
Impact of Credit on Farm Incomes of Cocoa Growers in Ondo State, Nigeria

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Abstract: Dwindling farmers' productivity as a result of lack of adequate capital to increase yield necessitates this study. This study examines the impact of credit on the farm incomes of cocoa growers in Ondo State, Nigeria. Data were collected, with the use of well-structured questionnaire, from 160 cocoa growers, who were categorized into beneficiaries and non-beneficiaries of credit, through multi-stage sampling technique. Descriptive statistics, Gross margin analysis and multiple regression analysis were employed in analyzing data for this study. The results reveal that the total cost of credit beneficiaries cocoa growers is higher (N18,734,764.00) than that of non-credit beneficiaries cocoa growers (N15,656,637.50). Also, the Net farm income of credit beneficiaries is greater (N10,334,510.40) than that of non-credit beneficiaries (N6,690,188.50), suggesting that, access to credit could lead to improved farmers' productivity and higher income in form of revenue and profit. Regression analysis showed that years of formal education, farming experience, farm size and credit availability, all being positive and significant at 0.05 probability level, affect cocoa grower's output. R^2 value suggested that variation in output by the two categories of farmers is explained by 75 percent of explanatory variables in their production functions. It is thus concluded that credit could bring about higher productivity and profit in agricultural production, hence, this study recommends that existing formal and informal institutions should be encouraged to have more rural outlets, while there should be federal government policy of empowering rural farmers to have access to more credits.

Keywords: Credit, Income, Cocoa Growers, Ondo State, Nigeria

1. Introduction

Agriculture plays a basic role in the economic development of Nigeria. It provides food for her growing population, employment for majority of the populace as well as raw materials for agro-industries. The performance of the nation's agricultural sector has often been described as being far below optimum. Nigeria continues to import agricultural raw materials, which on average accounted for 16% of total imports during the period of 1991/1994. As a result, the Nigerian economy is totally dependent on oil for export earnings despite the nation's vast agricultural resource base. According to Rahji [16], Nigeria's agricultural sector also served as markets for products of the non-farm sector and contributed to the nation's Gross Domestic Products (GDP).

Despite its importance, agriculture in the country is still faced with numerous problems such as inadequate funding, non-availability of complementary inputs in the right quantity and quality, under-developed marketing system and inadequate infrastructural facilities for production which in turn warrants farmers' need for credit [11].

The crucial role of credit in agricultural production and development can also be appraised from the perspective of the quantity of problems emanating from the lack of it. In modern farming business in Nigeria, provision of agricultural credit is not enough but efficient use of such credit has become an important factor in order to increase productivity. Lawal et al. [8] suggested that credit in the poor farmer's hand would enable him reap the economies of scale, discover new and cheaper products, create demands where none exists and provide utilities to satisfy a wider market. He went

further to state that it would generate in him the optimism and determination to venture into new fields. The crucial role of credit in farming had made successive governments in the country formulate and implement several Agricultural Credit Programmes, the impacts of which had not been quite visible and sustainable.

Finance is a crucial input in the development of agriculture because it influences the extent to which agricultural projects and programmes could be executed. Since the post-independence period, the Federal and State Governments of Nigeria can be identified with four main sources which directly or indirectly have resulted in increased financing of agricultural sector. The first is the direct expenditure programmes of the Federal and state governments on their Agricultural Development Projects (ADP) and other services. The second is the direct credit through the Central Bank of Nigeria (CBN) for the financing of marketing of selected agricultural commodities. The third source touches on package of financial and fiscal incentives such as those given to commercial Banks and foreign investors to increase their funding of agricultural sector. Finally, a source of agricultural financing which the government has actively promoted in the public credit agencies/funded by the government and through which credit is provided for agricultural purposes.

Therefore, the use of credit by Nigerian farmers should be given priority to enhance agricultural production and productivity [9]. In developing countries as in the case of Nigeria, small-scale farmers dominate the agricultural economy. Over 80 percent of the farming population in Nigeria consists of small holders residing mostly in rural areas. The farm household is typically located in an environment characterized by a number of market failures. A frequent cause of market failure was limited access to working capital / credit [6]. According to Swinnen and Gow [17], access to agricultural credit has been severely constrained in developing countries because of the imperfect and costly information problems encountered in the financial markets.

The main objective of this study was to investigate the impact of agricultural credit on the farm incomes of cocoa growers in Ondo State, Nigeria.

The specific objectives were to:

- i. examine the socio-economic characteristics of cocoa growers in Ondo State, Nigeria;
- ii. identify the sources of farm credits available to the respondents;
- iii. compare the costs and returns of credit beneficiaries with those of non- credit beneficiaries of farm credit among cocoa growers;
- iv. determine the effects of socio-economic characteristics on the outputs of the cocoa growers; and
- v. examine the constraints to credit availability and utilization to cocoa growers in the area of study.

2. The Study Area

The study was carried out in Ondo State, which is endowed with extensive fertile soils suitable for agriculture and enjoys

abundant rainfall almost all year round and as well has a number of rivers, and streams. The principal employer in the rural parts of the state is small farm holding agriculture, while major farming practice in the rural parts of the state is mixed cropping. Main crops grown in the rural settings within the state include both arable food and tree crops.

3. Data Collection and Sampling

3.1. Technique

A multi-stage sampling technique was used for this study. At the first stage, two (2) out of the eighteen (18) local Government areas (LGAs) in Ondo State that were prominent in cocoa production were purposively selected. The LGAs were Idanre and Ondo East LGA. This was followed by random selection of four (4) communities from each LGA. Each community was divided into five (5) wards out of which four (4) cocoa growers were interviewed, making a total of 80 credit beneficiaries and 80 non-beneficiaries cocoa growers for the study. A well-structured questionnaire was used to collect relevant information on accessibility and utilization of credit by Cocoa growers in the study area. Respondents were categorized into two main groups, namely beneficiaries and non-beneficiaries of credit based on their statement.

3.2. Data Analysis

Descriptive statistics, multiple regression analysis and gross margin analysis were employed for data analysis. Descriptive statistics involving the use of frequency table, percentages and mean were used to describe respondents' socioeconomic characteristics, while gross margin analysis was used to determine the structure of costs and returns in cocoa production activities for both the credit beneficiaries and non-beneficiaries in order to know how accessing credit has positively or otherwise, affected the productivity of the farmers, whereas, the regression analysis was carried out to show the marginal effect of some factors on the farm output of cocoa growers.

3.3. Model Specification

- a) *Gross Margin Analysis*: It is the difference between the total revenue and the total variable cost.

$$GM = TR - TVC$$

$$TR = P \cdot Q$$

Where, GM = Profit per hectare (₦/ha);
 TR = Total revenue per hectare (₦/ha);
 P = Unit price of output (₦);
 Q = Quantity of output per hectare (Kg/ha);
 TVC = Total variable cost (₦).

- b) *Regression Analysis*: This was carried out to find out the marginal effect of some socio economic characteristics on the output of cocoa growers in each category of respondent. Linear production functional

form was chosen for this analysis because of its wide use/acceptance, theoretical fitness, manageability and suitability when dealing with small farms.

Its general form is specified thus:

$$Y_i = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + e_i$$

Where:

Y = Gross Value of Output (₦);

X_1 = Sex;

X_2 = Age (years);

X_3 = Household size;

X_4 = Level of Education (years);

X_5 = Years of Experience;

X_6 = Farm Size (ha);

X_7 = Credit;

e_i = Error term;

b_0 & b_{in} are parameters to be estimated.

3.4. Conceptual Framework

3.4.1. Roles of Credit in Agricultural Development

Agricultural credit is expected to play a critical role in agricultural development [6]. Farm credit has for long been identified as a major input in the development of the agricultural sector in Nigeria. The decline in the contribution of the sector to the Nigerian economy has been attributed to the lack of a formal national credit policy and paucity of credit institutions, which can assist farmers among other things. The provision of this input is important because credit or loan-able funds (capital) is viewed as more than just another resource such as labour, land, equipment and raw materials. It determines access to all other resources on which farmers depend [2].

3.4.2. Credit Availability to Small Scale Farmers

In Nigeria, several attempts have been made to enhance farmers' accessibility to credit through a multiplicity of institutional designs. Nonetheless, access to credit by small-scale farmers is still highly restricted. Most of the credit agencies have been confronted with several operational deficiencies including gross inadequacies in staffing, organization and management and poor recovery performance [14].

It was estimated that only 2.5 percent of total Commercial Bank loans and advances was directed at agriculture [5]. The average loan size granted by Microfinance Institutions (MFIs) to small scale farmers as reported by Anyanwu [4] was ₦8, 800. Loan amounts ranged between ₦5, 000 and ₦13, 762. This was close to the ₦8, 206.90 reported by the CBN [5] as the average loan size granted by MFIs. Oke et al. [11] found that the average loan size from MFIs Institutions to farmers in Southwest Nigeria was ₦23, 551.25, while actual loan amounts ranged from ₦5, 000 to ₦90, 000.

The maximum fund available for small scale farmers from Rotating Savings and Credit Associations (RoSCAs) varies from time to time and is dependent on the membership strength and the total contribution by the group at that particular time. This situation is similar to Cooperative

Societies where members are entitled to borrow double the size of their savings. However, the maximum available credit under the Agricultural Credit Guarantee Scheme (ACGS) without tangible security was ₦2, 000, 000 while it was ₦10, 000,000 if tangible security is provided.

3.4.3. Impact of Credit on Small Scale Farmers' Holdings

Credit can stimulate the growth of agriculture by its contribution to the modernization of the sector, that is, the provision of new equipment like tractors, ploughs, and other machinery which would replace hoes and cutlasses. In spite of the importance of loan in agricultural production, its acquisition and repayment were fraught with a number of problems especially in the small holder farming [14]. Quantitatively demonstrating the impact of credit on small-scale farmers is often very difficult because it is difficult to capture and analyze all of its benefits [1]. However, Okojie et al. [12], in an interview with self-employed women in Edo State, found that microcredit has had positive impacts on the businesses and family life of rural dwellers that have had access to MFIs. Feijo [7] also found that there was a positive impact on the lives of farmers who benefited from the credit facilities of the Program to Support Family Farming (PRONAF) in Brazil, based on the measurement of productivity growth of their main crops.

Oyeyinka and Bolarinwa [15] studying the impact of credit on beneficiaries and non-beneficiaries of the Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB) smallholder loan scheme in Oyo State, found that yield, income, and access to improved farm inputs of beneficiaries were higher compared to that of non-beneficiaries. Other impacts included improvements in facilitating economic transactions, managing day-to-day resources, accessing services that improve quality of life, protection against economic vulnerability, making productivity enhancing investments and leveraging assets. Finally, participants in the Focus Group Discussion posited that timely credit provision facilitates the timely acquisition of farm inputs, which help farmers improve their livelihood.

Olaitan [13] reported that credit is not only needed for farming purposes, but also for family and consumption expenses; especially during the off season period. Adebayo [2] reported that non-institutional creditors accounts for 70% of the total credits received by Nigerian farming population.

However, with the present situation in Nigeria, these sources could hardly meet the increasing demand for credit by farmers. This study takes a concise look into effective ways of sourcing for agricultural credit by cocoa growers and efficient utilization of such credit to boost agricultural products.

4. Results and Discussion

4.1. Socio-Economic Characteristics

Table 1 shows some contrasting characteristics between beneficiaries and non-credit beneficiaries. Most of the respondents were within the age range of 31-60, corresponding to 84% for beneficiaries and 74% for non-

beneficiaries, while mean age were 50 years and 51 years for the two categories, respectively. The age factor differential between these categories of farmers, agrees somewhat with findings by Adewuyi, *et al.* [3] in a similar study involving categorization of farmers, but on the determinants of farm mechanization among arable crop farmers in Oyo State, implying that propensity for the use of micro credit in farm operation is more popular among the relatively younger farmers, who are still active, as such, access to credit facility by this age group will impact positively on their productivity.

Furthermore, difference between the groups is noticed in their educational status, family size, farm size and years of farming experience. Credit beneficiaries were more educated and had fewer family sizes than then on beneficiaries. Again, credit beneficiaries are more endowed on average with farmland resources as reflected in table 1, which might probably be due to the beneficiaries' access to credit facility which must have enabled them to purchase or lease more land, the effect of which is increase in marginal productivity of labour [18].

Table 1. Socio-economic Characteristics of the respondents.

Characteristics	Credit Beneficiaries		Non-beneficiaries	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Age (years)				
21-30	0	0.0	1	1.2
31-40	14	17.5	13	16.3
41-50	25	31.3	25	31.1
51-60	28	35.0	21	26.2
61 and above	13	16.2	20	25.0
Total	80	100.0	80	100.0
Mean	50		51	
Educational Level				
No Formal	26	32.5	33	41.2
Primary	22	27.5	19	23.8
Secondary	25	31.3	26	32.5
Post secondary	7	8.8	2	2.5
Total	80	100.0	80	100.0
Household Size				
1 – 3	19	23.8	33	41.2
4 – 6	44	55.0	29	36.3
Above 6	13	16.2	12	15.0
Total	80	100.0	80	100.0
Mean	6		7	
Farming Experience (years)				
< 10	27	33.6	25	31.2
10 – 20	21	26.3	21	26.3
21 – 30	17	21.3	18	22.5
31 – 40	13	16.3	14	17.5
> 40	2	2.5	2	2.5
Total	80	100.0	80	100.0
Mean	24		20	
Farm Size (ha)				
<2.0	24	30.0	50	62.5
2.1 – 4.0	31	38.7	24	30.0
4.1 – 6.0	19	23.8	4	5.0
> 6.0	6	7.5	2	2.5
Total	80	100.0	80	100.0
Mean	4		2	

Source: Field survey, 2008.

Table 2. Amount of credit borrowed per annum.

Amount of Credit (₦)	Frequency	Relative Frequency (%)
< 100,000	57	71.2
101,000-200,000	14	17.5
201,000-300,000	5	6.2
301,000-400,000	1	1.3
Above 400,000	3	3.8
Total	80	100.0

Source: Field Survey, 2008 Average Amount of credit borrowed: ₦134,375.00.

4.2. Amount of Credit Borrowed

Table 2 reveals that majority of the cocoa growers (71.2%) of the credit beneficiaries borrowed less than ₦100, 000 per annum for their production. This could be attributed to stringent conditions attached to loan amounts by the lenders. 23.7% of them borrowed between ₦100,000 and ₦300, 000 per annum while the rest (5.1%) borrowed above ₦300, 000 per annum.

4.3. Gross Margin Analysis

Table 3 reveals that the credit beneficiaries had more revenue than the non-beneficiaries with (₦20,069,274.40) and (₦20,346,826.00) as their revenues respectively. Input

cost accounted for (44.5% and 42.0%) for both categories respectively. It could also be seen from the result that the cost of input and labour cost are very critical to cocoa production. Also, the output of the credit cocoa beneficiaries is higher than that of the non-beneficiaries.

Table 3. Gross margin analysis for both credit beneficiaries and nonbeneficiaries.

Category	Total cost (₦)	Gross revenue (₦)	Gross margin (₦)	Net farm income (₦)
Beneficiaries	18,734,764.00	29,069,274.40	11,698,510.40	10,334,510.40
Non-beneficiaries	13,656,637.50	20,346,826.00	8,010,188.50	6,690,188.50

Source: Field survey, 2008.

The credit beneficiaries had more net farm income than the non-beneficiaries because the former had more money to lease more cocoa plantation and hence had more output and more net farm income. This accounted for ₦10,334,510.40 and ₦6,690,188.50 for credit beneficiaries and non-beneficiaries respectively. Discrepancy in income level of beneficiaries and non-beneficiaries are reflected in farmer's productivity. That is, the availability of credit is required for the purchase of needed innovations and agricultural inputs which are utilized to increase income. This agreed with Oyeyinka and Bolarinwa [15], studying the impact on beneficiaries and non-beneficiaries of the NACRDB smallholder loan scheme in Oyo State, found that yield, income, and access to improved farm inputs of credit beneficiaries were higher compared to that of non-beneficiaries by categories was higher for credit users (N86,099.12) than non-credit users (N60,500.83).

4.4. Regression Analysis

Table 4 shows that the years of formal education, farming experience, farm size and credit availability positively and significantly affected the output of cocoa for both categories of cocoa growers. More so, an increase in farm size and credit availability will lead to an increase in the output level. The positive sign statistically significant at 0.05 probability level of the credit indicates that access to credit would result in an increase in the output level of the cocoa growers. Formal education, years of experience and farm size coefficient being statistically significant at 0.05 probability level indicates the existence of positive relationship between these variables and output. Also, an increase in the farmer's formal years of education will expose them to the environment of credit accessibility, better management techniques and ultimately increased productivity.

Table 4. Pooled regression estimates for credit beneficiaries and non-beneficiaries.

Variable	Coefficient	Standard error	T-value
Constant	0.667	0.003	-0.150
Age	0.002	0.037	0.001
Sex	-0.033	0.064	1.145
Household size	-0.064	0.038	0.802
Formal Education	0.056	0.020	2.385**
Farming Experience	0.030	0.012	3.108**
Farm size	0.039	0.017	2.967**
Credit	0.541	0.198	2.842**
R ²	75.652		
Adjusted R ²	73.453		
F- value	53.321		

** Significant at 5% level Values in parenthesis are the t- values.

Source; Data Analysis, 2011.

Furthermore, increase in farm size is an incentive to seek for credit in order to sustain productivity and expand production capacity of the farm. The R² value for the estimated equation shows that about 75 percent variation in the equation were due to the specified explanatory variables while the remaining 25% were explained by other factors not specified in the regression model and which are unquantifiable, such as management, etc.

5. Conclusion and Policy Recommendation

The study found that majority of beneficiaries was literate.

This accounted for their access to credit institution. Cocoa growers secured loan from informal credit institutions more than formal credit institutions. It may be concluded that cocoa growers have relatively more access to informal and semiformal credit institutions than formal credit institutions, in spite of the higher volume of credit at the disposal of formal institutions. Arising from the findings in this study, it is concluded that, access to credit brings about higher productivity and profit in agricultural production.

In view of the above findings, the following were recommended:

- 1) Rural farmers should mobilize themselves into formidable

groups (cooperative societies) so that they can derive maximum benefits of collective investment of group savings and enhance their production and income levels..

- 2) Commercial Banks and other credit institutions should improve upon their loan procedures, so as to facilitate more farmers' access to their credit facilities.

In the light of these, it becomes very obvious that agriculture needs to be further strengthened in terms of increased budgetary allocation in order to enhance the quality of lives of the teeming population of the rural dwellers. It is hoped that the results will provide useful guide to other researchers undertaking similar studies and serve as baseline information to policy makers in the formulation of policy measures on credit administration, allocation and provision in the agricultural sector in particular and Nigeria economy in general.

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