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Determinants Of Access To Credit By Casava Farmers In Imo State

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Abstract

The study focused on determinants of access to credit by casava farmers in imo state, Nigeria. The specific objectives were to: to identify the socio-economic characteristics of cassava farmers in Imo State, to determine amount of credit demanded and disbursed, to identify the sources and types of micro-credits available to cassava farmers in Imo State, to determine the factors that influence access to micro-credit by the cassava farmers and to recommend policy measures to improve cassava farmers' access to credit. Multistage sampling technique was adopted in selecting the sample for the study. Taro Yamane formulae was adopted to determine sample size for the study which was 150. Both primary and secondary sources of data were used for this study. Data was analyzed using descriptive and inferential statistical tools such as mean and percentage, food security index and regression models. The result from the findings shows that average age of respondents was 46.5 years, majority (74.7%) of cassava farmers in the study area were females, majority (95.3%) of cassava farmers were married, while only 4.7% were single. The average number of years spent in school was 13.4. Average family size was 6 persons. Average farming experience was 22.6 years. 94.7% of the respondents were not affiliated with any cooperative association. The average farm size was 0.94 hectares. Majority (85.3%) of cassava farmers received visits from extension agents. 10% of the farmers were full-time farmers. Average annual income was ₦213,670. 82.7% of respondents had access to credit facilities. The majority of respondents, 83 (55.3%), requested credit below ₦100,000. Most farmers, 83 (55.3%), received less than ₦100,000 in credit. The factors influencing cassava farming households' access to micro-credit in the area were analyzed using binary logistic model. The result showed that Educational Level, Marital Status, Farm Income and Extension Contact were significant factors influencing access to micro-credit by cassava farming households in the study area. It can be concluded that access to microcredit was significantly influenced by educational level, marital status and farm income, indicating the importance of socio-economic and institutional factors. Family and friends are the major source of micro-credit to the cassava farmers in the study area. It is therefore recommended that cassava farmers are encouraged to join or form cooperative societies to enhance access to collective resources, market opportunities, and credit facilities and financial institutions should consider increasing credit limits for cassava farmers and offering flexible repayment terms tailored to farming cycles.

Keywords: *Credit, Access, Cassava, Determinants, Farmers*

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I. Introduction

Access to agricultural credit has been extensively studied due to its central role in enhancing farm productivity and rural development. According to Stiglitz and Weiss (1981), credit rationing occurs in rural credit markets due to asymmetric information and moral hazard. Farmers lacking collateral or formal employment records often face exclusion from formal credit systems. Okorie (1986) emphasized the role of institutional support in bridging credit gaps in Nigerian agriculture.

Empirical studies have identified several determinants of credit access among farmers. These include age, gender, education, household size, farm size, cooperative membership, access to extension services, distance to credit institutions, and availability of collateral (Ojo, 2016; Obasi *et al*., 2022). For instance, Oboh and Ekpebu (2011) found that membership in farmer cooperatives significantly enhances access to credit due to group guarantees and reduced transaction costs. Similarly, education improves financial literacy and the ability to navigate credit application procedures.

In the context of cassava farming, Nwaiwu *et al*. (2024) noted that despite the profitability of cassava, farmers remain underserved by formal financial institutions. The authors advocate for policy reforms to improve credit access, especially through cooperative societies and extension services.

Cassava is a vital staple food crop in Nigeria and plays a crucial role in the livelihoods of many rural households. In Imo State, located in the southeastern region of Nigeria, cassava farming contributes significantly to food security, employment, and rural income generation. Despite its economic importance, cassava farmers face numerous production constraints, among which limited access to credit remains paramount. Access to credit facilitates the acquisition of improved inputs, adoption of modern farming technologies, and expansion of farm operations (Akinbami, 2014). However, cassava farmers in Imo State often rely on informal credit sources due to the challenges associated with accessing formal credit institutions.

Microcredit defined as the provision of small-scale, collateral-free loans to low-income clients has emerged globally as an essential tool for empowering rural farmers and stimulating agricultural innovation (Yunus, 2019; Adebayo and Adeola, 2020). In Nigeria, several microfinance interventions, such as the Anchor Borrowers' Programme (ABP), the National Agricultural Credit Scheme (NACS), and the activities of microfinance banks and cooperative societies, target rural farmers with the aim of boosting productivity and reducing poverty (CBN, 2022).

Despite various agricultural credit schemes initiated by the Nigerian government and financial institutions, a significant number of cassava farmers in Imo State still operate at a subsistence level. They are often unable to secure sufficient credit to boost productivity or commercialize their farming activities. This situation has been attributed to several factors such as lack of collateral, high interest rates, limited financial literacy, and institutional bottlenecks (Obasi *et al*., 2022). The persistence of these challenges suggests that the determinants of access to credit among cassava farmers are not yet fully understood or adequately addressed. Consequently, identifying and analyzing these determinants is crucial for the design of effective policies that will enhance credit accessibility for cassava farmers in the region.

This study is significant for several reasons. It provides empirical data that can inform policy makers and stakeholders in the agricultural finance sector. By identifying key determinants of credit access, the study contributes to the broader discourse on rural finance and agricultural development. Lastly, the findings can assist financial institutions in designing more inclusive and farmer-friendly credit products.

The aim of this paper is to examine the determinants of access to credit by cassava farmers in Imo State. The specific objectives were: to identify the socio-economic characteristics of cassava farmers in Imo State, to determine amount of credit demanded and disbursed, to identify the sources and types of micro-credits available to cassava farmers in Imo State, to determine the factors that influence access to micro-credit by the cassava farmers and to recommend policy measures to improve cassava farmers' access to credit.

II. Materials And Methods

The study adopted a descriptive and analytical survey design. The population consisted of registered cassava farmers across the three agricultural zones of Imo State: Owerri, Orlu, and Okigwe. A multistage sampling technique was used to select 150 respondents using structured questionnaires.

Primary data were collected on socio-economic characteristics, institutional variables, and farm-level information. Descriptive statistics such as frequency, percentages, and means were used to summarize the data. A binary logistic regression model was employed to determine the factors influencing access to credit. The dependent variable was access to credit (yes = 1, no = 0), while the independent variables included age, gender, education, household size, farm size, cooperative membership, extension contact, and Farm size.

Model Specification

the binary logistic model is specified explicitly as:

$$Ci = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + b_{11}X_{11} \ldots\ldots\ldots\ldots\ldots\ldots \quad (3)$$

Where

C_i = Credit access (Dummy where 1, if household head has access to credit; and 0, if household head does not have access to credit)

X_i = vector of characteristics of ith individual, and is the independent variables, which are defined as follows;

X_1 = Age of farmer (years)

X_2 = Educational level (years)

X_3 =Farming experience (years)

X_4 =House hold size (number)

X_5 = Sex (1 = male; 0 = female)

X_6 = Marital status

X7 = Farm income (Naira)

X_8 =Extension contact (no of time)

X_9 = Farm size (hectares)

X_{10} = Membership of farmers' association (1 = member; 0 = otherwise)

X_{11} = Distance between Home and Source (kilometer)
μ = Error term

III. Results And Discussion

Socio-Economic characteristics of the farmers

The distribution of the cassava farmers according to socioeconomic characteristics is presented in Table 1.

Table 1: Distribution of the cassava farmers according to socioeconomic characteristics

Socio-Economic characteristics	Frequency	Percentage
Age (Yrs)		
15-25	1	0.7
26-35	6	4
36-45	56	43.3
46-55	72	48
56-65	15	10
Mean	**46.5years**	
Sex		
Male	38	25.3
Female	112	74.7
Marital status		
Married	143	95.3
Single	7	4.7
Years spent in school		
0 (No formal Education)	3	2
1-6 (Primary Education)	15	10
7-12 (Secondary Education)	42	28
13-20 (University Education)	90	60
Mean =	**13.4 years**	
Household size		
1-3	9	6
4-6	111	74
7-9	27	18
10-13	3	2
Mean =	**6 persons**	
Farming experience (Years)		
1-5	3	2
6-10	22	14.7
11-15	26	17.3
16-20	26	17.3
>20	73	48.7
Mean =	**22.6years**	
Membership association		
Yes	142	94.7
No	8	5.3
Farm size(Hectares		
0.1-1	112	74.7
1.1-2	37	24.7
2.1-3	1	0.6
Mean	**0.94ha**	
Extension Visit		
Yes	128	85.3

No	22	14.7
Farm Income (₦)		
<100000	3	2
100,000-199,000	85	56.7
200,000-299,000	45	30
300,000-399,000	12	8
400,000-499,000	5	3.3
Mean	₦213,670	
Access to micro-credit		
Yes	124	82.7
No	26	17.3

Source: Field data, 2024

The age distribution of cassava farmers reveals that the majority (48%) are aged between 46 and 55 years, followed by 43.3% between 36 and 45 years, 10% between 56 and 65 years, 4% between 26 and 35 years, and only 0.7% between 15 and 25 years. The average age of respondents is 46.5 years, indicating they are within the economically active and productive age range, capable of contributing to household food security through agricultural activities. This aligns with the findings of Mukhtar (2012) and Yusuf *et al*. (2015), who observed that individuals in their working-age bracket are more likely to adopt innovations that enhance productivity and income.

Majority (74.7%) of cassava farmers in the study area were females, while 25.3% were males, indicating that women dominate cassava farming in this region. This contrasts with Olayede's (2000) findings, which stated that small-scale farming is predominantly carried out by males. The results suggest that while both men and women engage in crop farming in the study area, women are more actively involved, contrary to the findings of Ndaghu *et al*. (2009) and Robert *et al*. (2013), who reported that men are typically household heads and make the key production decisions.

Majority (95.3%) of cassava farmers were married, while only 4.7% were single. The high percentage of married farmers can be linked to the need for additional support to handle the labor-intensive nature of cassava farming, which is a dominant activity in the study area. This underscores the importance of farming labor in agricultural production within typical rural Nigerian communities. Many rural farmers view marriage as a way to secure affordable labor for agricultural tasks, thereby enhancing household food security (Kirwan and Maye, 2013).

Significant portion (60%) of cassava farmers have completed between 13 to 20 years of schooling. Additionally, 28% attended school for 7 to 12 years, while 10% spent 1 to 6 years in education, and 2% did not receive any formal education. The average number of years spent in school was 13.4. This suggests that most farmers are literate, which is likely to positively impact their adoption of advanced technologies, such as improved crop varieties, organic soil amendments, and soil and water conservation methods. This finding aligns with the research by Oluwatusin and Shittu (2014), which stated that the level of education influences farmers' adoption of improved technologies. Consequently, the educational background of respondents will enable them to seek information on modern cassava production methods. Education serves as a vital resource for managing farm-level activities and is considered a key factor in the adoption and implementation of innovations.

The distribution of cassava farmers by household size reveals that a majority (74%) have families consisting of 4 to 6 members, while 18% have family sizes ranging from 7 to 9 members. Additionally, 6% belong to households with 1 to 3 members, and 2% have families of 10 to 13 members, resulting in an average family size of 6. Larger households can provide a source of family labor, although they may also have a higher dependency ratio. A bigger household size often leads to reduced per capita food expenditure, which can increase the risk of food insecurity. Adebayo (2012) supports this view, noting that larger family sizes tend to decrease food availability per person and can negatively impact nutritional status. According to Olarinde *et al*. (2014), farm households with larger family sizes can offer inexpensive labor and are generally more capable of implementing various adaptation strategies in response to soil degradation compared to those with fewer labor resources. Thus, household size is considered a significant source of family labor essential for agricultural production, typically measured by the number of individuals in a household.

Significant portion (48.7%) of cassava farmers have over 20 years of farming experience. Additionally, 17.3% have between 11 to 15 years and 16 to 20 years of experience, while 14.7% possess 6 to 10 years of experience. Only 2% of the farmers have farming experience ranging from 1 to 5 years, with an average farming experience of 22.6 years. This suggests that the majority of the farmers are older and highly experienced, indicating a strong background in food crop production within the study area. This finding aligns with the research by Zubairu and Maurice (2014), which noted that farmers with extensive experience are more likely to adopt new innovations that can enhance their productivity and contribute to food security.

94.7% of the respondents are not affiliated with any cooperative association, whereas only 5.3% are members of one or more cooperatives. This finding aligns with Bakari's (2016) research, which indicated that many respondents do not belong to any associations, thereby missing out on opportunities to engage in programs communicated through these cooperative societies. Idiong *et al.* (2014) suggested that being part of social organizations allows farmers to share information about modern farming practices.

Significant majority (74.7%) of the respondents have farm sizes ranging from 0.1 to 1 hectare. This is followed by 24.7% of respondents with farms measuring between 1.1 to 2 hectares, while only 0.6% fall within the 2.1 to 3 hectares category. The average farm size is 0.94 hectares, suggesting that smallholder farmers dominate the cassava farming landscape in the study area. This finding is consistent with the research conducted by Ojo *et al.* (2008) and Omonona *et al.* (2010), both of which reported that most respondents had small and fragmented farm holdings, likely due to land acquisition through inheritance. Farm size influences various factors such as adoption costs, risk perceptions, human capital, credit constraints, labor requirements, and tenure arrangements. It has been argued that small farms can face challenges with high fixed costs, which may hinder technology adoption, particularly when the technology is expensive (Abana and Singh, 1993; Okoye *et al*., 2009).

Significant majority (85.3%) of cassava farmers received visits from extension agents, while only 14.7% did not have any contact with them. It is suggested that interaction with extension workers and access to comprehensive information on production techniques can enhance the likelihood of farmers adopting improved agricultural practices (Salau *et al*., 2014).

A majority (56.7%) of the cassava farmers reported an annual farm income ranging from ₦100,000 to ₦199,000, with an average annual income of ₦213,670. Abdulrahman, Abdullahi, and Muhammad (2015) observed that cassava farmers are typically small-scale producers whose earnings are limited. This suggests that cassava farmers are low-income earners, as they cultivate cassava primarily at a subsistence level and therefore lack sufficient income to meet their own needs and those of their families.

The survey found that 82.7% of respondents had access to credit facilities, while 17.3% did not. Access to credit plays a crucial role in the adoption of new technologies by cassava farmers, which is essential for food security. In Nigeria, farm credit is a key factor that bridges the gap between adopting new farm technologies and increasing farm income among rural farmers (Akpan *et al*., 2013). Therefore, farmers in the study area who lack access to finance may struggle to expand their production activities.

Table 2 Distribution of cassava farmers by amount of credit demanded

Credit Demanded (**₦**)	**Frequency**	**Percentage**
<100000	83	55.3
100,000-199,000	17	11.3
200,000-299,000	22	14.7
300,000-399,000	11	7.3
400,000-499,000	7	4.7
500,000-599,000	7	4.7
600,000 & Above	3	2
Total	150	100
Mean	₦134,671.53	

Source Field survey data, 2024

The results of the amount of credit demanded by cassava farmers are presented in Table 5.16. The majority of respondents, 83(55.3%), requested credit below ₦100,000. The remaining respondents demanded credit in various ranges; 17(11.3%) requested between ₦100,000 and ₦199,000, 22(14.7%) requested between ₦200,000 and ₦299,000, 11(7.3%) requested between ₦300,000 and ₦399,000, 7(4.7%) requested between ₦400,000 and ₦499,000 and ₦500,000 and ₦599,000, Only 3 (2%) requested credit above ₦ 600,000.

Table 3 Distribution of cassava farmers by amount of credit disbursed

Credit Disbursed (**₦**)	**Frequency**	**Percentage**
<100000	83	55.3
100,000-199,000	18	12
200,000-299,000	24	16
300,000-399,000	18	12
400,000-499,000	4	2.7
500,000-599,000	3	2
Total	150	100

Mean	₦113,284

Source Field survey data, 2024

The amount of credit received by cassava farmers is presented in Table 5.17. Most farmers, 83 (55.3%), received less than N100,000 in credit. Other credit ranges received by farmers include: ₦100,000 - ₦199,000: 18 (12%) respondents, ₦200,000 - ₦299,000: 24 (16%) respondents, ₦300,000 - ₦399,000: 18 (12%) respondents, ₦400,000 - ₦499,000: 4 (2.7%) respondents, ₦500,000 - ₦599,000: 3 (2%) respondents. These findings highlight the limited access to credit faced by cassava farmers, which can impact their productivity and profitability.

Table 4 Distribution of the cassava farmers according to sources and types of microcredits available to cassava farmers in Imo State

Sources and types of microcredits	**Frequency**	**Percentage**
Savings	2	1.3
Microfinance Banks (MFB)	49	32.7
Friends/Relatives	96	64
C-operatives	2	1.3
Government Loan	1	0.7
Total	**150**	**100**

Source: Field data, 2024

Result of the distribution of cassava farmers according to sources and types of microcredits available to cassava farmers in Imo State shows that the most common sources of microcredit were Friends/relatives (64%), Microfinance banks (32.7%). Only a negligible proportion obtained loans from government schemes (0.7%) or cooperatives (1.3%). This distribution suggests a dominance of informal finance, which is often more accessible but may lack regulatory protections. It confirms assertions by Basu *et al*. (2004) and Karlan *et al*. (2016) that in many developing countries, informal sources fill the gap left by underperforming formal financial institutions. The low participation in formal and government-led financing could reflect bureaucratic hurdles or lack of awareness.

Table 5 Distribution of cassava farmers by factors that influence access to micro-credit

Logistic regression

YCreditAccess	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
X1Age	1.032	.042	0.78	.438	.953	1.119	
X2Education	1.141	.075	2.00	.045	1.003	1.299	**
X3FarmingExp	1.036	.039	0.93	.354	.962	1.115	
X4HouseholdSize	.986	.191	-0.07	.94	.674	1.442	
X5Sex	.916	.794	-0.10	.919	.167	5.012	
X6MaritalStatus	8.833	6.658	2.89	.004	2.016	38.705	***
X7FarmIncome	1	0	-2.94	.003	1	1	***
X8ExtensionContact	.824	.097	-1.63	.102	.654	1.039	
X9FarmSize	2.768	1.963	1.44	.151	.689	11.114	
X10CoopMemb	3.712	4.21	1.16	.248	.402	34.285	
Constant	2.847	7.278	0.41	.682	.019	426.87	

Mean dependent var	0.827	SD dependent var	0.380
Pseudo r-squared	0.331	Number of obs	150
Chi-square	45.849	Prob > chi2	0.000
Akaike crit. (AIC)	114.491	Bayesian crit. (BIC)	147.608

*** *p<.01, ** p<.05, * p<.1*

Marginal Effects: Logit Regression

Average marginal effects Number of obs = 150

Model VCE : OIM

Expression : Pr(YCreditAccess), predict()

dy/dx w.r.t. : X1Age X2Education X3FarmingExp X4HouseholdSize X5Sex X6MaritalStatus X7FarmIncome X8ExtensionContact X9FarmSize X10CoopMemb

		Delta-method				
	dy/dx	Std.Err.	z	P>z	[95%Conf.	Interval]
X1Age	0.003	0.004	0.780	0.435	-0.004	0.010
X2Education	0.012	0.006	2.090	0.036	0.001	0.024
X3FarmingExp	0.003	0.004	0.930	0.351	-0.004	0.010
X4HouseholdSize	-0.001	0.018	-0.070	0.940	-0.037	0.034
X5Sex	-0.008	0.081	-0.100	0.919	-0.167	0.150
X6MaritalStatus	0.203	0.065	3.140	0.002	0.077	0.330
X7FarmIncome	-0.000	0.000	-3.230	0.001	-0.000	-0.000

X8ExtensionContact	-0.018	0.011	-1.670	0.095	-0.039	0.003
X9FarmSize	0.095	0.065	1.460	0.144	-0.032	0.223
X10CoopMemb	0.122	0.105	1.170	0.243	-0.083	0.328

Source: Computer Output from STATA Version 13

The factors influencing cassava farming households' access to micro-credit in the area were analyzed using binary logistic model and the result presented in Table 4.19. The result shows that Educational Level, Marital Status and Farm Income were significant factors influencing access to micro-credit by cassava farming households in the study area.

Education (X_2) and **Marital Status (X6MaritalStatus)** are statistically significant. Education (OR = 1.141, $p < 0.05$; dy/dx = 0.012) suggests literate farmers have better access to microcredit, possibly due to better awareness or documentation skills.

Marital Status (X_6) has a large and highly significant effect (OR = 8.833, $p < 0.01$; dy/dx = 0.203), implying married individuals may have more social credibility or stability favoured by lenders.

Farm Income (X_7) is also significant (OR = 1, $p < 0.01$; dy/dx = -0.000), albeit with a tiny marginal effect due to its scale. Higher farm income likely correlates with better creditworthiness.

Other variables such as age, experience, household size, sex, farm size, extension contact, and cooperative membership were not statistically significant. The model has moderate fit (Pseudo $R^2 = 0.331$), indicating it captures some key variables but leaves room for other unexplored influences.

IV. Conclusions

It can be concluded that majority of cassava farmers in the study area were females, married, and smallholder farmers with an average farm size of 0.94 hectares, indicating a predominance of subsistence farming. Despite having significant farming experience (average 22.6 years), most respondents lacked cooperative membership, potentially limiting collective bargaining power. Access to microcredit was significantly influenced by educational level, marital status and farm income, indicating the importance of socio-economic and institutional factors. Family and friends are the major source of micro-credit to the cassava farmers in the study area.

V. Recommendations

1. **Promote Cooperative Membership:** Encourage cassava farmers to join or form cooperative societies to enhance access to collective resources, market opportunities, and credit facilities.
2. **Strengthen Extension Services:** Improve the frequency and quality of extension agent visits to enhance farmers' technical knowledge and adoption of improved practices for productivity and food security.
3. **Increase Credit Accessibility:** Financial institutions should consider increasing credit limits for cassava farmers and offering flexible repayment terms tailored to farming cycles.

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