

IMPACT OF INFORMAL CREDIT ON OUTPUT OF SMALL SCALE FARMERS IN NIGERIA

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Abstract: *The study examined the impact of informal credit on output of small scale farmers in Oju local government area of Benue state. The study used primary data that were sourced from 290 respondents using structured questionnaire. T-test and structural equation modeling were used for the data analysis. The study found that the small-scale farmers in the Oju Local Government Area of Benue State have been able to increase their farm output as a result of the credits they obtained from informal financial institutions. Therefore, the study recommends that the informal financial institutions should make more credit available to the small-scale farmers while the operators of informal financial institutions strengthen and improve their operations to make credit readily available to farmers. The study also recommends that government should encourage the small scale farmers by providing a good platform where the small scale farmers can get necessary and relevant information through the activities of the agricultural extension workers as that may improve output of the small scale farmers.]*

Keywords: *Informal credit, farm output, small scale farmers.*

JEL Classification: *E51, H81, O17, Q12, R15*

Introduction

Agriculture is vital in the developmental pursuit of every country and Nigeria in particular due to the abundance of its natural resource endowment. Thus, developing this sector to fully maximize the utilization of these resources, which are capable of gearing economic development, should be a priority to the Nigeria government. Agriculture has contributed immensely to the Nigerian economy in so many ways, for example, in the provision of food for the increasing population, supply of adequate raw materials to a growing industrial sector, a major source of employment generation, foreign exchange earnings, and provision of market for the products of the industrial sector (Okumadawa, 1997; Food and Agricultural Organization, 2006). Similarly, Okpanachi (2004) opined that at

independence in 1960, the agricultural sector was the most vibrant sector of the economy. Agriculture is an important aspect of the national security of any nation because it is linked with the two most basic needs of human beings: food and clothing. It employs the majority of the Nigerian labour force and contributes to gross national income and export earnings. In the words of Philip, Nkonya and Pender (2009), agriculture remains the main stay of the Nigerian economy since it is the largest sector in terms of its share of employment. However, the Nigeria agricultural sector is characterized by a multitude of small-scale farmers scattered over a wide range of land area expenses, with small holdings ranging from 0.05 to 3.0 hectares per farm land, rudimentary farming tools and systems, low capitalization and low yield per hectare (Ogundari & Ojo, 2007), leading to a shortage of food supply. The food problem has been heightened by the relatively unavailability and low level of productive resources such as finance, seeds, and tools used by farmers in the country, a condition that is worsened by insufficient credit, especially from the formal sector, and the poor use of available credits.

Agricultural credit (either formal or informal credit) plays a significant role as a factor of production that facilitates economic growth and development and acts as a medium through which funds are appropriately channeled to agricultural production and to rural areas for the economic development of poor rural farmers. Support for agriculture is widely driven by both the government and the private sector. The various regimes in Nigeria have made concerted efforts to strengthen the agricultural sector. In addition to government efforts, individuals over time have engaged in the practice of forming associations to facilitate and encourage agricultural activities. An informal financial institution is an example of such an association that complements the government role by providing credit to farmers. Therefore, informal credit remains an essential source of credit to small-scale farmers, particularly in rural areas. The problem of rapid agricultural development in Nigeria indicates that efforts directed at achieving an expanded economic base of rural farmers were frustrated by scarcity of and restrictive access to loanable funds (CBN, 2010). Notably, among the constraints to the availability of capital to small-scale farmers is the refusal of commercial banks to extend their credits to small-scale farmers, which is anchored on their assumption that this class of farmers is poor and lacks the necessary collateral to access credit facilities. Another constraint is the obviously low margin of savings among farmers. This is prevalent among the small-scale farmers in the Oju local government area of Benue State.

The inability of small-scale farmers to access credits from formal financial service providers made these classes of farmers create their own indigenous financial institutions (such as informal savings and credit institutions) independent of the formal structures as an alternative measure toward bettering their lots in rural areas (Ochepo, 2012). There have been an increasing number of informal credit institutions in Benue State and Oju Local Government Area in particular to satisfy the credit needs of small-scale farmers. Thus, an understanding of the operations of informal financial credit institutions, particularly in relation to agricultural output in the study area, is imperative.

Informal financial institutions bear various names depending on the tribe or locality where they are operated. Among the Igbo speaking people are called Ibi, Bam in Tiv, Adashi in Hausa, Esusu in Igbo, Isusu in Yoruba and so on. The informal financial institutions are unregistered, unlicensed and officially unorganized. Usually, these institutions are forms of saving groups formed by people living in the same locality. The members meet regularly

to fulfil their financial responsibility as needed. However, there are different forms of informal financial institutions in Nigeria financing rural farmers. However, their impact on the production and productivity of rural farmers still leaves much to be desired.

The Oju Local Government Area is one among the relatively less developed Local Government Areas in Benue State. Its inhabitants depend heavily on agriculture as the major source of livelihood. However, there are only two formal financial institutions (United Bank for Africa UBA and Union Bank of Nigeria Plc) in the area at present. This constrains the ease with which formal credit can be accessed by rural farmers. Thus, it is obvious that the activities of informal financial institutions appear to be more pronounced fund small-scale farmers are increasingly patronizing them. However, research has not been extensively conducted to assess the impact of credit from this growing number of informal financial service providers on the agricultural output of small-scale farmers in the study area. It is against this background that this study was set to investigate the effect of informal financial credit on the output of small-scale farmers in the Oju Local Government Area of Benue State. This research work provides insight for policy makers on the approach to be adopted for credit disbursement to enhance increased financial flow and increased agricultural output in the study area. The findings of the study also direct the awareness of farmers towards how to channel informal credit towards improving their farm production.

Literature review

Theoretical Review

The neoclassical theory of production is based on the ideas of neoclassical economists, especially Adam Smith's work titled 'Enquiry into the Nature and Causes of the Wealth of Nations' published in 1776. Neoclassical theory of production states that by varying the amounts of labour and capital in the production function, an equilibrium state can be accomplished. When a new technology becomes available, the labour and capital need to be adjusted to maintain growth equilibrium. The theory also forecasts how a steady economic growth rate can be accomplished with the proper amount of the three driving forces: Labour, Capital, and Technology. Hence, the mission of increasing agricultural output to sustain food requirements could be facilitated through the efficient management of productive resources (Ohuche, 1999). According to the theory, credit has the potential to enhance efficient resource allocation, permit the application of new technology, reduce postharvest waste, stabilize farm prices and farm income and enhance the efficient marketing of agricultural products.

As important as credit is to an economy, a situation of high optimism and expectation over the use of credit may be induced if adequate supervision and prudential guidelines for credit control are not put in place. If the overuse of credit is induced, speculation, inflation, and economic instability will be the result. Under normal conditions, changes in credit influence agricultural output in the short run provided there is no idle resource. Expansion in credit stimulates aggregate output without unduly undermining price stability if there are no constraints. If such constraints exist, expansion of credit tends to cause the price of output to increase. This is because the use of credit with such constraints will not be able to absorb the credit expansion and translate it into agricultural output growth. The problem of credit diversion or use outside agricultural business is prevalent among farmers. Nnana (2001) opined that farmers with effective demand for credit are those who can benefit from

the use of loans and have the ability to repay productive loans and accept responsibility. He explained that farmers with effective demand for loans are those who are using or ready to use improved practices. The question of interest is whether informal financial credit, over the years, has been effectively used to effect farmers' output in the study area. This theory is limited because of the evident failure of at least some producers to optimize the use of the credit. It is therefore desirable to recast the analysis of production away from the traditional production function approach toward a frontier-based approach.

The neo-classical theory of production emphasizes that resources must be available and should be put into efficient use to achieve optimum production. This is directly linked to the goal of informal financial institutions in making finance available to farmers for productive use. These loans are often paid back upon maturity. However, the objectives of the informal financial institution cannot be fully actualizing without making money available to the farmers and ensuring that these monies are efficiently used to achieve improved production. Farmers' welfare can be improving with the efficient use of loans from these institutions and, hence, the specification of the neoclassical institutions, which is to improve the satisfaction of the credit needs of small-scale farmers in the Oju Local Government Area of Benue State.

Furthermore, the Harrod-Domar model hinges on savings and investment balance. Based on a number of simple assumptions, they envisaged that an economy is in equilibrium at a point of intersection between savings and investments. They recognized the dual nature of investment as also forming part of human capital stock. Thus, the increase in a country's capital stock increases the economy's potential output. This theory emphasizes the importance of savings and investment in enhancing rapid economic growth. The theory is of immense relevance to this study in that it encourages the mobilization of savings. This savings will go a long way in making funds available for investment and constitute an encouragement to the small-scale farmers in their farming practice. The availability of a place to satisfactorily borrow funds by these farmers expressly acts as a solution to the lingering challenge of difficulty in financing farming activities, especially among small-scale farmers.

The financial repression theory led by Mckinnon and shaw (1973), often referred to as the "Mckinnon-Shaw" hypothesis, contends that financial liberalization in the form of an appropriate rate of return on real cash balances is a vehicle of promoting economic growth. The essential tenet of this hypothesis is that a low or negative real interest rate discourages savings. This reduces the availability of loanable funds for investment, which in turn lowers the rate of economic growth. Thus, the "Mckinnon-Shaw" model posits that a more liberalized financial system induces an increase in savings and investment and therefore promotes economic growth. The essence of credit facilities is that capital is required by farmers for agricultural production; however, the available literature has shown that financial resources are grossly insufficient, necessitating the need for alternative credit sources. Thus, informal financial institutions function to close this gap in financial scarcity among small-scale farmers; hence, readily available sources of credit to farmers will force down the interest rate.

Empirical Review

According to Lolita (2006), small-scale farmers are increasingly found to be patronizing informer credit sources in the Philippines. The study was on the "accessibility of rural

credit among small farmers in the Philippines”. Descriptive statistics analysis was adopted to analyse the data. The study revealed that the rate of obtaining loans from formal financial institutions in developing countries by rural borrowers is low due to the complicated and lengthy procedures that overwhelm poor and uneducated farmer-borrowers. In other cases, credit problems that have restricted them from borrowing include commodity-specific credit, lack of participation in rural areas, and late releases of loans that led them to borrow from informal sources. Otunaiya (2007) also carried out a study to investigate the access of cassava farmers to the only alternative source of capital investment, informal credit. The study employs logit regression analysis. The outcome of the study indicates that the amount of loans received from informal sources has a positive effect on the output of cassava farmers. It is significant at the 1 percent level. This shows that the availability and the amount of loan obtainable from informal sources is a determinant of the level of production of cassava farmers. This is because farmers would have, at least, some investment capital to buy production inputs that would raise the output level. Hence, as the amount of loans receivable from informal sources increases, the production of cassava improves. While farm size, years of formal schooling, household size and hire labour determine the volume of credit used from informal sources, the amount of credit used was found to be very significant in determining the level of cassava output in the study area.

An investigation into the sources and uses of agricultural credit by small-scale farmers in the Surulere Local Government Area of Oyo State using descriptive statistics, Adebayo and Adeola (2008), revealed that informal credit was mostly used by small-scale farmers in the study area. It is evident from the study that dependence on co-operative societies for agricultural credit was the highest, followed by personal savings and friends/relatives, which was closely followed by ‘Esusu’ clubs (traditional savings association). The study further revealed that co-operative societies accounted for the most dependable source for credit of the small-scale farmers because, according to the respondents, the societies also perform the additional role of helping the members market their produce as well as bulk-purchase of farm input for members. The nonpatronage of commercial banks may be due to a lack of presence of banks in rural areas coupled with inadequate security on the part of farmers, which prevented them from accessing formal loans.

Waheed (2009) investigated the effect of rural microcredit on the well-being of borrowers in Punjab (Pakistan). The study uses regression analysis. His analysis posits that to improve the well-being of the rural poor, microfinance is proposed to be primarily essential for investment in rural productive activities. The study concluded that per capital credit on nonpoor farmers was better than per capital credit on poor farmers. Micro credit was largely taken by the nonpoor, and the poor had little access to microcredit. Abdullahi and Lawal (2011) investigated the impact of informal agricultural financing on agricultural production in the rural economy of Kwara State of Nigeria. Three units of the informal financial institution, namely, periodic contribution, moneylender and rotating savings, were the focus of the study. The study covered the rural areas of the three Senatorial Districts in nine Local Governments Area of the state. The analysis was based on inferential statistics using regression analysis. The findings indicated that all three informal financial institutions positively impacted agricultural production in the study area. Olagunju and Babatunde (2011) examined the impact of informal credit on poultry productivity in southwestern Nigeria through the administration of questionnaires. The study employs descriptive statistics. The outcome of the study showed that credit acquisition by farmers led to

increased productivity. Ahmed (2011) revealed that there is a positive relationship between informal credit and agricultural output. Credit is always helpful for needy farmers to buy agricultural inputs. Therefore, credit has an indirect impact on output because it is important to purchase different agricultural inputs that have a strong impact on agricultural output. Davi (2012) corroborated the study report; he found that agricultural credit not only helps to increase productivity but also develops the process of cultivation as a whole. She argues that there was an enormous increase in the usage of modern seeds, modernized inputs, fertilizer and pesticides after receiving agricultural credit, which increased yield per acre and thus the income of the farmers. She further observes that the impact of agricultural credit was more significant in nonirrigated and semi-irrigated villages than in irrigated villages. Victor and Abankwah (2012) examined the credit demand by maize farmers and analysed factors influencing their use of informal and formal credits. A survey of 590 maize farmers in seven districts of Ashanti and Brong Ahafo Regions of Ghana was used. The study employed descriptive statistics and probit and bivariate probit models to analyse the data. The study revealed that farmers patronize informal credit providers more relative to credit from friends, traders and other money lenders. Maize farmers are major players in the informal credit market. Rural financial service providers are the most prominent in the study area when compared to formal financial service providers. Gender, experience, engagement in other economic activities and the level of agricultural commercialisation were observed to be factors that influence farmers' demand for informal credit. Farmer educational level and proximity to financial institutions also influence demand for formal credit. The result of the bivariate probit suggested that formal and informal credits are not necessarily perfect substitutes, but they complement each other to provide the credit requirement of farmers in maize production in the study area.

Investigating the effects of informal financial credit institutions on the output of small-scale farmers in the Agatu Local Government Area of Benue State, Ochebo (2012) revealed a significant positive relationship between informal credit and small-scale farmers' output. The study uses econometric methods of regression analysis to establish the effect of informal credits on the output of small-scale farmers. The study shows that small-scale farmers often suffer neglect by formal financial service providers. Small-scale farmers often cannot access formal credit due to the stringent conditions associated with such loans. According to the study, farmers easily access loans from informal financial institutions that are characterized by inadequate capital. One's membership in an informal credit institution therefore gives a farmer the opportunity to obtain a loan easily. The study indicated that the output of small-scale farmers increases with the volume of loans. The output of credit beneficiary farmers is higher than that of nonbeneficiaries.

Gyeltshen (2012) investigated household credit demand, the degree of loan rationing by credit sector and household credit choice in rural Bhutan. The study provided results from a survey of 120 households among three subdistricts of rural Bhutan. A bivariate probit model was used to estimate all three models. The study found that a significant percent of the rural population depends on both formal and informal credit as a source of credit despite huge interest rate differentials. Informal loans were mostly obtained for consumption purposes, while formal loans were in most cases obtained for long-term investments. The findings suggested that complementary markets such as insurance markets are an essential part of financial services. Anchuku (2012) concluded in his study on informal financial institutions and the development of rural areas in Benue State that informal finance plays

a significant role in enhancing rural development. The study uses simple descriptive statistics such as tables, frequencies and percentages in data analysis. It also reveals that informal financial institutions provide employment opportunities to people in the Gwer-West Local Government Area, the study area. The institution also helps in uniting the people of the study area, thereby harmonizing their differences. The study recommended that the government finance informal financial institutions to increase their lending power. This will enable the institutions to discharge financial duties to rural dwellers with much ease.

In the study on “sources of agricultural credit to small-scale farmers in Ezeagu Local Government Area of Enugu state, Nigeria”, Mgbakor, Uzendu and Ndubbisi (2014) established that most farmers prefer informal credit to former credit. The data collected were analysed using descriptive statistics, which included frequency distribution tables, percentages and averages, to achieve the objective of the study. The study revealed that farmers in the study area engaged themselves in the production of crops such as cassava, maize, yam, oil palm and vegetables. The majority of these farmers agree to have other complementary work, such as win tapping, hunting, weaving of local baskets and petty trading. Most of the farmers agreed to have sought and obtained credit, while some said that they had not sought credit because of fear of adverse crop yield/weather hazards and were not aware of the existence of credit institutes. Many of the farmers who have obtained credit prefer informal sources, such as relatives, neighbors and money lenders, for easy accessibility, minimize formalities and timely disbursement of loans to former institutions. The respondent who sought credit obtained it on basis or repayment security offered. Some found the lending exercise time consuming, some cumbersome while some believed there was no stress in collecting the credit.

Agbo, Iroh and Ihemezie (2015) examined access to credit by vegetable farmers in Nigeria in the Owerri agricultural zone of Imo State. A multistage random sampling technique was used to select 120 vegetable farmers. Descriptive and inferential statistics, logit model and factor analysis were used for data analysis. The results showed that education and land tenure had a significant relationship with access to informal credit, while education, household size, off-farm income and farming experience had a significant relationship with farmers’ access to formal credit. The factor analysis results showed that the constraints against vegetable farmers in obtaining formal credit in the study area were the untimely delivery of credit, bureaucratic processes, high administrative charges, high interest rates, high transaction costs, unreliability and hidden charges. It was evident from the study that vegetable farmers in the study area did not have access to credit facilities, especially from formal financial service providers. Okpachu, Madu and Oche (2017) conducted a study on the assessment of the impact of informal financial institutions on agricultural production in Yobe State, Nigeria. The data collected were analysed using regression analysis. Three units of the informal financial institution, namely, periodic contribution, moneylender, and rotating savings, were the focus of the study. According to the study, the provision of agricultural credit by rural informal financial institutions has enabled rural farmers to increase their production on a larger landholding with increased farm labourers. Moreover, the increased financing by informal institutions also serves as a source of income to rural farmers as a sufficient surplus for sale after removing home consumption. The study concluded that all three informal financial institutions impacted agricultural production in the study area. Periodic savings and savings both impacted positively, while money lending

impacted negatively. Farmers are motivated by the credit given to them by informal financial institutions.

METHODOLOGY

Sample Size and Method of Data Analysis

The research design adopted for this study is a survey design. The study employed both descriptive and analytical techniques. The analytical technique consists of a t test and structural equation modelling (SEM) to examine the mean difference in the annual output of small-scale farmers before and after accessing informal financial credit and the impact of informal credit on the output of small-scale farmers in Oju LGA of Benue State, respectively. The study area covers the whole of the Oju Local Government Area of Benue State. The Oju Local Government Area of Benue State has very fertile land, and approximately 80% of the inhabitants are farmers. Its rich and diverse agricultural endowment includes yam, rice, benniseed, guinea corn, palm, soyabeans, maize, millet, ground nut and cassava. The people of the Oju Local Government area are also involved in livestock keeping, fishing and hunting.

The population of this study covers the total number of small-scale farmers in the Oju Local Government Area of Benue state who have obtained/benefited from informal financial credit. Thus, the population was drawn from informal financial institutions in the study area. Three informal financial institutions were randomly selected from each of the eleven council wards of the local government area. The sum total of members from the various co-operative societies formed the population of the study. Thus, the population of the study was one thousand one hundred and twenty-three (1123) small-scale farmers. The study employed stratified sampling, simple random sampling and proportionate sampling techniques. Simple random sampling was used to avoid bias and to ensure that each respondent (beneficiary) had an equal chance of being selected. On the other hand, proportionate random sampling was used in selecting respondents (beneficiaries) proportionate to the size of the population of the selected informal financial institutions. Given that the population of the study is in strata (council wards), a stratified random sample was used to select three informal financial institutions from each stratum (council ward). Using the Krejcie and Morgan (1970) formula to determine the sample size.

$$S = \frac{(X^2 NP(1-P))}{(d^2(N-1) + X^2 P(1-P))} = \frac{1.96^2 * 1123 * 0.5(1-0.5)}{0.05^2 (1123 - 1) + 1.96^2 * 0.5(1-0.5)} = \frac{1,078.5292}{3.7654} = 286.4315 \approx 290$$

(approx. to tens)

where S= Required Sample Size, X= Z Value (that is 1.96 for 95% confidence level), N= Population Size, P= Population proportion (expressed as decimal) (assumed to be 0.5 (50%)), d= Degree of accuracy (5%) expressed as a proportion (0.05); it is margin of error. The sample size for the study is 290 beneficiaries, which are proportionately distributed across the selected informal financial institutions from which the study population was drawn.

Primary data and secondary data were used. The primary data were collected with the use of a structured questionnaire. The questionnaires were distributed to small-scale farmers and informal financial institution operators who could read and write to complete, while the illiterate were guided by research assistants in each of the council wards who

understood the native language of the people for clear interpretations. The secondary data were collected from the financial records of the informal financial institutions.

Three methods were used to analyse the data collected. These are descriptive statistics, t tests and structural equation modelling (SEM). The descriptive statistics consist of simple percentages, frequencies, means, charts and proportions. It was used to examine the data that were collected for the study and the sociodemographic characteristics of the small-scale famers in the study areas. The analytical tools consist of a t test to examine the mean difference in the annual output of small-scale farmers before and after accessing informal financial credit and the structural equation model (SEM) technique to examine the impact of informal credit on the output of small-scale farmers in the study area. The study assumed two paired samples X_1, \dots, X_{290} and Y_1, \dots, Y_{290} , where each X_i and Y_i are measurements from the same person say before informal financial credit and after informal financial credit for t test. It is aimed at testing if there is a difference in means of the samples before and after the informal financial credit. Hence, the t test was used to examine the significant difference between small-scale famers' output before and after obtaining informal financial credit. This enabled the researcher to test whether there is a significant difference between the annual farmers' output (valued in monetary terms) before and after the benefits of informal financial credit, as discussed earlier. This is based on the assumption that the inflation rate will be stable over the period covered for the study.

Empirical Model

The model is specified following Lawal and Abdullahi (2011) and Okpachu, Madu and Oche (2017)'s method of estimating the impact of informal agricultural finance as modified. The model used data on the input and output (aggregate crop mix) of farmers' farm size and educational level to measure farm output. The model can be depicted as:

$$FPT = f(FMP, FSH, EDU) \dots\dots\dots 1$$

where: FPT = farm total product in naira.

FMP = farm inputs such as amount of credit used (ACT), seedlings (SDS); labour (LAB), cost of fertilizer (FZR)

$$\text{Thus } FMP = f(ACT, SDS, LAB, FZR) \dots\dots\dots 2$$

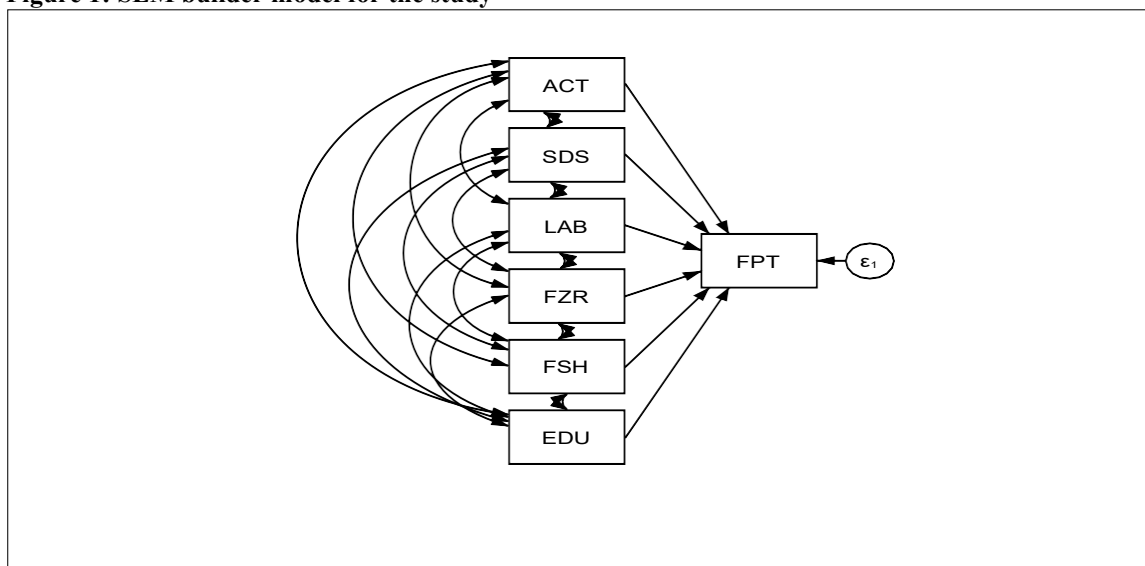
When equation 3.2 is substituted into equation 3.1

$$\text{Then, } FPT = f(ACT, SDS, LAB, FZR, FSH, EDU) \dots\dots\dots 3$$

The functional regression equation can be depicted as

$$FPT = \beta_0 + \beta_1 ACT + \beta_2 SDS + \beta_3 LAB + \beta_4 FZR + \beta_5 FSH + \beta_6 EDU + \mu_i \dots\dots\dots 4$$

where;. FPT = Farm total product of the small-scale farmers in naira, ACT = Amount of informal financial credit obtained in naira, SDS = Seedlings used in naira, LAB = Cost of labour (hired and family) in naira, FZR = Cost of fertilizers used in naira, FSH = Farm size in hectares, EDU = Education, and β_0 = intercept, $\beta_1 - \beta_5$ = Coefficients of the independent variables, and μ = Error term. The SEM builder is displayed as follows:

Figure 1: SEM builder model for the study

Source: Author's computation 2018

Results And Discussion

The Socio-Demographic Characteristics of Small Scale Farmers

Data on the socio-demographic characteristics of small scale farmers in Oju Local Government area are compiled and presented in Table 1.

Table 1. The Socio-Demographic Characteristics of Small Scale Farmers

Age (years)	Frequencies	Percentages
Below 20	9	3.1
20-30 years	21	7.24
31-40 years	198	68.28
Over 40 years	62	21.38
Total	290	100
Gender		
Male	193	66.55
Female	97	33.45
Total	290	100
Marital Status		
Single	22	7.59
Married	212	73.1
Divorced	36	12.41
Widow/widower	19	6.55
Total	290	100
Educational Qualification		
No formal Education	26	8.97
Primary Education	37	12.76

Secondary Education	144	49.66
Tertiary Education	83	28.61
Total	290	100
Number of Children		
Less than 5	27	9.31
5 – 10	247	85.17
Above 10	16	5.52
Total	190	100
Number of Dependents		
Less than 5	52	17.93
5 – 10	235	81.03
Above 10	3	1.03
Total	290	100

Source: Field survey, 2022

The analysis of the results presented in Table 1 revealed that the majority (68.28%) of the sampled respondents fell within the age range of 31-40 years. This age bracket constitutes the most active population. Table 1 also shows that 21.38% of the respondents were older than 40 years. People in this age bracket are relatively strong and are able to exact good measures of energy in farming activities. This is because some people in this age category still fall within the active population. However, 7.24% of the respondents fell within the range of 20-30 years, while only 3.10% of the respondents were less than 20 years. The analysis further shows that the minimum age of the sampled respondents is 15 years, while the maximum age is 65 years, with an average of 44.8 years. Data in Table 1 also show that 66.55% of the sampled respondents were male, while the remaining 33.45% of the respondents constituted the female proportion of the selected sample in the study area. The high participation of the males can be justified because men are the heads of the family and shoulder most of the family responsibilities. Moreover, the strenuous nature of agricultural activities requires men who are more energetic by nature. Farming is a major practice by men in the study area.

Data on the distribution of the sampled respondents by marital status, as revealed in Table 1, show that the majority (73.10%) of the sampled respondents were married, while 12.41% of the respondents were divorced. The result also shows that 7.59% of the respondents representing 22 respondents were single, while the remaining 6.55% were widow/widower. This finding confirms the expectation that married persons have much more responsibility and thereby work much harder to make ends meet.

Table 1 shows that 49.66% of the sampled respondents had secondary education. This high number of persons in this educational level may not be connected with the high level of poverty in the study area. Financial constraints make it difficult for people to further their education after secondary education. The result also shows that 28.61% of the respondents had tertiary education, while 12.76% of the respondents had primary education. The remaining 8.97% of the respondents had no formal education. Based on the results, the majority of the respondents had basic education that would enable small-scale farmers to utilize the available farm resources to enhance their output. Data on the number of children

of the farmers show that the majority (85.17%) of the sampled respondents have children numbering between 5-10, while 9.31% have children that are less than 5 in number. Only 5.52% of the respondents had children numbering above 10. Table 1 also revealed that 81.03% of the sampled respondents have dependents numbering between 5 and 10 persons. This is common in African society, especially in rural areas where a man often has many people outside his immediate family to cater to. It is also revealed that 17.93% of the respondents have less than 5 persons under their care, while only 3 respondents representing 1.03% have only dependents that are above 10.

Value of Output of Small Scale Farmers Before and After Informer Credit

Data on the distribution of annual farm output realized (in monetary terms) from farms by the small-scale farmers in the study area before and after accessing informal financial credit are compiled and presented below in Table 2.

Table 2. The Value of Farm Output of the Respondents Realised from Farming

Annual output	Before Informal Credit	After Informal Credit
Respondents(N)	(Frequency/Percentage(%))	Frequency/Percentage
Less than N200,000	185 (63.79)	16 (5.52)
N200,000 – N300,000	94 (32.41)	177 (61.03)
Above N300,000	11 (3.79)	97 (33.45)
Total	290 (100)	290 (100)

Source: Field Survey, 2022.

The results from Table 2 also showed a significant improvement in the annual farmers' output after accessing informal credit. The annual farm output of the majority (61.03) of the respondents in monetary terms after accessing informal credit was between the range of N200,000 and N300,000, with an average of N295444.8. This was against the farmers' annual output of 32.41% in this bracket before the credit. Additionally, 33.45% of farmers' output was above N300,000, compared to 3.79% in this category of output before credit. Only 5.52% of the respondents still produced less than N200,000 after the credit, compared to 63.79% before credit. This increase is, however, credited with the credit facilities available to the farmers in the study area. This conforms to the tenet of the neo-classical theory of production, which holds that an equilibrium state can be achieved by varying the amounts of labour and capital used in the production exercise. Furthermore, the model stated that steady economic growth can be accomplished with proper management of available inputs such as capital, labour, and technology. This implies that an increase in farm output is credited not only to the availability of credit facilities but also to the efficient management of the same. Thus, the goal of increasing farmers' output could be facilitated through the efficient management of productive resources. Evidence suggests that productivity in the agricultural sector will improve increasingly with better and timely access to financial instruments tailored to the needs of farmers.

Farm credit is obtained for the purpose of improving farming activities both in the amount of land cultivated and in output. In an ideal situation, it is expected that an increase in farm input will translate into an improved farm output. Tests on the difference in the small-scale farmers' output before and after obtaining informal credit are presented in Table 3.

Table 3. The Mean Difference in Annual Output of Beneficiaries

Variable	Mean	N	T-test			
			Mean Diff.	Dof	Value	Prob.
Before Informal Financial Credit (AFOBCRN)	174,896.6	290	120,548.2	289	7.3595	0.0000
After Informal Financial Credit (AFOACRN)	295,444.8	290				

mean(diff) = mean(AFOACRN - AFOBCRN) Ho: mean(diff) = 0

Ha: mean(diff) < 0 Ha: mean(diff) != 0 Ha: mean(diff) > 0

Pr(T < t) = 1.0000 Pr(|T| > |t|) = 0.0000 Pr(T > t) = 0.0000

Source: Author's computation from STATA Output

The results in Table 3 show the mean value of ₦174,896.6 for the average annual output of beneficiaries before informal financial credit and ₦295,444.8 for the average output of beneficiaries after informal financial credit. The result shows a t test value of 7.3595 with a probability of $0.0000 < 0.05$. The alternative hypothesis is that the mean difference is not equal to zero. The alternative hypothesis is further categorized into three, viz: the mean difference is less than zero ($H_a: \text{mean}(\text{diff}) < 0$), the mean difference is not equal to zero ($H_a: \text{mean}(\text{diff}) \neq 0$), and the mean difference is greater than zero ($H_a: \text{mean}(\text{diff}) > 0$). In rejecting a null hypothesis, at least two of the alternative hypotheses must be considered. From the results in Table 3, the t test value of 7.3595 is statistically significant at the 5% level of significance ($p = 0.0000 < 0.05$). This means that the null hypothesis of the mean difference equal to zero is rejected. This implies that the mean difference between the annual output of small farmers before and after informal credit is significantly different from zero. This indicates that there is a significant difference in the averages of the annual output of the respondents in the sample before and after informal credit.

Since the value of output after informal financial credit is higher than that before, it implies that informal financial credit positively impacted the annual output of the respondents in the study area. This is because the improvement in the average output after informal financial credit was significantly different from the average annual output of beneficiaries before informal financial credit. It can be concluded, therefore, that the annual output of the small farmers differs significantly on their averages as a result of the benefit from informal financial credit.

Impact of Informal Credit on Annual Output of the Small Scale Farmers (SEM)

To investigate the nature of the impact of informal financial credit on the output of small farmers in the Oju Local government area, structural equation modelling was employed to estimate the cross-sectional data obtained from the field.

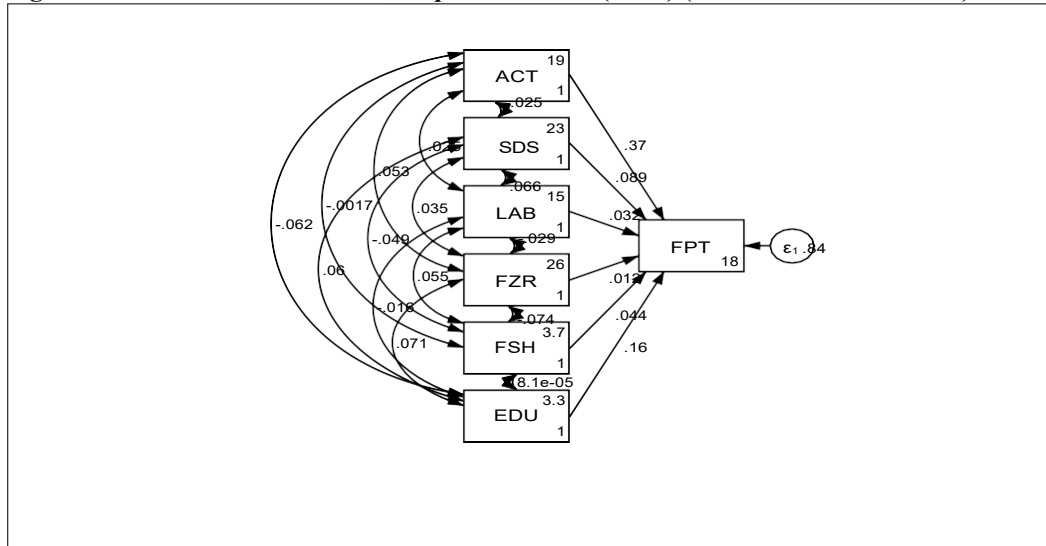
Table 4. The Results of Structural Equation Model (SEM) (Standardized Estimates)

Structural						
FPT <-						
ACT	.3654245	.0529445	6.90	0.000	.2616552	.4691938
SDS	.089309	.0565757	1.58	0.114	-.0215772	.2001953
LAB	.0315204	.0566578	0.56	0.578	-.0795269	.1425676
FZR	.0117189	.0568443	0.21	0.837	-.0996938	.1231317
FSH	.0440914	.0566753	0.78	0.437	-.0669902	.155173

EDU	.1561646	.0562077	2.78	0.005	.0459995	.2663298
_cons	18.42107	2.697217	6.83	0.000	13.13462	23.70752

Source: Extract from STRATA Output

Figure 2. The Results of Structural Equation Model (SEM) (Standardized Estimates)



Source: Extract from STATA 14.2 Output

The results on the nature of the impact of informal financial credit on the output of the small-scale farmers as presented in Table 4 are presented in the standardized estimates as seen in Figure 2. The results conform to the theoretical expectations of the relationships among the variables and the nature of significance. The result shows that the amount of informal financial credit obtained (ACT) has a positive and significant impact on the output of small farmers in the Oju Local government area of Benue state. This implies that a 1% change (improvement) in the amount of informal financial credit obtained leads to a 0.36% unit change in the output of the small farmers in the study area. This is in line with the theoretical or a priori expectation and conforms to the findings of Igwe (2018), Upton (1996) and David (2007).

The estimated coefficients of Seedlings (SDS), Cost of labour (LAB), Cost of fertilizers used (FZR) and Farm size in hectares (FSH) are positive but not statistically significant at the 5% critical level. This implies that the increase in seedlings, cost of labour, cost of fertilizers used and farm size in hectares by the small farmers in the Oju Local Government Area of Benue State does not significantly influence the output of the small farmers. Hence, seedlings, cost of labour, cost of fertilizers used and farm size in hectares are theoretically plausible but not statistically significant at the 5% level of significance.

The estimated coefficient of education by the small farmers in the study area shows a positive sign in the estimate of the structured equation model. The result shows a positive sign that conforms to the theoretical expectation of the relationship. The estimated coefficient is also statistically significant at the 5% level of significance. This implies that the education of small-scale farmers has a strong influence on their output level by 0.156%. This means that highly educated small-scale farmers obtained higher yields than less educated small-scale farmers because of the education they acquired.

The result also shows that holding every other variable incorporated in the model constant, the output of small farmers can be influenced positively and significantly at the 5% critical level. This indicates that the level of small farmers' output is influenced not only by the variables explicitly captured in the model but also by other variables. The goodness and stability of the model was tested using chi-square, root mean squared error of approximation (RMSEA), comparative fit index (CFI) and Tucker–Lewis index (TLI) criteria. The result shows that the model is a good fit. This finding is an indication that credit and its efficient usage have the potential to bring about improved economic development by the redistribution of resources among the have and the have-not in the economy. This finding conforms to the postulation of the neoclassical production theory that credit has the potential to enhance efficient resource allocation, permit the application of new technology, reduce postharvest waste, stabilize farm prices and farm income and enhance the efficient marketing of agricultural products.

Conclusion and policy recommendations

Agriculture plays a significant role in driving economic development. It is the major sustainer of the Nigerian economy, ranging from the provision of food, employment and raw material for industrial use. The sector has, however, not been adequately funded, which is evident in the poor facilities and low productivity of the sector. Small-scale farmers receive the most heat, as they are often denied access to credits from formal financial institutions. In an effort to finance their farm operations, this class of farmers has created traditional financial institutions from which they are sure of easily accessing funds for their farm operations as the need arises. The small-scale farmers in the Oju Local Government Area of Benue State have been able to increase their farm output as a result of the credits they obtained from informal financial institutions. The study recommends that

The informal financial institutions should make more credit available to the small-scale farmers because the majority of the farmers are within the economically active age and have the capability of making judicious use of credit facilities available to them. There was a significant positive difference in farmers' output before and after accessing informal credit. It is therefore recommended that small-scale farmers continually source credit to enlarge their farm sizes and increase their inputs. It is also recommended that operators of informal financial institutions strengthen and improve their operations to make credit readily available to farmers.

The study revealed many threatening challenges being faced by the small scale farmers. Top among these challenges is inadequate finance. The informal financial institutions generate their funds from the savings of their members and these savings are often considered low to ensure adequate finance for the borrowing needs of the farmers. The spillover effects of this scarcity has however resulted to high interest rate. The members of these institutions are therefore encouraged to improve on their savings so as to increase the monies available to the informal financial institutions. The small scale farmers are also encouraged to make effort to ensure the availability of storage facilities. Good storage facilities will not only reduce damages cause to farmers do to spoilage but will also ensure the availability of food through all season. The farmers should also make effort to properly address the issues of pest and disease which often lead to poor harvest and post-harvest damages. The small scale farmers should develop themselves with regards to acquiring

formal education due to the importance of education in enhancing improve agricultural productivity. It is also recommended that government should encourage the small scale farmers by providing a good platform where the small scale farmers can get necessary and relevant information through the activities of the agricultural extension workers. Such agriculturally based education will ensure improve output of the small scale farmers.

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