

Influence of Credit Utilization on Crop Production among Cooperative Farmers in Osun-State, Nigeria

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Abstract

The study explored the impact of credit utilization on production of food crops among cooperative farmers in two local government areas of Osun-State, Nigeria. A multi-stage sampling technique was used to select one hundred and twenty respondents through a well-structured questionnaire. The data analysis was conducted using both descriptive and inferential statistics. The results revealed a predominance of male participants engaged in farming activities. Factors such as farm income, hired labour costs, and years of cooperative membership exhibited a direct positive correlation with farmers' production levels. Budgetary analysis underscored the profitability and viability of food crops production as a business venture. Consequently, it is recommended that the government should enhance financial and material support provided to cooperatives, enabling them to extend similar benefits to their members. Cooperative banking systems should be established by government to facilitate access to loans at minimal or zero interest rates and also subsidize farm inputs for farmers.

Keywords: Credit Utilization, Food crops, Farmers, Cooperative, Profitability.

JEL Classification: Q13, Q14, G21, O18, H81

Introduction

In Nigeria, credit has long been recognized as pivotal for the advancement of the agricultural sector. It serves as the catalyst that activates other factors of production, rendering underutilized capacities functional for enhanced production. A significant contributor to technological transfer in traditional agriculture, credit plays a vital role in addressing the prevalent high level of cost inefficiency, which is largely attributed to low profitability. Particularly, smallholder farmers face various constraints, such as limited access to modern inputs and credit, inadequate infrastructure, restricted market access, land degradation, environmental challenges like climate change, and underutilized research and extension services. Credit stands out as a strategic resource for elevating production to greater heights, consequently improving the living standards of the rural farming community (Mary and Willy, 2014). Defined as the temporary transfer of purchasing power from surplus holders to those in need, credit entails gaining control over current funds with a commitment to repayment in the future. Access to credit plays a crucial role

in agricultural sector development. As noted by Masuku, 2009, agricultural producers heavily rely on credit facilities to secure the capital necessary for initiating and sustaining production activities. The significance of credit in agricultural production is profound as inputs like seeds and fertilizers are procured at the commencement of the production season, while returns are realized only at season end. The provision of credit is widely acknowledged as a pivotal tool for augmenting the incomes of rural populations. In Nigeria, agricultural production is predominantly carried out by small-scale farmers residing in rural areas. Credit activities serve as a crucial avenue through which peasant farmers can actively participate in their economic progression. Credit obtained through associations of individuals who have voluntarily united to pursue shared objectives via the establishment of a democratically governed organization. Capital-informed credit is essential for the modernization of agriculture, as the acquisition of new technologies is imperative before their implementation on the farms. Furthermore, farmers require financial resources for both consumption purposes and remuneration of labor during the incubation phase of their ventures. The net outcome of this situation is a deficiency

of essential inputs for family farmers to achieve optimal production levels. Inadequate financial resources persist as the primary hindrance to agricultural production. This is primarily due to the fact that capital stands as the most critical input in agricultural activities, and its accessibility continues to pose a significant challenge to small-scale farmers who contribute substantially to the nation's agricultural output. In Nigeria, farmers encounter a myriad of challenges in obtaining, managing, and repaying credit. The fundamental objective of credit mechanisms is to elevate the living standards of their beneficiaries by providing goods and services, along with promoting home practices that culminate in increased member incomes. As posited by Awoke (2004) the viability and sustainability of many public agricultural credit schemes in Nigeria have been jeopardized by elevated default rates primarily stemming from deficient management protocols, inadequate credit acquisition and utilization (resulting in credit diversion), and a reluctance to fulfill credit obligations. Specifically, smallholder farmers grapple with various constraints, including limited access to modern inputs and credit facilities, deficient infrastructure, inadequate market access, land degradation, environmental deterioration such as climate change, insufficient and underutilized research and extension services, and more.

Therefore, the present study was undertaken to examine the influence of credit utilization food crops production among cooperative farmers in Ayedire and Iwo local government areas of Osun-State, Nigeria. The specific objectives were to: describe the socio-economics characteristics of food crops cooperative farmers, examine the cost of production and sales of food crops output by cooperative farmers and examine the socio-economic factors that determine accessibility of food crops cooperative farmers' credit in the study area.

Data Sources and Methodology

The research was conducted in Ayedire and Iwo local government areas of Osun-State. Situated in the western region of Nigeria, Osun-State was established in 1991, carved out from the eastern portion of Oyo State. It shares borders with Kwara State to the North-East, Ekiti and Ondo to the East, Ogun-State to the South, and Oyo to the West and North-West, with its capital located in Osogbo. Osun-State is divided into three (3) agricultural zones overseen by the Osun State Agricultural Development Project (OSADEP), aligned with ecological features and administrative efficiency; these zones are Osogbo, Iwo, and Ife-ijesha. The State comprises thirty (30) Local Government Areas. The two major sources of data were referred to in the course of this study, both primary and secondary data were utilized for this study. The primary data were obtained through structured questionnaire while the secondary data were obtained from internet source, published journal, dissertation, projects and other relevant publications. Descriptive statistics tools such as frequency table, mean and percentage and inferential statistics such as budgetary and

linear regression were used to analyzed the collected data. This study population consists of over 1250 cooperative members from registered credit and Investment cooperative societies in Ayedire and Iwo Local Government Areas. The multi-stage sampling technique was utilized to determine the sample size for the study. Initially, one zone, specifically Iwo, was selected from the six zones in Osun State. Subsequently, Iwo and Ayedire Local Government Areas were deliberately chosen from Iwo zone due to the high concentration of food crops farming activities in these regions. Following that, five communities were randomly chosen using a simple random technique from the selected LGAs. In the fourth stage, two credit and investment cooperative societies (CIMS) were selected from each community. Finally, six cooperative farmers were randomly picked from each society, totaling one hundred and twenty (120) respondents as the sample size. Percentages, frequency and averages are used to assess the socio-economics characteristics of the respondents.

Concepts used

A positive GM indicates that the operating cost is being covered and the business can be sustained.

Where:

GM = Gross margin

TR = Total Revenue

TVC =Total Variable cost

Where,

P_i = Unit price of outputs for crops sold (₦)

Q_i = Quantity of output for crops produced per annum (kg)

Net Income or Net Margin (л) Analysis

This is the difference between the total revenue (TR) and total cost(TC).

Mathematically,

$$NI=TR-TC \dots\dots\dots (1)$$

Where,

NI = Net income or profit (₦)

TR =Total Revenue

TC =Total Cost

$$PI = NI/TR \dots\dots\dots (2)$$

$$RRI = NI/TC \times 100/1 \dots\dots\dots (3)$$

$$RRVC (\%) = TR-TFC/TVC \times 100/1 \dots\dots\dots (4)$$

$$OR = TVC/TR \dots\dots\dots (5)$$

Where PI stands for Profitability Index.

RRI stand for rate of return on investment

RRVC stands for rate of return on variable cost

OR stands for operating ratio

Linear Regression model was expressed as stated below;

$$K = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \mu_i \dots\dots\dots (7)$$

Where:

K=Value of crops produced (₦)

a = Constant

β = Coefficient

μ_i = Error term

X_1 = Age (years)

X_2 = Household size (number of individual)

X_3 = Farm size (hectares)

X_4 = Farming experience (years)

X_5 = Monthly farm income (₦)

X_6 = Labour/mandays

X_7 = Sex

X_8 = Marital status

X_9 = Educational attainment (years)

X_{10} = Membership duration (years)

X_{11} = Interest rate (%)

μ_i = Random error.

Results and Discussion

Socio-economic profile of the respondents

Table 1 illustrates the findings regarding the socio-economic characteristics of the respondents. The examination of age distribution indicated that 9.2 per cent were aged between 21 and 30 years, 41.7 per cent were in the 31-40 age bracket, 25 per cent fell within the 41-50 age group, 15.8 per cent were in the 51-60 age range, while the remaining 8.3 per cent were between 61 and 70 years. This suggests that the majority were in their prime years, characterized by vitality, vigor, and robustness. Regarding gender, 82 per cent were males, while 18 per cent were females, indicating a predominance of males among the cooperative farmers. The marital status of the respondents revealed that 14.2 per cent were single, 83.3 per cent were married, and 2.5 per cent were widowed, highlighting that a significant proportion of the respondents had family responsibilities. In terms of primary occupation, 12 per cent were engaged in trading, 58 per cent were involved in farming, 22 per cent were civil servants, while the remaining 8 per cent pursued other occupations, signifying that the majority were actively engaged in agricultural activities. With regards to religion, 83 per cent identified as Christians, 13 per cent as Muslims, and 4 per cent practiced traditional religions. The analysis of the educational attainment of the cooperative members revealed that 25 per cent had no formal education, 17 per cent had primary education, 43 per cent had secondary education,

and 15 per cent had tertiary education, indicating that a majority of the respondents were educated and literate. In terms of membership duration, 54 per cent had been members for less than five years, 33.3% for 5-10 years, and 13 per cent for 10 years or more. Concerning monthly income from their businesses, 13 per cent earned less than one ₦100,000 each per month, 25 per cent earned between ₦101,000 and ₦200,000 each per month, 13 per cent earned between ₦201,000 and ₦500,000 each per month while 17 per cent earned between ₦501,000 and ₦1,000,000 each per month. The remaining about one-third 33 per cent earned a monthly income exceeding ₦1,000,000. In relation to household size, 33 per cent had less than five individuals, 50 per cent had 6-9 members, and 17 per cent had ten or more individuals in their households.

Cost, returns and profitability of food crops production in the study area

Budgetary outcome from food crops production in the study region was scrutinized and the values were presented. The aggregate variable expenditure incurred by the enterprise was calculated at ₦318,174.64, representing 61.80 per cent of the total. The total fixed expenses amounted to ₦196,685.45, constituting 38.20 per cent of the overall costs. This analysis revealed that variable costs dominated the cost structure of food crops production for the participants. Furthermore, the Total Revenue (TR) and Gross Margin (GM) of the enterprise were appraised at ₦916,836.67 and ₦598,662.03 respectively. The findings indicated that the Rate of Return on Investment (RRI), Profitability Index or Returns on Sale (PI or RS), Rate of Return on Variable Cost (RRVC), and Operating Ratio (OR) stood at 78.07 per cent, 0.44, 226.34 per cent, and 0.35 per cent respectively. This suggests that food crops cultivators garnered profits in their operations, with variable costs augmenting their returns on investment, underscoring the profitability and viability of food crops production in the study locale. Moreover, it was disclosed that each naira expended on food crops production yielded a return of ₦0.78.

Socio-economic factors that determine the loan accessibility of food crops cooperative farmers

The Linear regression analysis was employed to scrutinize the factors influencing the accessibility of loans to food crops cooperative farmers. Based on the F-value, t-statistic, R^2 and the theoretical expectations of the variables, the F-Statistic of 51.318 validated the sustainability of the overall regression equation. Table 3 illustrated that 72 per cent of the variation was accounted for by the independent variables in the model. The results indicated that out of the eleven variables, seven exhibited statistical significance, while four did not show any significance. Household size and farm size displayed negative significance at a 10 per cent level, whereas farm income, hired labor, and years of

Table 1: Socio-economic characteristics of respondents (N=120)

Variables	Options	Frequency	Percentage	Cumulative percentage	Mean
Age	21-30years	11	9.2	9.2	36 years
	31-40 years	50	41.7	50.9	
	41-50 years	30	25.0	75.9	
	61-70 years	10	8.3	84.2	
	< 70 years	19	15.8	100	
Sex	Male	98	81.7	81.7	
	Female	22	18.3	100	
Marital Status	Single	17	14.2	14.2	
	Married	100	83.3	97.5	
	Widowed	3	2.5	100	
Major Occupation	Trading	14	11.7	11.7	
	Farming	70	58.3	70.0	
	Civil servants	26	21.7	91.7	
	Others	10	8.3	100	
Religion	Christianity	100	83.3	83.3	
	Islam	15	12.5	95.8	
		5	4.2	100	
Education	Traditional				
	No formal education	30	25.0	25.0	
	Primary	20	16.7	41.7	
	Secondary	52	43.3	85.0	
Years of membership	Tertiary	18	15.0	100.0	
	Less than 5	65	54.2	54.2	
	5-10	40	33.3	87.5	
Monthly income	10 and above	15	12.5	100	₦356,452
	<₦100,000	15	12.5	12.5	
	₦101,000- ₦200,000	30	25.0	37.5	
	₦201,000- ₦500,000	15	12.5	50.0	
	₦501,000- ₦1,000,000	20	16.7	67.7	
	Above ₦1,000,000	40	33.3	100	
	Less than 5	40	33.3	33.3	
	6-9	60	50.0	83.3	
	10 and above	20	16.7	100	7 persons
Total		120	100		

Source: Field Survey, 2024. Exchange rate for ₦ vis-a-vis Indian rupee (1 Indian rupee = 17.53 Nigerian Niara)

Table 2: Cost and return structure of food crops production in the study area

Description	Value(₦)	% of total cost
Value of Cassava sold (₦)	437,107.97	47.68
Value of Cocoyam sold (₦)	50,254.70	5.48
Value of Yam sold (₦)	130,456.89	14.22
Value of Maize sold (₦)	299,027.11	32.62
Total Revenue(₦)	916,836.67	100
Variable Cost Items:		
Labour Cost (₦)	146,233.73	28.40
Transportation Cost (₦)	16,012.50	3.11
Cost of Fertilizers (₦)	23,350.13	4.54
Cost of Insecticides	10,162.78	1.97
Cost of hired tractor	48,142.54	9.35
Cost of Chemical (Herbicides)	11,398.33	2.21
Cost of loading and off loading	9,120.65	1.77
Market/ Local Govt. Revenues	5,120.65	1.00
Cost of planting materials (₦)	48,633.33	9.45
Total Variable Cost ₦	318,174.64	61.80
Gross Margin (₦)	598662.03	
Fixed Cost Items:		
Interest on Loan (₦)	46,487.50	9.02
Land leased/purchased (₦)	84,424.39	16.40
Depreciation	65,773.56	12.78
Total Fixed Cost (₦)	196,685.45	38.20
Total Cost	514,860.09	100
Net Income	401,976.58	
Profitability Indices:		
Rate of Returns on Investment (%)	78.07%	
Profitability Index or Returns on Sale	0.44	
Rate of Return on Variable Cost (%)	226.34%	
Operating Ratio	0.35	

Source: Field Survey, 2024.

cooperative membership showed positive significance at 5 per cent and 1 per cent respectively. Gender and marital status revealed negative significance at 5 per cent. Furthermore, Age, farming experience, education attainment, and interest in obtaining a loan were not statistically significant. The positive correlation of farm income, hired labor costs, and years of cooperative membership suggests a direct positive relationship with farmers' production, while the negative correlation of variables such as household size and farm size indicates a detrimental impact on or negative relationship with farmers' production. The factors like farm size, gender, and marital status may be attributed to a high number of dependents in the family, cultivation of small-sized farms,

and early marriages or having multiple spouses, leading to the diversion of farm income for other purposes. Undoubtedly, the availability of credit plays a crucial role in food crops production, as it is imperative for farmers to secure loans to acquire farm inputs and services, ultimately enhancing farm output, yield, and profitability.

Conclusions and Policy Implications

The majority of individuals were in their prime age. This implied that the respondents had agility, energy, and robustness for hard work. The men respondents predominated in agricultural activities. A large portion of cooperative farmers were married and possessed a level of education.

Table 3: Socio-economic factors that determine loan accessibility of food crops cooperative farmers

Variables	Regression coefficient	Standard error	T-Value
Constant term	0.539***	0.069	7.852
Age (X1)	-0.412**	0.014	-2.4
Household size (X2)	-0.001	0.002	-0.402
Farm size (X3)	-0.005*	0.002	-1.922
Farming experience (X4)	0.004	0.005	0.752
Farm income (X5)	0.357***	2.46E-07	2.592
Labour (X6)	0.006***	0.002	3.031
Gender (X7)	-0.201**	0.242	-2.133
Marital status (X8)	-0.004**	0.002	-2.451
Educational attainment (X9)	-0.119	0.008	-1.061
Cooperative Membership duration (X10)	0.357***	1.09	5.22
Interest rate (%) (X11)	-0.373	0.679	-0.454
R ²	0.718	-	-
Adjusted R-square	0.819	-	-
F-Statistic	51.318***	-	-

Source: Field Survey Data, 2024

The cultivation of food crops proved to be a profitable and sustainable pursuit in the examined region. It is evident that the availability of credit plays a crucial role in enhancing food crop production, thereby increasing farm output, yield, and overall profitability for farmers. The study recommended that: Government may empower cooperatives financially to ensure that Cooperative Organizations have sufficient funds to provide loans to their members, cooperative Societies may uphold the interest rates on loans to incentivize members to access credit facilities, thereby creating more employment opportunities for individuals. The government may bolster support for cooperatives by establishing additional agricultural cooperative banking systems to facilitate access to loans at minimal or no interest rates, thereby encouraging more people to engage in agribusiness, and extend support by subsidizing agricultural inputs for farmers.

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