/credits. This, he said limits the entrepreneurial ability of the people, especially the poor. Consequently, the potential employment opportunities and household prospects for creating wealth and improving income are lost. The Central Bank of Nigeria (CBN, 2005) noted that the formal financial system provides services to about 35 percent of the economically active population



while the remaining 65% are excluded from access to financial services. These 65% are often served by the informal sector, through NGO-MFIs, friends, relatives, cooperative unions, etc.

Government of West Africa and many other countries have recognized the role credit can play in agricultural production and have established a number of special agencies to provide agricultural credit to farmers. In Nigeria, for example, the Nigerian Agricultural and Cooperative Bank (NACB) now known as Bank of Agriculture (BOA) are of the efforts aimed at injecting oil wealth into the Agricultural sector (through the provision of credit facilities to agriculture for increased output), as well as the rural (commercial) banks are established mainly to provide credit for agricultural purposes and other rural ventures. In Ghana similarly, the Agricultural Development Bank as well as government-owned rural banks perform similar roles and one can find similar institutions in many other countries (Ogunsumi, 2007). Other initiatives included; the small-scale Industries Credit Guarantee Scheme (SSICGS), the Nigerian Commercial Banks and Agricultural Credit Guarantee Scheme Fund (ACGSF), the Commercial Agricultural Credit Scheme (CACS), Nigeria Incentive based Risk sharing system for Agricultural Lending (NIRSAL), Agricultural Credit Support Scheme (ACSS) and the Anchor Borrowers' Programme (ABP). Others are: The National *Fadama* Development Project (NFDP), and consolidation of banks and the licensing of Microfinance Banks in 2006.

Furthermore, the Agricultural Transformation Agenda Support Programme (ATASP) was introduced in 2012 to significantly reduce food imports by increasing production of five key crops: rice, cassava, sorghum, cocoa and cotton and to improve food security by providing direct subsidy through discounted seeds, fertilizers, agro-chemicals and farm machinery equipment hire. Unfortunately, the full potentials of the programme have not been actualized.

In spite of all these policies and programmes, however, the food production cannot keep pace with the rapidly growing population (Muhammad *et al.*, 2015). In similar vein, Okoronkwo and Anozie (2007) observed that, despite agricultural credit schemes introduced by the government in the country in a bid to boost small scale agricultural production, this dream has remained evasive. Small scale farmers are still left in the cold in spite of their relentless effort to embrace these credits. The inaccessibility of farm credit to small scale farmers has continued to be a major reason for the persistence of subsistence farming. Nigerian Agriculture inevitably requires some capital injection from both formal and informal financial sectors of the economy, if this vicious cycle is to be broken.

Agricultural credit delivery refers to the availability and direct flow of credit from the financial institutions to the farmers. According to CBN (2014), there are different ways to credit delivery to farmers in Nigeria and that even though there is significant difference across lending organizations, an enabling environment is more important than the size or ownership of the organization. Here, enabling environment refer to the provision of infrastructural facilities such as roads, communication network, irrigation, storage facilities, market facilities, research and extension institutions, schools/colleges and universities, which will train and produce a variety of skilled agricultural workers. Therefore, without an enabling environment for effective credit delivery system, the efforts of the farmers and the government will not yield the desired result in food sufficiency and income generation to the farmers, since the bulk of food production in Nigeria is in the hands of a multitude of small scale arable crop farmers who are scattered all over the country.

Ogunfowora *et al.* (1975), both agreed that agricultural growth requires either an increased government funding, increased investment by farmers through credit from lending institutions or a relocation of resources available towards a more profitable farming system of moderate and economic farm size holdings (such as arable crop farming). Hence, this study



will examine the effects of agricultural credit delivery on the income of arable crop farmers in Niger State, Nigeria.

With the rising food prices and inadequate food in the world market, food security, low income and periodic collapse of purchase power through inflation in the country has greatly reduced affordability of food. So, it has become imperative to devise means to tackle this situation. Increasing food production and attaining food security as well as increasing farmer's income in Nigeria require timely and adequate supply of agricultural inputs including agricultural credit. Lack of savings and capital make it difficult for many rural farmers to undertake activities that will increase their production and income. The farmers in the rural areas require financial support from institutional and non-institutional sources to meet the expenses of various agricultural activities (Adebayo and Adeola, 2008).

Previous studies have shown that cooperative societies carry out the function of credit delivery to farmers, but there is ample evidence that farmers face difficulties in obtaining credit and the problem of sourcing for capital still lingers on (Ndanitsa, 2013). In spite of the importance of loan in agricultural production, growth and development, its acquisition is fraught with a number of problems such as relying on money lenders, friends, relatives and contribution (Fakayode *et al.*, 2009).

However, with the present situation in Nigeria, these informal credit sources could hardly meet the increasing demand for credit by farmers due to their limited resources, which restrict the extent to which it can effectively and sustainably satisfy the credit need of these farmers (Nappon and Huddleston, 1993). This is because as the small scale farmers expand in size, the volume of loans required becomes increasingly difficult for informal credit sources to satisfy (Aryeetey and Udry, 1977).

Also, Ojo (2005) observed that the institutional lending system has failed to meet the objective for which they were set up. The major shortcomings of their formal credit transactions were due to the inaccessibility of these funds by rural farmers as a result of the bureaucratic procedures and high service cost, which are very difficult for the farmers to meet. These formal institutions' sophisticated modes of operation are incapable of dealing with the peasant rural dwellers (Fakayode *et al.*, 2009). Ndanitsa (2013) posited that the design of the loan facility or program by most financial institutions that provide credit to the farmers, including those of the BOAs (Bank of Agriculture) was actually a stencil-type, and all the beneficiaries were expected to fit into it. Therefore, the idea of Microfinance Institutions (MFIs) developed from the inability of the formal financial institutions to satisfactorily provide credit for the poor entrepreneurs who are desirous of starting businesses, but lack the necessary capital (Obamuyi, 2009). Thus, not much credit has been achieved in providing credit to the small scale farmers who contribute about 95 percent of the total agricultural output/produce in Nigeria (Ndanitsa, 2017).

According to CBN (2014), previous studies have shown that credit delivery system continue to suffer from; high cost of lending by financial institutions, low repayment rate of borrowers, ineffectiveness of cooperative societies as channel of credit delivery, insufficient funding by government and lack of infrastructural facilities that enhance credit utilization, farmers' productivity and income generation, etc. It is against this background that this study attempted to provide answers to the following research questions: What are the socio-economic characteristics of the arable crop farmers that benefit from the agricultural loan facility? What factors influence the agricultural credit demand and supply? What is the effect of agricultural credit delivery on the income status of farmers? And what are the constraints to effective agricultural credit delivery?



The broad objective of this study was to examine the effects of agricultural credit delivery on the income of arable crop farmers in Niger State, Nigeria. The specific objectives were to: highlight and describe the socio-economic characteristics of farmers with access to credit and those without access, analysis the determinants of agricultural credit demand and supply; determine the effect of agricultural credit delivery on the income status of farmers; and identify the constraints to effective agricultural credit delivery in the study area.

MATERIALS AND METHODS

The Study Area

The study was conducted in Niger State of Nigeria. The State lies on latitude $8^{\circ}20'N$ and longitude $3^{\circ}30'E$ and $7^{\circ}40'E$. The State was founded in 1976, and has Minna as the State capital. The state is bordered to the North by Zamfara State, West by Kebbi State, South by Kogi State, South-West by Kwara State, North East by Kaduna State and South-East by Federal Capital Territory (FCT). The State also has an international boundary with the Republic of Benin, along Agwara and Borgu Local Government Areas (LGAs) to the North-West (NSBS, 2014). It has 25 constitutional LGAs.

Niger State is one of the largest states in the country; about 9.3 percent of the total land mass covering about $86,000\text{km}^2$ (8.6 million hectares) and out of which 85% is arable (NV3:2020, 2008). Similarly, an estimated 80% of the $86,000\text{km}^2$ of the land is suitable for agriculture (arable) and the range of crop species that can be produced is wide, given the soil texture and climatic condition. Furthermore, the state has an estimated 682,331 hectares of irrigable land, of which only 25% has been developed. Only 105,556 hectares is put to use annually with about 26,500 hectares being cultivated during the dry season (NV3:2020, 2008).

The 2006 National Population and Housing Census in Nigeria put Niger State's population as 3,954,772, comprising of 2,004,350 males and 1,950,422 females. The estimated projection of population based on 3% growth rate per annum is 5,168,063 made up 2,619,268 males and 2,548,795 females in 2015. It is projected that by 2016 the State will have an estimated population of 5,141,147 people.

Niger State experiences distinct dry and wet seasons with annual rainfall varying from 1,100mm in the Northern parts to 1,600mm in the Southern parts. The average annual number of raining days ranges between 187 and 220 days. The State is located in the sub-humid climatic zone of the tropics. The vegetation of the State is mainly Southern Guinea savannah. The vegetation supports the cultivation of root crops and grains. Generally, Agriculture is the mainstay of the economy of the State, as much as 80% of the state depends on it. The average minimum temperature is 26°C while the average maximum temperature is 36°C , but the average temperature rarely falls below 22°C . The mean humidity ranges between 60% (January to February) and 80% (June to September). The topography of Niger State is characterized by gentle undulating plains with a few low lying valleys, which terminates to farm streams at the lowest levels.

The fertile soil, the hydrology and the climate of the State permits the cultivation of most of Nigeria's staple food crops such as yam, maize, millet, sorghum, cassava, rice, fruits/vegetables and plantain; and also engaged in small scale poultry, goat, sheep, cattle and fish farming (NSBS, 2014, NS V3:2020, 2008). There are three major ethnic groups in the state, namely Nupe, Gbagyi and Hausa. Other tribal groups in the State are in minority, and include Kadara, Koro, Baraba, Kakanda, Gana-gana, Dibbo, Kambari, Kamuku, Pangu, Dukkawa, Gwada and Ingwai (NSBS, 2014; NSV3:2020:2008). The Gross Domestic Product (GDP) of Niger State, as at 2011 was US \$11.63 billion (NSBS, 2013).



Sampling Procedure and Sample Size

Multi-stage sampling technique was employed in the study to select the sample size. This involves four (4) stages of selection. Accordingly, the first stage was the purposive selection of three LGAs from the twenty five (25) constitutionally recognized LGAs in the State; namely Bida Lavun and Mokwa LGAs. They were selected for the study because of similarity in major crops grown (grams). Similarly, they all belong to zone 1 of the Niger State Agricultural Zone classification. In the second stage, 20 percent of the districts in each LGA were randomly selected bringing the total to 11 districts. The selection was based on the farm household accessibility to sources of agricultural credit in the state and the predominance of financial institutions that have strong bias in granting agricultural credit to farmers in the LGAs (Adetunji, 2020).

In the third stage, 10% of farming communities were randomly selected from each district. In the fourth stage, 5 percent of farm households were randomly selected from each farming community. A total of 163 credit beneficiaries were selected. An equal number of non-credit beneficiaries were also selected giving a total of 326 respondents as shown in Table 1.

Table 1: Sampling for Location and Respondents

LGAs	Total number of districts	20% of districts selected	Communities	Frame	Beneficiaries	Sample
Bida	16	3	11,235	1123	56	112
Lavun	25	5	13,446	1345	67	134
Mokwa	13	3	8,013	801	40	80
Total	54	11	32,694	3269	163	326

Source: Field survey, 2017

The Village Saving and Loans (VSL) model was employed for the sampling frame which consists of both the beneficiaries and non-beneficiaries. The beneficiaries were obtained from the list of registered farmers of Bank of Agriculture (BOA) being the largest agricultural financial institution in Nigeria and other notable microfinance institutions in the LGAs such as Lift above Poverty (LAPO), FUTM Microfinance Bank, Bejin Doko Microfinance, Mallam Baba Microfinance Bank and Chigbe Yaji Microfinance Bank. These financial institutions are located in the LGAs and popular among the farming communities. The beneficiaries are those farmers who obtained agricultural credit from both the formal and informal financial institutions that are operational in the study area during the 2017 cropping season.

Method of Data Collection

Primary data were collected from the respondents through observations and interviews; comprising beneficiaries and non-beneficiaries of agricultural credit, using a structured questionnaire, interview schedule by the researcher with the assistance of trained enumerators. The questionnaire were used to elicit information on the socio-economic characteristics of the respondents such as age, gender, marital status, household size, educational qualification, trading activities and years of farming experience. Other information and variables inventoried include access to credit, interest rate, input-output information such as types of arable crops grown household food production, farm size, labour utilization, fertilizer use, agrochemical usage and output of crops harvested, access to agricultural extension services, membership of cooperative societies, level of valuable and disposable assets owned by a household.

Focus Group Discussions (FGDs) were also used to generate data requiring consensus opinions. This involved the use of FGD guide to facilitate and ensure that the discussions are not off-track. The FGD guide was constructed based on the themes and sub-themes such as



effect of agricultural credit delivery on household income, variation in agricultural credit delivery systems, and utilization of agricultural credit, to have comprehensive discussions. Other data were obtained from BOA and other Microfinance Institutions in the LGAs, through Key. In format Interviews (KIIs), in addition to information from banks records, bulletins, textbooks, journals, proceedings, books of abstract and other publications. Data collection lasted for 3 months from February to April, during the 2017 cropping season.

Methods of Data Analysis

Descriptive statistics (means, frequency distribution tables and percentages) and inferential statistics (Multiple regression analysis using simultaneous equation model; Chow test was used and the Cubb-Douglas Production Functional form was fitted to the data to create the residual sum of squares) were used to achieve results of the study. The model specifications are as follows:

1. Determinants of Agricultural Credit Demand and Supply: Following Nwaru (2004), a simultaneous equation model for the estimation of credit demand and credit supply was formulated. This is because since there is joint determination, a single estimation model becomes inadequate to ascertain the relationship between variables. Simultaneous equation models are a form of statistical model in the form of a set of linear simultaneous equations.

The implicit functional form of the simultaneous equation model is specified as:

$$C_{ss} = F(\text{Int}, \text{WLA}, \text{LE}, \text{CLR}, \text{TC}, \text{APR}, \text{SOL}, e_i) \quad \dots(1)$$

$$C_{dd} = F(\text{Int}, \text{FEX}, \text{SAV}, \text{LAC}, \text{FSZ}, \text{PCD}, \text{LRM}, e_i) \quad \dots(2)$$

$$\text{Int} = F(C_{ss}, C_{dd}, \text{LE}, \text{TC}, \text{SOL}, e_i) \quad \dots(3)$$

where;

C_{ss} = Credit Supply (₹),

Int = Interest receivable from total amount of money spent out (₹),

WLA = Worth of Loan applications (₹),

LE = Lending Experience (years)

CLR = Cost of Loan Recovery (₹)

TC = Transaction Cost (₹),

APR = Amount of Previous Loans recovered (₹)

SOL = Source of Loans (Dummy: formal source = 1, otherwise = 0)

C_{dd} = Credit demand (₹)

FEX = Farming experience (years),

LAC = Loan Application Cost (₹)

FSX = Farm Size (ha),

Int = Market Interest Rate (%) and

e_i = error term

Equations 1, 2 and 3 were subjected to procedure for simultaneous equation analysis. Firstly, the identification condition of this system of equations was considered using both order and rank conditions (Jonathan, 2011). They were found to be over identified and the systems of equation were then estimated using the three stages least squares method. Based on economic theory, only the linear functional form was tried.

The implicit functional form for the potential credit demand equation is specified as:

$$\text{PCD} = F(\text{AGE}, \text{EDU}, \text{FSZ}, \text{DIS}, \text{HHS}, \text{MEM}, \text{SAV}) \quad \dots(4)$$

where;

PCD = Potential credit demand (₹)

AGE = Age of the farmer (years)

EDU = Educational level of the farm household head (years spent in formal education)

FSZ = Farm size (ha)



DIS = Distance of technical services (Km)
HHS = Household Size (Number of person)
MEM = Membership of Association (Dummy: Membership = 1, otherwise = 0)
SAV = Savings (₦) and
ei = Error term

Using Ordinary Least Squares (OLS) multiple regression analysis, the implicit functional form of the determinants of loan repayment is specified as:

$$\text{LRM} = F(\text{MEM}, \text{HHS}, \text{EDU}, \text{LAC}, \text{FEX}, \text{FSZ}, \text{GIF}, \text{ei}) \quad \dots(5)$$

where;

LRM = Amount of borrowed money repaid (₦)
MEM = Membership of Association (Dummy: Membership = 1 otherwise = 0)
HHS = Household size (Number of Persons)
EDU = Level of Education of borrower (number of years spent in school).
LAC = Loan application costs (₦)
FEX = Farm experience (number of years)
GIF = Gross income of the farmer (₦) and
ei = Error term

RESULTS AND DISCUSSION

Socio-economic Characteristics of Sampled Arable Crop Farmers

The socio-economic characteristics considered for analysis include age, gender, marital status, and household size, and educational level, cooperative membership, farming experience, farm size, monthly income, source and amount of credit obtained by farmers. The analysis of variables is presented in Table 2. The result in Table 2 shows that about 61% of respondents were within the age brackets of 31 – 50 years with mean age of 45 years. This implies that majority of farmers are still within the productive working age. In a similar vein, Adesoji and Farinde (2006) found that farmers below the age of 40 years are engaged in rigorous farm work to accomplish cultural practices such as planting, weeding and harvesting. Crop production in the rural areas is still dominated by the use of locally fabricated manual farm implements, like hoes, cutlasses and sickle. Results in Table 2 further show that majority that is, 85% of sampled credit beneficiaries and 73% of non-beneficiaries were males while the remaining 15% and 27% are females, respectively. They constitute the arable crop farmers in the study area. This shows that male farmers dominated the farming population. Farming is labour intensive. Also, majority, that is 81% of the pooled farmers were married. This implies that majority of arable farmers are married. This finding is in conformity with the finding of Idi (2016) who suggested that the dominance of married farmers in a community is care for the family. Results in Table 2 show that 73% of farmers have large household size of above 6 persons with average household size of 9 persons.

The large household size may serve as source of cheap and readily available farm labour supply depending on the composition and very likely increased output (Adesoji and Farinde, 2006). Table 2 also reveals the educational status of respondents. About 10% of farmers had up to primary level of education, 17% had up to secondary and 50% had tertiary education. This implies that 77% of the farmers are literate and modernized, and would be willing to adopt innovations to enhance productivity via credit obtained with consequent increase in income. This will also ease the problem of training farmers on how to access and effectively utilize agricultural credit obtained. This is in agreement with the findings of Ogah (2011), Akaya (2015) who stated that the level of education determines the level of available opportunities geared towards improved livelihood, food security enhancement, and poverty reduction and



consequently enhances repayment capacity. Also, Oladeebo and Oladeebo (2008) opined that literate farmers will repay more of the loans obtained than illiterate farmers having understood the advantages of prompt repayment. Olagunju and Adeyemo (2008) also shared this view, stating that borrowers with higher educational level would have a better repayment performance on the basis that such farmers would readily respond to improved technologies and innovations that would enhance better returns from farm investments.

On farmers' education, Simonyan and Balogun (2010) submitted that education increases farmer's ability to make correct and meaningful choices for farm operations, while Ogah (2011) had earlier established that the level of education raises human capital and increases their managerial ability.

Results in Table 2 show that in the pooled sample, 72% of respondents have more than 11 years of farming experience. The mean farming experience was 18 years. Therefore, farmers can use their farming experience in putting agricultural credit obtained to efficient use. This finding agrees with Gomina (2015) who posited that farming experience is used as a measure of efficiency in management. The more experienced the farmer is, the more his ability to make farm decisions that would increase their farm output and income. Experience enable farmers set realistic targets. The combination of farming experience with the ability to manage farm resources efficiently is expected to translate to higher returns for entrepreneurs in an area. The finding of this study further buttress the work of Afolabi (2010), on the analysis of loan repayment amongst small scale farmers, which established that farming experience, has significant influence on the ability of the farmers to acquire and repay loan advanced to them.

Table 2 also show that 55% of the beneficiaries and 78% of non-beneficiaries had between 0.5 – 3.0 hectares of farm land while about 45% of beneficiaries and 22% of non-beneficiaries had above 3.0 hectares of farm land. The mean farm size of beneficiaries and non-beneficiaries are 5 and 3.24 hectares, respectively. This implies that the beneficiaries are within the range of small-medium scale farmers, while the non-beneficiaries are mostly small scale farmers. This agrees with the findings of Gomina (2015), who found that the mean farm size of beneficiaries and non-beneficiaries of agricultural credit are 5 and 3.2 hectares, respectively.



Table 2: Socio-economic Characteristics of Respondents

Characteristics	Beneficiaries Frequency (%)	Non-Beneficiaries Frequency (%)	Pooled Sample Frequency (%)
Age (Years)			
≤30	9 (5.81)	9 (5.81)	18 (5.73)
31 – 40	35 (22.01)	52 (33.55)	87 (27.71)
41 – 50	54 (33.97)	50 (32.26)	104 (33.12)
51 – 60	52 (32.70)	41 (26.45)	93 (29.62)
≥60	9 (5.66)	3 (1.93)	12 (3.82)
Mean	46	44	45
Sex			
Male	135 (84.91)	114 (73.55)	249 (79.30)
Female	24 (15.09)	41 (26.45)	65 (20.70)
Marital status			
Single	20 (12.58)	30 (19.35)	50 (15.92)
Married	133 (83.65)	123 (79.35)	256 (81.53)
Widowed	2 (1.26)	1 (0.65)	3 (0.96)
Divorced	4 (2.51)	1 (0.65)	5 (1.59)
Household size			
1 – 5	27 (16.98)	59 (38.06)	86 (27.39)
6 – 10	80 (50.31)	51 (32.90)	131 (41.72)
11 – 15	36 (22.64)	27 (17.42)	63 (20.06)
16 – 20	12 (7.55)	15 (9.68)	27 (8.60)
≥ 20	4 (2.52)	3 (1.94)	7 (2.23)
Mean	9	8	9
Educational level			
No School	8 (5.03)	20 (12.90)	28 (8.92)
Arabic Education	4 (2.52)	8 (5.16)	12 (3.82)
Adult Education	21 (13.21)	11 (7.10)	32 (10.19)
Primary Education	14 (8.81)	16 (10.32)	30 (9.55)
Secondary Education	42 (26.41)	12 (7.74)	54 (17.20)
Tertiary Education	70 (44.02)	88 (56.78)	158 (50.32)
Farming experience (Years)			
≤5	12 (7.55)	5 (3.23)	17 (5.41)
5 – 10	32 (20.13)	39 (25.16)	71 (22.61)
11 – 15	23 (14.46)	41 (26.45)	64 (20.38)
16 – 20	27 (16.98)	36 (23.23)	63 (20.07)
21 – 25	17 (10.69)	8 (5.16)	25 (7.96)
≥ 25	48 (30.19)	26 (16.77)	74 (23.57)
Mean	19	17	18
Farm Size (hectares)			
0.5 – 1.0	13 (8.18)	18 (11.61)	31 (9.87)
1.1 – 1.5	10 (6.29)	13 (8.39)	23 (7.32)
1.6 – 2.0	23 (14.46)	51 (32.90)	74 (23.57)
2.1 – 2.5	13 (8.18)	12 (7.74)	25 (7.96)
2.6 – 3.0	28 (17.61)	27 (17.42)	55 (17.52)
≥ 3.0	72 (45.28)	34 (21.94)	106 (33.76)
Mean	6	4	5

Source: Field Survey, 2017

Determinants of Agricultural Credit Demand and Supply

The result of the joint estimate of agricultural credit demand and supply using 3-stage least squares are presented in Table 3. Firstly, the potential credit demand (PCD) and loan repayment (LRP) were estimated as determinants of agricultural credit demand. Secondly, the agricultural credit demand and supply were estimated as determinants of credit interest.



Thirdly, the credit interest was estimated. The results in Table 3 revealed that the chi square value of credit supply (3221.44), credit demand (863.39), potential credit demand (777.91) and loan repayment (1097.63) were all significant at 1% probability level, which implies that all the explanatory variables included in the models jointly explained variations in the dependent variable.

Results in Table 3 show the determinants of agricultural credit demand in the study area. The adjusted R^2 of 0.85 indicates that 85% of the variation in agricultural credit demand was explained by all the explanatory variables included in the model, which the remaining 15% is as a result of non-inclusion of some important variables and errors in the estimation. The results in Table 3 shows that interest on loan (INT.) loan application cost (LAC), farm size (FSZ) and predicted loan repaid (LRP) were all significant at 10%, 5%, 5% and 10% respectively. This shows that they are important determinants of credit demand in the study area. This finding corroborates with that of Ndanitsa (2015) and Onyeagocha (2008), who in their separate study revealed that interest rate on borrowed capital, cost of loan application, farm size and predicated loan repaid were among the determinants of agricultural credit demand in their study area.

The coefficient of interest on loan (4.02) was positively signed and statistically significant, implying that the higher the interest on loan, the higher the amount of credit demanded. This is unexpected and in variance with the demand and supply theory of agricultural credit. Also, this finding is contrary to the findings of Onyeagocha (2008), Akudugu (2012) and Ndanitsa (2015) who found that the exorbitant interest rates charged by financial institutions deter many farmers from demanding for agricultural credit. This explains to a large extent the policy of concessionary interest rate for farmers and other small scale enterprises, even though Ndanitsa (2014) submitted that concessionary interest rate destabilizes the economy.

The negative coefficient of application cost (-231.79) as it relates to agricultural credit demand in Table 3, implies that the higher the application cost, the lower the amounts of credit demanded. This is expected and conforms to the findings of Oyeagocha (2008), Ndanitsa (2015) and Ndanitsa (2017) who all posited that cumbersome, long and costly application procedures among others prevent farmers, especially the non-literates, from demanding for agricultural credits.

The coefficient of farm size is positive (47944.28) and significant at 5% probability level, which implies that farmers with larger farming units/farm land have the tendency to demand for more agricultural credit than those with smaller farmland. This finding is in conformity with the findings of Banerjee and Duflo (2001) who found that land constitutes a major factor in deciding whether or not to demand credit from formal sources. This is because access to land for farming is a serious challenge in some rural areas in Nigeria. Ndanitsa (2015) had earlier postulated that, one of the significance of agricultural finance/credit is to enable farmers acquire larger but fewer farming units.

The coefficient of predicted loan repaid is positive (1.25) and significant at 10% probability level, which implies that farmers that repaid their previous loan within the stipulated time are more likely to demand for more agricultural credit than those who did not. Onyeagocha (2008) and Ndanitsa (2015) in their separate studies revealed that an important determinant of “repeat loan” is the farmer’s ability to repay the previous loan at the stipulated time. Both authors however said, although, certain factors also determine the amount of borrowed loan repaid.

Results in Table 3 also show that farming experience (FEX), loan application cost (LAC), household size (HHS) and gross income (GIF) were significant determinants of



borrowed loan repaid. The coefficients of farming experience (2096.16) and gross income (0.31) are positive, suggesting that the higher the magnitude of these variables, the higher the amount of borrowed loan repaid. Experienced farmers tend to perfect the use of borrowed capital over the years which make them loan/credit worthy (Onyeagocha, 2008).

Demand for credit is more in household with higher income due to their ability to accumulate collaterals to secure loans. Also, interest payment can be guaranteed with higher income (Messah *et al.*, 2011). Ndanitsa (2015) and Ndanitsa (2017) posited that one of the “canons” or “source basis” for extending agricultural credit to farmers is capital or income.

The positive coefficient of loan application cost (162.87) is due to the savings before credit policy by most rural banks and the amount of money saved can be used for loan repayment. The negative coefficient of household size (-5964.02) implies that as the household size increases, the amount of borrowed loan repaid decreases. Larger household size means more people to feed and hence indirectly reduce income and loan repayment (Aidoo *et al.*, 2013).

Results in Table 3 further revealed the determinants of agricultural supply in the study area. The adjusted R^2 of 0.95 indicates that 95% variation in agricultural credit supply was explained by all the explanatory variables included in the model, which the remaining 5% is as a result of non-inclusion of some important variables and errors in estimation. The results in Table 3 also show that lending experience (LE), transaction cost (TC), source of credit (SOL) and interest on loan (Int.) were all significant at 10%, 10% 5% and 1% respectively. This shows that they are important determinants of credit supply or delivery in the study area.

The negative coefficient of lending experience (-3352.10) implies that lenders with lesser years of lending experience tend to supply credit more than those with longer years. This scenario is better explained by the risk and uncertainty theory of agricultural credit and how it significantly lowers the availability of agricultural credit from institutional sources. Over the years, financial institutions are faced with the risk of extending credit to farmers that they prefer to lend to a few big farmers, leaving the numerous small scale farmers.

The positive coefficient of transaction cost (25.33) implies that as transaction cost increases, the agricultural credit supply increases. However, lending institutions will be willing to give out loan when the interest and transaction cost are high, because they expect a higher return for their loan. The positive coefficient of source of credit (101967.60) implies that formal lending institutions tend to supply agricultural credit to farmers more than the informal institutions in the area. This finding is supported by Alufohai *et al.* (2005), Onyeagocha (2008), Ndanitsa (2015) and Adetunji (2019), who all found that formal lenders provide much more agricultural credit than informal lenders. Ndanitsa (2015) advanced reason of higher capitalization by the formal lenders above the informal lenders.

The positive coefficient of interest on loan (4.67) implies that the higher the interest on loan, the higher the amount of credit supplied. This finding is consistent with the findings of Oluwasola *et al.* (2008) who found that interest rate charged on loan, level of savings, volume of loan demanded and the proportion of previous loan repaid were the major determinants of credit supply.



Table 3: Three Stage Least Square (3SLS) Regression Coefficients for Estimation of Agricultural Credit Demand and Supply

Explanatory Variables	Credit Interest Coefficient	Credit Supply Coefficient	Credit Demand Coefficient	Potential Credit demand Coefficient	Loan Repayment Coefficient
Css	0.22 (10.92)***				
Cdd	0.01 (0.42)				
LE	1316.44 (4.63)***	-3352.10 (-1.47)*			
TC	-4.81 (-1.49)*	25.33 (1.96)*			
SOL	-22738.38 (-2.56)**	101967.60 (2.68)**			
Int		4.67 (7.21)***	4.02 (1.57)*		
WLA		-48.92 (-0.80)			
CLR		-2.55 (-0.43)			
APR		-250.75 (-0.76)			
FEX			-2243.76 (-0.57)		2096.16 (1.67)*
SAV			0.52 (0.23)	7.93 (17.66)***	
LAC			-231.79 (-2.56)**		162.87 (6.45)***
FSZ			47944.28 (2.08)**	2349.81 (0.31)	9124.40 (1.15)
PCD			0.07 (0.34)		
LRP			1.25 (1.65)*		
AGE				889.40 (0.50)	
EDU				1054.64 (0.27)	2067.84 (0.69)
DIS				-4313.90 (-3.27)***	
HHS				1158.92 (0.32)	-5964.02 (-2.18)**
MEM				-64868.66 (-1.72)*	11320.28 (0.39)
GIF					0.31 (14.39)***
Adjusted R ²	0.94	0.95	0.82	0.83	0.87
Chi ²	2591.30***	3221.44***	863.39***	777.71***	1097.63***

***P<0.01, **P<0.05, *P<0.10; Figures in parenthesis are t-values

Results in Table 3 show the determinants of agricultural credit interest in the study area. The adjusted R² of 0.94 indicates that 94% of the variation in agricultural credit supply was explained by all the explanatory variables included in the model, while the remaining 6% is as a result of non-inclusion of some important variables and errors in estimation. The results in



Table 3 also show that agricultural credit supply (C_{ss}), lending experience (LE), transaction cost (TC) and source of credit (SOL) were all significant at 1%, 1%, 10% and 5%, respectively. This suggests that they are important factors of determinants of credit interest in the study area.

The positive coefficient of agricultural credit supply (0.22) implies that as credit supply increases, interest on credit increases. This finding is true for credit demand but unexpected for supply, because with increases in credit supply, lenders will be forced to reduce their interest charges, since farmers have access to various sources of credit.

The positive coefficient of lending experience (1316.44) implies that lending institutions with long years of service tends to charge borrowers higher interest on loan obtained. Meanwhile, over the years, credit lenders perfect their credit delivery and minimize risk as much as possible which explains why the older lenders charge higher interest than the younger ones. However, the younger lenders are more interested in getting patronage and building a reputation, so they charge lower interest to attract customers.

The negative coefficients of transaction cost (-4.81) implies that the credit interest decreased with increases in transaction cost of credit. This finding is consistent with the work of Alufohai and Ahmadu (2005) who found that formal lenders provide much more agricultural credit than informal lenders and at a lower interest rate.

Effects of Agricultural Credit Delivery on the Income of Farmers

The effects of agricultural credit delivery on the income of farmers are presented on Tables 4 and Table 5. Results in Table 4 show that the F-values (195.17 and 57.73) are significant at 0.01 level of probability for the two categories of farmers (beneficiaries and non-beneficiaries of agricultural credit), indicating that the variables included in the model had line of best fit. The coefficient of determination (R^2) was 0.90 for beneficiaries and 0.69 for non-beneficiaries, which suggests that 90% of variation in income of beneficiaries and 69% of variation in income of non-beneficiaries are due to differences in the explanatory variables included in the model.

The coefficient of farm size (0.542 and 0.699) were positive and significant, indicating that increase on farm size will lead to an increase in income of beneficiaries and non-beneficiaries. This finding is consistent with the finding of Ndanitsa (2014) who found that increase in farm size in form of land consolidations or cultivation of larger farming units will increase farm income through better economies of scale.

The coefficient of agrochemicals (0.068) was positive and significant for beneficiaries, which implies that income of beneficiaries will increase with increase in agrochemicals application. This finding is in contrast with the findings of Ajah and Ajah (2014) who found that cost of chemicals was significant and inversely related to farm output. This is because the more money that is spent on buying chemicals, the less money that may be available to buy other farm inputs which will invariably affect output and indirectly affects farm income.

The coefficient of capital input (0.311 and 0.270) were positive and statistically significant; indicating that increase in credit inputs will lead to an increase in income of the beneficiaries. This finding is in conformity with the work of Ogah (2011) and Ndanitsa (2014), who both carried out studies on the impact of credit on the income of farmers in Kaduna and Katsina States, and North-Central Nigeria respectively, and found that increase in credit usage, fertilizer, agrochemicals, seeds and labour will result in increase in income.



Table 4: Results of OLS Multiple Regression Analysis to Observe the Effect of Agricultural Credit on Income of Farmers

Variables	Parameter	Beneficiaries Coefficient	Non-Beneficiaries Coefficient
Constant	β_0	10.628*** (25.15)	10.118*** (7.63)
Farm Size	β_1	0.542*** (6.48)	0.699*** (5.37)
Labour	β_2	-0.007 (-0.34)	-0.032 (-0.89)
Fertilizer	β_3	-0.183*** (-3.15)	0.056 (0.92)
Agrochemical	β_4	0.068* (1.90)	0.017 (0.40)
Quantity of seeds	β_5	0.101* (1.55)	0.002 (0.05)
Capital Input	β_6	0.311*** (16.86)	0.270* (1.53)
Source of Credit	β_7	-0.080 (-0.97)	
Number of observations		159	155
F-Value		195.170***	57.730***
Prob>F		0.000	0.000
R ²		0.904	0.690
Adjusted R ²		0.899	0.677

***P<0.01, **P<0.05, *P<0.10; Figures in Parenthesis are t-values

However, the coefficient of fertilizer (-0183) was negative and statistically significant for beneficiaries, which implies that income of beneficiaries will decrease with the use of additional quantity of fertilizer application. This can be as a result of the high cost of fertilizer, which increase production cost and reduces income. Ndanitsa (2005) had submitted that the income benefit of farmers was secured with a high variable cost of production.

The coefficient of source of credit (-0.080) was insignificant, indicating that the channel of credit delivery to the beneficiaries of agricultural credit in the study area has no effect on the farmers' income. This finding is contrary to the finding of Ayaz *et al.* (2011), who found that source of credit assured timely use of farming inputs and also provide the opportunity for farmers to be innovative in farming. This finding was also confirmed by Sidhu *et al.* (2008).

Results in Table 5 show that the average quantity of fertilizer used by farmers in the study area is 609.95kg. The mean capital input of farmers is ₦67,121.82 and the mean farmers income is ₦1,322,577.00 only. This implies that credit has a great effect on farmer's income.

Table 5: Summary Statistics of The Variables used in the Regression Model to Observe the Effect of Agricultural Credit on Income of Farmers

Variables	Mean	Standard deviation	Minimum	Maximum
Farmer income (₦)	1,322,577.00	1011290.00	76,000.00	4,524,000.00
Labour (Man-day)	1159	1385.44	81	9696
Fertilizer (Kg)	609.95	439.50	50.00	1900.00
Agrochemical (Litres)	5.75	4.59	0.25	32.00
Quantity of seeds (Kg)	33.21	25.18	1.00	110.00
Capital input (₦)	67,121.82	112490.30	2,100.00	499,500.00

Source: Data Analysis, 2017



Constraints to Effective Agricultural Credit Delivery

The constraints faced by financial institutions in credit delivery to farmers are shown in Table 6. The constraints in decreasing magnitude of importance were late release of approved funds, inadequate information and equipment (operational facilities), insufficient funds to meet farmers’ demand, illiteracy and lack of awareness of farmers, loan diversion by farmers, poor loan repayment rate and poor rural infrastructure.

Table 6: Constraints to Effective Agricultural Credit Delivery by Financial Institutions (n = 114)

Constraints	Frequency	Percentage	Rank
Late release of approved funds	26	22.8	1 st
Inadequate information and equipment	22	19.3	2 nd
Insufficient funds to meet farmers demand	18	15.8	3 rd
Loan diversion by farmers	14	12.3	4 th
Illiteracy and lack of awareness	14	12.3	4 th
Poor loan repayment rate	12	10.5	6 th
Poor rural infrastructure	8	7.0	7 th
Total	114	100	

Source: Field Survey, 2017

It was found that about 23% of financial institutions ranked late release of approved funds as the major constraint to agricultural credit delivery. This was followed by inadequate information and equipment (19%) and insufficient funds to meet farmers’ demand (16%) as second and third constraints respectively. Both loan diversion by farmers (12%) and illiteracy and lack of awareness of farmers (12%) ranked fourth, while poor loan repayment rate (11%) and poor rural infrastructure (7%) ranked fifth and seventh respectively. This finding is similar to Adegbite (2009) who stated that financial lending institutions in Nigeria often shy away from giving loans to farmers because of the high administrative cost and the perceived high loan repayment rate among farmers.

Meanwhile, the challenges faced by farmers accessing agricultural credit are presented in Table 7. The challenges in decreasing magnitude of importance were insufficient amount of loan (44.17%), excessive bureaucracy in processing loan (41.72%), poor credit delivery (40.18%), high interest charges on loan (38.65%), short repayment period (36.81%), collateral required to obtain loan (26.07%), favouritism in loan disbursement (24.23%), lack of supervision and advisory services (20.86%), dishonesty of lender (18.71%) and loan centre too far (18.71%). Out of these challenges, the ones that mostly concern the formal sources of credit were insufficient amount of loan, excessive bureaucracy in processing loan, poor credit delivery, high interest charges on loan, short repayment period, collateral required to obtain loan and loan centre too far. On the other hand, the challenges that are encountered by farmers from informal sources of credit were insufficient amount of loan, high interest charges on loan, short repayment period, dishonesty of lender, favouritism in loan disbursement and lack of supervision and advisory services. This finding suggest that farmers are faced with the major problem of insufficient amount of loan, high interest charges on loan and short repayment period regardless of the source of credit or credit delivery mechanism.



Table 7: Constraints to Effective Agricultural Credit Delivery by Arable Farmers (n = 326)

Constrains	Frequency	Percentage	Rank
Insufficient amount of loan	144	44.17	1 st
Excessive bureaucracy in processing loan	136	41.72	2 nd
Poor credit delivery	131	40.18	3 rd
High interest charges on loan	126	38.65	4 th
Short repayment period	120	36.81	5 th
Collateral required to obtain loan	85	26.07	6 th
Favoritism in loan disbursement	79	24.23	7 th
Lack of supervision and advisory services	68	20.86	8 th
Dishonesty of lender	61	18.71	9 th
Loan centre is too far	61	18.71	9 th
Total	1,011*		

*Multiple responses allowed

Source: Field Survey, 2017

CONCLUSION AND RECOMMENDATIONS

From the findings of this study, it can be concluded that agricultural credit delivery has significant effect on productivity and income of the farmers. Availability of farmland and capital were the major determinants of income. Major constraints to agricultural credit delivery were insufficient funds, inadequate information and equipment for lender and high interest charges and insufficient amount of loan from the financial institutions. The study therefore recommended that; cooperative societies should be managed by credible officials in order to increase their chance of getting credit from the financial institutions, as most of the cooperative societies mobilize savings and guarantee each other; an increase in farm size in the form of land consolidations will increase farm income through better economies of scale, and food production can be increased extensively through expansion of areas under cultivation; stencil-type of credit administration should give way to farmer-specific credit needs; lenders should reduce their interest charges and transactions cost and ensure close monitoring of credit approved for disbursement to avoid diversion to other uses. Furthermore, the demanding of collateral in the form of cash or farm inputs especially by the formal lenders should be eliminated from credit policy of the lending institutions.

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