

Income Analysis of Farmers with and without Access to Credit in Southern Agricultural Zone, Nasarawa State, Nigeria

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Abstract— The study analyzed the differences in income farmers with and without access to credit in Southern Agricultural Zone, Nasarawa State, Nigeria. The specific objectives were to; Identify and describe the various sources of information regarding access to credit, determine the income levels of farmers with access and without access to credit, compare farmers with access and those without access to credit in the study area and identify constraints to access to credit by farmers. Multi-stage sampling technique was used to select a sample of one hundred and eight (108) respondents. Data were collected through the use of structured questionnaires and analyzed using frequency, percentages and t-test. The study revealed that there was a significant difference between income of farmers without credit and those without credit. Majority of the farmers with access to credit were within the income levels of ₦200,000 and above representing 61.1%, while majority of those without access to credit are within income levels of less than ₦200,000 and accounted for 83.4%. Some of the constraints identified include; Risk associated to agriculture due to crop/livestock failure (23.66%), Uncertainties associated to price fluctuation of agricultural products (18.32%), Inadequacy of the amount to be given (15.78%), Fear of harassments (11.45%) and Formalities/bureaucracy associated to acquiring credit (11.2%). However, despite these problems, some small-scale farmers still to produce food for own consumption and some surplus for the market. This study therefore recommends that government at all levels as well as other credit delivery institutions should take more pragmatic steps in providing regular and sustained financial support for small-scale farmers in order to improve their economic activities. This will ensure increased production and a boost in agriculture over a long period of time. Government policies also need to be re-directed on government sponsored and guaranteed agricultural financing schemes that could favour the smallholder

farmers who are the prime producers of food crops in Nigeria both for consumption and export.

Keywords—Assessment, Income Difference, Farmers, Access to Credit, Agricultural Zone.

I. INTRODUCTION

A sound financial sector is critical for sustainable economic growth and therefore poverty reduction and food security. Credit has become increasingly accepted as a powerful tool to lift the rural poor out of abject poverty (Doreen and Philip, 2014). It plays crucial role in providing relief of distress for farmer for the purchasing of inputs such as; seeds, fertilizer, cattle and farm implements (Perkins and Yusuf, 2005). It also enables small scale farmers to buy inputs they need to increase their agricultural productivity (Nosiru, 2010). Moreover, credit improves the welfare of the rural poor through financing consumption and reducing the opportunity cost of highly valued assets and adopting labor saving technologies (Zeller *et al.*, 1998). Also, credit helps to insure the rural poor against the vulnerability of shocks (flood, drought and others) by reducing the cost of the farmers to cope up with these shock, though this can also be looked at as risky and source of default by the financial institutions. Credit along other inputs such as fertilizer, improved seeds, and agro-chemicals are essential towards the attainment of rapid and sustainable development (Doreen and Philip, 2014). These impacts of the credit on the poor explained the crucial role it can play in the reduction of poverty and improving the livelihood of rural households.

Access to credit generally refers to the possibility of individuals or an enterprise to access financial services from the formal sources or carrying capacity of loans from financial institutions accessibility is determined by the demand of clients with existing supply of credit from different banks. (Elias *et al.*, 2015). According to Diagne (2007), rural poor suffer from lack of access to formal

credit. Formal institutions such as commercial banks and/or development banks, however, still cannot reach the poor small scale farmers in Nasarawa state and also Nigeria at large. Some crucial factors contributing to the inability to get banking services on the part of the rural poor include the poor incentives created for smallholders in providing loans, unaffordable cost of delivering services or high transaction costs associated with small loans to target households and inability to enforce contracts and avoiding asymmetry of information (Nguyen, 2007). Also, institutions' selection criteria such as income, gender, credibility in community, age (active age group), permanent residence, character assessment, willingness to join credit group of self-selected members to co-guarantee the loan of fellow group members, prior experience of saving and loan repayment, support letter from their respective peasant association turn out to be the key challenges that small holder farmers face, limiting their access to and demand for credit (Kereta, 2007). Even when they (formal banks) provide, they direct the credit to the specific production activities, ignoring part of the demand side. To deal with these problems, the government of Nigeria and other Non-governmental organizations (NGOs) established microfinance institutions (MFIs) to reach out to a large number of rural poor. However, the MFIs have no clear criteria for targeting the poorest of the poor, which shows that MFIs are drifting away from their original mission of reaching the poor (Ejigu, 2009).

Enhancing Financial Innovation and Access (EFINA, 2008) reported that 23 percent of the adult population in Nigeria has access to formal financial institutions, 24 percent to informal financial services, while 53 percent are financially excluded. It is obvious that if the problem of poverty is to be tackled among the rural households in Nasarawa State Nigeria, there has to be fundamental transformation of small-scale production system to a more modernized agriculture, which would make use of improved farm inputs and modern technology. Provision of credit services to the poor has been considered as one of the strategies carved to reduce poverty and promote rural entrepreneurship. Increasing access to financial services hold the promise to help reduce poverty and improve development outcomes by enabling the poor to smooth consumption (in cases of adverse shocks such as poor rain, plant diseases, increase food price), start or expand businesses, cope with risk and increase/diversify household income. Having access to and acquiring financial services by the rural poor farmers is one way of improving productivity in the agricultural sector (Irzet *et al.*, 2002). Credit has been increasingly accepted as a powerful instrument to lift the rural poor out of abject

poverty. It plays a crucial role in increasing agricultural productivity via building up production assets (Amha, 2000). It is also enables smallholder farmers to invest in land improvements and thereby adopt new agricultural technologies such as high yielding seeds and, fertilizers that increase their efficiency and income (Zeller and Sharma, 1998).

In developing countries, lack of credit constitutes a critical constraint to adoption and use of improved inputs and modern technologies of farming (Mpuga, 2008). Most poor families in developing countries have limited access to formal financial services, including credit, savings and insurance (Bauchet *et al.*, 2011). They, therefore, rely on a variety of informal credits such as local moneylenders, relatives, friends, or merchants. These options are, however, not ideal as they tend to be expensive and unreliable. This is largely because banks and other formal financial service providers, such as insurance companies, traditionally have not considered the poor as a viable market and penetration rates for formal financial services in developing countries are extremely low. The inability to acquire formal credit support has constrained poor farmers' capability to expand their production and improve their living condition, technology adoption, nutrition and health (Bauchet *et al.*, 2011).

Credit is an important instrument for improving the welfare of the poor directly through consumption smoothening that reduces their vulnerability to short-term income (Adegbite and Adeleye, 2011). It also enhances productive capacity of the poor through financing investment in their human and physical capital. Credit provision to agriculture is one of the pre-requisites for farmers to increase their agricultural output in the process of agricultural development of a country (Vinod and Prajapati, 2013).

Along with other inputs, credit is essential for establishing sustainable and profitable farming systems (Adegbite and Adeleye, 2011). Most farmers in Nigeria and particularly in Nasarawa State are smallholder producers engaged in diverse agricultural activities. Experience has shown that easy access to financial services at affordable cost positively affects the productivity, asset formation, and income and food security of the rural poor (Etonihu, *et al.*, 2013). Many Micro Finance Institution provides loans for various agricultural production, value addition, processing, storage, marketing and transport, resulting in an increase in the use of agricultural inputs and increased output of agricultural product thereby creating more job opportunities to the various player, (Veerpaul and Amritpal, 2013). There is evidence which shows that a large number of rural

farmers are marginalized, and thereby do not have access to micro credit (due to high transaction cost associated with small size of the loan and different requirements imposed by the lenders).

Studies have been carried out on determinants of access to credit. For instance, Etonihu, et al, (2013) carried out a study on Determinants of access to agricultural credit among crop farmers in a farming community of Nasarawa State, Nigeria. Other studies are; determinants of small scale enterprise credit demand in Oyo state, Nigeria (Ajagbe et al., 2012) and Factors Influencing the Demand for Credit Among Small- scale investor in Meru, Kenya (Omboi (2011). However, none of these studies dealt with income differences between farmers with and without access to credit. Yet information on this is necessary for policy decisions that can impact positively on farmer's productivity and income. This will in turn help in stimulating growth in the country's GDP and development of the economy, alongside employment generation and raw material availability. This study is therefore designed to fill this gap.

The study will answer the following research questions;

- i. What are the sources of information regarding access to credit in the study area?
- ii. What are the income levels of farmers with access and without access to credit in the study area?
- iii. Are there differences in income between farmers with access to credit and those without access?
- iv. What are the major constraints faced by farmers when seeking access to credit facilities?

Objectives of study

The general objective of this paper is to assess income difference between farmers without and with access to credit in Southern agricultural zone, Nasarawa State, Nigeria. The specific objectives were to;

- i. Identify and describe the various sources of information regarding small scale farmers' access to credit in the study area.
- ii. Determine the income levels of farmers with access and without access to credit in the study area.
- iii. Compare farmers with and without access to credit with a view to determine difference in their income.

- iv. Identify the constraints affecting small scale farmers in the study area with regards to access to credit.

Hypotheses

The hypothesis of this study is as follows;

H₀: There is no difference in income between farmers with access to credit and those without access to credit.

II. METHODOLOGY

Study area

Nasarawa State is located between latitudes 08°32'N and 8°18'N and longitudes 06°15'E and 08°50' E in the central geographical zone of Nigeria. The state was created alongside other five in 1996 and has grown to become one of the top tourist states with its magnificent beautiful landscapes and spectacular highlands (Adisa, 2011). According to the state ADP, Nasarawa state is divided into three (3) agricultural zones namely; western agricultural zone, central agricultural zone and the southern agricultural zone respectively. Its total land area is 27,137.8sq.km. The state shares borders in the west by the Federal Capital Territory, Abuja, in the North by Kaduna state in the south by Benue and Kogi states and in the East by Plateau and Taraba states respectively. Nasarawa state lies within the guinea savanna region and is characterized by a tropical sub humid climate with two distinct seasons. The wet season lasts from about the beginning of May and end in October. The dry season is experienced between November and April. Annual rainfall 1,288mm. Nasarawa state has a diverse range of ethnic groups with its own distinct dialects but Hausa is commonly spoken among the people. The state has a population of about 1,863,275 people as reported by the National Population Commission (NPC, 2006) and with a projected population of about 1,915,544.67 for the 2015 applying the projected growth rate of 2.8% (NPC, 2006). The ethnic groups included: Afo, Agatu, Akye, Alago, Baribari, Bassa, Egbirra, Eggon, Fulani, Gude, Gbagyi, Gwandara, Hausa, Yahaya Ari, Wadata, Dadin Kowa, Sabongari, Jukin, Kanuri, Mada, Ninzom, Arum, Rindei, Yeskwa and Tiv with about Twenty-nine (29) languages.

The study was conducted in the southern agricultural zone of the state which consists of the state capital Lafia, Doma, Obi, Keana and Awe. Farming is the main occupation of the people of the state and the crops produced include: cassava, yam, rice, maize, guinea corn, melon, beans, soya beans, Acha and Millet. The state is also blessed with precious mineral resources like columbite, coal, aquamarine, salt etc.

Sampling size and Sampling Technique

Multistage random sampling procedures were used in selecting respondents. In the first stage, three (3) local Government areas were selected from the five (5) local government areas constituting the southern agricultural zone using simple random sampling. In the second stage, three (3) villages each were also selected randomly from the three (3) LGAs to give a total of nine (9) villages. Ten (108) farm household constituting both those with access and those without access to credit was randomly selected using a list of farmers from each of the nine (9) villages to give a sample size of ninety (108) farming household for the study.

Data Collection

Primary data was used in the study. The data was collected with the use of structured questionnaire. Information that was collected from the farmers are their socio-economic characteristics such as age, marital status, education, farm

size, household size, household consumption, credit information, income.

Methods of Data Analysis

In analyzing the data obtained from the administered structured questionnaires both descriptive and inferential statistics will be used. Descriptive Statistics such as; mean, frequency distribution tables was used to summarize and satisfy the information acquired to achieve objective (i), (ii) and (iv). While, inferential Statistics, namely; student t-test was adopted and applied to analyze objective (iii).

(i) Analysis of Mean:

This technique was used to estimate the income and compare farmers with and those without access to credit which is objective (iii). It was used to test the null hypothesis of no difference between farmers with access to credit and those without, with regards to quantity of input, income. The test statistics is given by the formulae below;

(i) Standard Deviation of the sampling distribution of the means $S_{\bar{X}_1 - \bar{X}_2}$:

$$S_{\bar{X}_1 - \bar{X}_2} = \sqrt{\left(\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2} \right)}$$

(ii) Test of Significance $t = \frac{\bar{X}_1 - \bar{X}_2}{S_1 - S_2}$

Where: S = Sample variance

\bar{X}_1 = Mean of sample 1

\bar{X}_2 = Mean of sample 2

N_1 = Size of sample 1

N_2 = Size of sample 2

III. RESULT AND DISCUSSION**Distribution of respondents according to source of information**

The analysis regarding the sources of information on credit and other related financial services available to the farmers has been captured in the Table above and it reveals that majority (83.3%) comprising 45 farmers got their information through credit institution agents, followed by those that got from cooperative society and numbering 44

farmers (81.5%). Forty three (43) farmers representing 79.6% obtained information about credit through their participation at town hall meetings while those that got information through friends and extension agents accounted for 64.8% and 63% respectively.

Table.1: Source of information on availability of credit

| Variables | Frequency | Percentage |
|--------------------|-----------|------------|
| Friends | 35 | 64.8 |
| Credit Institution | | |
| Extension agents | 45 | 83.3 |
| | 34 | 63 |
| Coop. society | 44 | 81.5 |
| Town hall | | |
| meeting | 43 | 79.6 |
| Total | 201* | |

Source: Field survey, 2016 *Multiple response

Distribution of respondents with access to credit according to their income levels

Table 2 depicts the distribution of the farmers with access to credit in the study area. The analysis revealed that majority

(19 farmers) of the respondents felt within the income level of ₦ 100,001 to ₦ 200,000 and this accounted for 56.2%. This was followed by farmers with income level of between ₦ 300,001 and ₦ 400,000 and this as well represented 25.9%. Thirteen respondents which accounted for 24.1% were within income bracket of ₦ 200,001 to ₦ 300,000. Only 2 respondents (3.7%) had less than ₦ 100,000 as their income with the remaining 6 farmers (11.1%) had income of over ₦ 400,000. From this it can be concluded that the probability of the farmers to access agricultural credit is generally high for the farmer's with higher income than less income farmers. This study is in line with other studies which indicated that income of the farmers affected access to credit positively and significantly (Adegbite and Adeleye, 2011).

Table.2: Income distribution of farmers with access to credit

| Income level (₦) | Frequency | Percentage | Mean |
|-------------------|-----------|------------|---------|
| Below N100,000 | 2 | 3.7 | 95,000 |
| 100,001-200,000 | 19 | 35.2 | 96947.4 |
| 200,001- 300,000 | 13 | 24.1 | 225,538 |
| 300,001 - 400,000 | 14 | 25.9 | 341,285 |
| Above 400,000 | 6 | 11.1 | 439,372 |
| Total | 54 | 100 | |

Source: Field survey, 2016

Distribution of respondents without access to credit according to their income levels

Table 3 captured the distribution of respondents without access to credit according to their income levels. The result indicated that significant number of the farmers constituting 28 and accounted for 51.9% had income level of less than ₦ 100,000 with a mean income of ₦ 56,470 while those in the category of income levels of between ₦ 100,001 and ₦ 200,000 represented 17 farmers and accounted for 31.5% with the remaining 16.7% (9 farmers) had their incomes within ₦ 200,001 to ₦ 300,000. also shows that majority of farmers without access to credit have income level of about ₦ 100,000 with 51.9%, also it show that 31.5% have

between ₦ 100,001- ₦ 200,000 and 16.7% with ₦ 200,001- ₦ 300,000. Over all, the findings of the study implies that, holding other factors constant, there is always demand for additional finances for the household utilities and other essential farm operations but, at low levels of income, a farmer has limited resources to save hence less demand for credit than at higher levels of income (this is a probable assumption because economic activities, needs and expenditure, increase with the individual farmers income and possibly household size). It may also be a true assumption that with higher income, the farmers may be able to save more and acquire assets which can be used as collateral to borrow loan, should there be a need.

Table.3: Income distribution of farmers without credit

| Income level (₦) | Frequency | Percentage | Mean |
|-------------------|-----------|------------|---------|
| Below N100,000 | 28 | 51.9 | 56,470 |
| 100,001-200,000 | 17 | 31.5 | 139,575 |
| 200,001 - 300,000 | 9 | 16.7 | 246,220 |
| 300,001 - 400,000 | - | - | |
| Above 400,000 | - | - | |
| Total | 54 | 100 | |

Source: Field survey, 2016

Income difference between farmers with/without access

Table 4 below presents the result of the t-test of the income difference between farmers with/without access to credit. The result of the findings revealed a significant difference between farmers with access to credit and those without access to credit at 1% level of significance. Therefore, the null hypothesis which states that there is no difference between farmers with access and those without access to credit is rejected in favour of the alternative hypothesis. This implies that access to credit has a significant impact on farmer's income in the study area. This is because level of income determines the demand for credit, economic activities and needs, and therefore expenditure increase with the individual's/household's income. It may also be true that with higher income, a household is able to save more and to acquire more assets that could help in the expansion and development of farmer's existing investment

opportunities which eventually will lead to improve social and economic well-being of the farmers' household and contributing to the economic development of the nation's GDP. This finding is in line with the observations made Elias et al. (2015) who reported that the ability of the ability of the farmers to have access to agricultural credit will increase with increase of the income or the existing financial status of the farmers and this helps in determining the probability to obtain agricultural credit from financial institution. This is further attributed to the lenders expectation that, farmers with higher income levels do not make use of agricultural credit for financing their consumption and other household social services rather, they solely make use of the credit for the operational purpose for which it was meant for (production and expansion of the business)

Table.4: Income difference between farmers with/without access

| Item | N | Mean | Standard deviation | t-value |
|-----------|----|----------|--------------------|---------|
| Access | 54 | 2.7828E2 | 102.61586 | |
| No access | 54 | 1.1963E2 | 62.49416 | 13.612* |

Source: Field survey, 2016* Significant at 1%

Constraints affecting small scale demand for credit from financial institutions

Table 5 below depicts that majority of farmers (89%) reported that risk associated to agriculture due to crop/livestock failure were the major constraints. This result is not surprising, considering the effect of climate change and global warming being experienced not only in the study area but globally. It is noteworthy that most of the respondents (representing 66.67%) considered Uncertainties associated to price fluctuation of agricultural product this can also be attributed to the Nigeria economy.

47.61% was due to fear of harassment, 40.74% formalities/bureaucracy associated in acquiring credit.

Other major constraints include; inadequacy of the amount to be given and strong level of conditions associated with acquiring credit with 34.26%. As stated earlier majority of the farmers in the study area are poor and in small scale subsistence agriculture. Their farming activities do not generate enough revenue to enable them purchase fixed assets that they could use as collateral. Again, profit earned is not enough, especially when economics of scale is put into consideration, and as such it is assumed that most of it would be swallowed up by the interest charged as a constraint.

Table.5: Constraints to access for credit

| Constraint | Frequency | Percentage |
|---|-------------|------------|
| 1. Application procedures are complicated | 23 | 5.85 |
| 2. High interest rate | 19 | 4.83 |
| 3. Fear of harassments | 45 | 11.45 |
| 4. Strong level of conditions associated with acquiring credit | 35 | 8.91 |
| 5. Inadequacy of the amount to be given | 62 | 15.78 |
| 6. Risk associated to agriculture due to crop/livestock failure | 93 | 23.66 |
| 7. Uncertainties associated to price fluctuation of agricultural products | 72 | 18.32 |
| 8. Formalities/bureaucracy associated to acquiring credit | 44 | 11.20 |
| Total | 393* | |

Source: Field survey, 2016 *Multiple-responses

IV. CONCLUSION AND RECOMMENDATIONS

The role of agricultural credit on the development of agricultural sector is magnificent. Accessible credit enhances farmer's purchasing power by enabling them to acquire modern technologies for their farm production. Access to the credit however seen to be limited among small holders farmers due to certain constraints. Furthermore, it has been revealed by the study that there was significant difference between those farmers with access to credit and those without access. Risk associated to agriculture due to crop/livestock failure and uncertainties associated to price fluctuation of agricultural products were the major reasons why farmers shy away from demanding for credit in the study area.

Policy Implications:

To encourage farmers demand for credit, policies should be formulated by government and other institutions that work to alleviate financial constraints of farmers to mitigate the effects of the negative determinants and enhance the positive ones. Such policies should be targeted at: improving the literacy levels of farmers and encouraging farmers to join existing or form new cooperatives. It is also recommended that relevant stakeholders to streamline loan application procedures intensify enlightenments of farmers on loan procedures and promote flexibility on type of collateral demanded by financial institutions in order to enhance access. Farmers should be encourage to form cooperative groups to enable them pull resources together or form group to access loan from financial institutions since the group lending scheme ensures higher repayment rate as the group leader serves as guarantor to the banks. This promotes lenders confidence in advancing credit. In addition, there is need for mobilizing and sensitizing farmers about the need for and importance of credit. The achievement of this goal rests on the corresponding institution for a strong policy on rural credit to financially empower the rural peasants in Nigeria.

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