INFLUENCE OF SOCIO-ECONOMIC FACTORS ON FINANCIAL INCLUSION AMONG RICE FARMERS IN IKWO LOCAL GOVERNMENT AREA, EBONYI STATE, NIGERIA

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Abstract
This study analyzed the influence of socio-economic factors on financial inclusion among rice farmers in Ikwo Local Government Area, Ebonyi State, Nigeria. The specific objectives were to assess the level of financial inclusion, analyze the determinants of financial inclusion, and identify the constraints militating against financial inclusion among rice farmers in the study area. A multistage sampling procedure was used to select 96 respondents from a list of registered rice farmers. Data were collected using a structured questionnaire and were analyzed using descriptive statistics and logistic regression. Findings revealed a high level of financial inclusion among rice farmers, since majority of them (85%) owned a bank account and had access to formal financial services. The results equally showed that educational level, farming experience, farm size, and income were positive and significant factors influencing financial inclusion. Age was significant and negatively influence financial inclusion. However, high interest rates (3.7396), insufficient collateral (3.6146), and a lack of financial institutions (3.4792) were constraints militating against financial inclusion. In view of these findings, the study, therefore, recommends that stakeholders and the government should establish commercial bank branches in the study area and ensure that rice farmers access loans at concessionary interest rates. Also, there is a need to implement community-based training to educate farmers about financial services, loan processes, and credit management to increase awareness and understanding.

Keywords: Financial inclusion, socio-economic factors, rice, logistic regression, Ebonyi State

Introduction

Agriculture is the bedrock of economic growth, development, and poverty eradication in developing countries, it has also been regarded as the engine and panacea for economic prosperity (Sertoglu *et al.*, 2017). The Nigerian economy in past decades thrived on the agricultural sector which is reputed as the mainstay of the economy in the early 1960s and was seen as the key driver for growth and development. In fact, to further buttress the pivotal role the sector plays in the Nigerian economy, the agricultural sector was part of the Millennium Development Goals program of poverty reduction in Nigeria. In Nigeria and in most developing countries (low and middle-income countries), the agricultural sector remains the largest contributor, providing inputs, food, employment opportunities, raw materials for other industries, providing foreign earnings from exporting surpluses, and more importantly adding enormous value in its various production processes (Sertoglu *et al*., 2017). One of such agricultural products is rice.

Rice (Oryza sativa) is an important staple in Nigeria and is consumed nationally by all social and economic classes, its belongs to the family *Gramineae,* and is the second most widely grown cereal crop. Rice production is important in Nigeria and forms a vital element in the government's effort to promote food security and curb food import needed to feed the population (Amusa *et al*., 2020).

Different agro-ecological zones in Nigeria are favorable for rice production. Nigeria has good soil and climatic conditions suitable for rice production; this implies that rice can grow everywhere in Nigeria. Despite these potentials, the country produces only 3.2 million tonnes of paddy annually. However, compared to the annual consumption level of 5.2 million tonnes, the above estimate is far below the national requirement, since an average Nigerian currently consumes 40 kg of rice per year. Nigeria is ranked as the largest importer of rice in West Africa and among the highest rice importers in the world. Recently, Nigeria has been among the countries with the largest volumes of rice importation. This suggests that the country is not yet self-sufficient in rice production (Nwahia, 2021). The possible reason could be lack of access to financial services there by making them financially excluded.

According to Obisesan and Adeyonu (2018), there is a nexus between financial inclusion and the attainment of sustainable and productive farming. On the contrary, the sector (rice farming) suffers from a chronic inability to obtain finance from financial institutions. In the second quarter of 2019, agriculture received only 4.2% of commercial bank lending, while manufacturing received 15.3%, oil and gas received 22%, and services broadly received 36.5% (National Bureau of Statistics, 2019).

Financial inclusion refers to the availability and accessibility of financial services such as savings, credit, insurance, and payments to all individuals and businesses, especially those excluded from the formal financial sector. Financial services for smallholder farmers are critical to enable them to invest in the productivity and rehabilitation of their farms, reduce post-harvest losses and improve quality, enable access to markets, and smooth household cash flow. Pre-harvest finance allows farmers to access quality inputs that will increase productivity and crop quality, thus increasing farmers' income while ensuring a more reliable supply for buyers. Post-harvest finance is also critical for cost-efficient aggregation of crops.

Despite the recent financial sector growth in Africa, many individuals and firms are still excluded from access to formal financial services. Analysis of the access to and usage of financial services by adults and enterprises shows that African countries lag behind other developing economies in both aspects (African Development Bank, 2013). Nigeria is, however, not an exception, with a large population of financially unsaved people put at 46.3% in 2010. This suggests that agriculture is largely excluded from formal finance. This is supported by recent statistics which show that farmers are the largest group of financially excluded persons in Nigeria, as 37.6% of farmers are financially excluded. Availability of finance will go a long way in improving

output and productivity (EFInA, 2010; Paul, 2013).

The EFInA Access to Financial Services in Nigeria survey revealed that 34.9 million adults, representing 39.7% of the adult population, were financially excluded. Only 28.6 million adults were banked, representing 32.5% of the adult population, while a large proportion saves at home (Nwankwo *et al*., 2014). This results in billions of Naira being circulated through the informal sector, which has a negative impact on the country's economic growth and development. However, the vast majority of those who are fully excluded from formal financial services live in rural areas where agriculture is the predominant occupation.

Access to credit, payment services, and insurance products are essential to rural populations, especially farmers. Credit provides opportunities for farmers to invest and enlarge their businesses, thereby increasing productivity. Payment services give room for more efficient and less costly transactions, while insurance products help reduce their exposure to risk.

In Ikwo Local Government Area, the farmers, most of whom are small-scale rice farmers with little or no financial resources to carry out the farming activities. Government and non-governmental organizations have been providing loans at low interest rates, grants, and other financial services to rice farmers to boost production, but still, rice farmers in Ikwo are not fully benefiting because a majority of them are financially excluded. This has no doubt hindered rice productivity in the area. Many studies on financial inclusion have been carried out in other areas e.g., Uwuigbe and Olabode, (2020) and Ngwang and Bime, (2023). These studies found that financial inclusion among farmers is low, hindering the productivity of agriculture. In this study area, however, many studies have been carried out but have focused on economic analysis, costs, and returns such as Nashua (2020) and Nwahia (2021) among others. There is still a dearth of studies on financial inclusion among rice farmers in the area. It is in on the basis of the above that this study was carried out to analyze the influence of socio-economic factors on financial inclusion among rice farmers in Ikwo Local Government Area, Ebonyi State, Nigeria.

The specific objectives are to:

i. Assess the level of financial inclusion among rice farmers in the study area.
ii. Analyse the determinants of financial inclusion among rice farmers in the study area. iii. Identify the constraints Militating against financial inclusion among rice farmers in the study area.

Research Methodology

Study Area

The study was conducted in Ikwo Local Government Area, Ebonyi State, Nigeria. Ikwo Local Government Area is one of the 13 LGAs in Ebonyi State. The Local Government Area shares borders with Abakaliki and Izzi to the North, Ohaozara to the east. Ezza to the west and Cross River State to the south. It has an area of 500km2 and a population estimate of about 173,409 (NPC,2006) with a 2.5% annual change, the

population as at 2022 is 320,200. Ikwo LGA lies between Latitude 6°00'N and 6°20'N and Longitude 8°00'E and 8°20'E. East of the meridian.

Ikwo Local Government Area comprises of thirteen Communities, and the inhabitants speak Ikwo language (Ibo) and are predominantly farmers, traders and crafts men. Crops grown in the area include cassava, yam, maize, vegetables, tree crops like palm tree. Ikwo is widely known for its extensive cultivation of rice (Nwahia, 2021).

Sampling Procedure

A list of 2750 registered rice farmers was obtained from the Ebonyi State Agricultural development Project as of 2019, this constituted the sample frame from which a sample size of 96 farmers were obtained using the Taro Yamane formula for calculating sample size.

$$n = \frac{N}{1 + N(e)^2}$$

Where
n = the sample size
N = the finite population
e = the level of significance
1= Unit

$$n = \frac{2750}{1 + 2750(0.1)^2}$$

$$n = 96$$

Multistage sampling procedure was used to select the respondents for this study. In the first stage, 5 communities where rice is produced in commercial quantity were purposively selected from communities within the LGA. In the second stage, I clan was selected randomly in each of the communities selected. In the third stage, 19 rice farmers were surveyed from each of the four communities and 20 from one thus, a total of 96 respondents were surveyed.

Data Collection

To achieve the objectives of the study, primary data were collected using structured questionnaire. The questionnaire was designed to gather relevant information on the levels of financial inclusion, determinants of financial inclusion and constraints militating against financial inclusion.

Data Analysis

The study employed both descriptive and inferential statistics. Objective I was analyzed using descriptive statistical tools such as mean, frequency distribution table and percentages, objective 2 was analyzed using binary logistic regression model while objective 3 was analyzed using descriptive statistics.

Logistic (Logit) regression model

$L1=In(p/i-p)=Z1=Bo+B_1X_1+B_2X_2.....BnXn$

Where;

L=Logit

P=Probability of access to financial services for estimation purpose, we write equation I as

$L1=In(p/I-pi)=Bo+B_1X_1+B_2X_2+B_3X_3+B_4X_4+B_5X_5+B_6X_6+B_7X_7+B_8X_8+B_9X_9+B_{10}X_{10}+e$

Where;

L_1=access to financial services=1

No access to financial services=0

B_o=intercept

$B_i=B_{10}$=coefficients;

E=error term.

$X_1=X_{10}$=predictor variables, e=error term,

Estimation of variables

The variables were estimated as;

Y=dependent/outcome variable (y=1/x);
P (acct=$1/_x$) access... dummy: 1=own an acct; 0=otherwise;
X_1=Age (years);
X_2=Farm size (hectares);
X_3=marital status (1=married; 0=otherwise);
X_4=Distance to financial institution(km);
X_5=primary occupation (1=full-time; 0=otherwise);
X_6=Sex (male=1, female=0)
X_7=Annual income (naira)
X_8=Household size (No of individual);
X_9=Educational level (number of years of schooling);
X_{10}=Farming experience (number of years);
E=error.

Results and Discussion

Socio -economic characteristics of the farmers

The results showed that the mean age of the farmers was 44.6 years. The largest proportion of respondents (36.5%) fell into the age range of 40-49. This indicates that most of the farmers are still within their active and productive years. This is in line with Nwaiwu *et al*. (2014), who found that the mean age of farmers studied in Imo State was 41 years. A total of 53.1% of respondents were males, indicating the dominance of males in rice production. Okorie (2018), also reported that 58% of respondents in a study on youth involvement in agriculture in Enugu State were male. More than half of the respondents were married (58.3%), with a mean household size of 5 persons. This result indicates the availability of family labour for support on the farm. This corresponds with Ajeigbe *et al*. (2013), who recorded average household size of 5 persons in Kogi State, Nigeria.

The educational status of the respondents showed that the majority of the farmers had at least attended secondary school, with a mean value of 11 years. This implies that most of the rice farmers in the area could read and write, which could have a positive effect on the adoption of new agricultural technologies, such as accessing financial services. This confirms the report by Obasi *et al.* (2013), who found that the majority of farmers had attained secondary education in Imo State. The results equally revealed that 38 (40%) of the respondents were into full-time rice production while the remaining 58 (60%) took rice production as a part-time activity. This implies that majority of the farmers had secondary sources of income to augment their farm income. This contrasts Ojo *et al.* (2018), who reported that 62% of farmers in Ondo State were full-time. The mean farming experience was 9.77 years, with majority of the respondents (69%) having an experience of 1-10 years. This indicates that most of the farmers in the area have a fair knowledge of rice farming. This corroborates the findings of Nwaiwu *et al*. (2013), who found that over 50% of farmers studied in Imo State had 6-15 years of farming experience.

The mean income reported by respondents was ₦237,500.13, with the majority of respondents (73.9%) reporting an annual income ranging from ₦100,000 to ₦200,000. This indicates that a significant portion of the respondents had low-income levels. This finding is in line with work done by Fatoba (2011) in Osun State, which placed typical annual income for

smallholder plantain farmers between ₦100,000 to ₦300,000.

The mean distance to a bank was found to be 9.92km, indicating that farmers have to travel a long distance to access banking facilities, which in turn can discourage them from owning an account. Majority of the farmers (36.46%) travelled between 6-10km.

Level of Financial Inclusion

The results revealed that the majority of the rice farmers (85.4%) owned an account with a bank, which shows that the farmers are highly formally financially included. Also, 65.4% had not accessed credit from a bank, while the remaining (34.4%) had accessed credit from banks. This may be due to the difficulty farmers face in accessing loans, arising from the risks associated with farming. This agrees with Uwuigbe *et al*., (2020), who found that the use of mobile money was increasing rapidly in Nigeria but other services such as savings and credit were still underutilized.

Furthermore, the results revealed that majority (71.9%) had a savings account with either a micro-finance or commercial bank. This result implies that there is a high savings culture among rice farmers, which could in turn impact positively on their level of financial inclusion.

Determinants of Financial inclusion among Rice Farmers in Ikwo LGA

Table 3 presents the results of the logistic regression on the determinants of financial inclusion. Each coefficient is a partial slope coefficient that measures the change in the estimated log-odds for a unit change in the values of a given regressor (holding other regressors constant). The Nagelkerke R^2 from the results is 0.404 implying that 40% of the dependent variable is explained by the independent. The coefficient of income was significant at 1%, age was significant at 5%, while farm size, educational level, and farming experience were significant at 10%. This is in line Admiral *et al.* (2020), who found that age, educational level and farm size were significant factors that influence financial inclusion among women in Nigeria. Also, the income coefficient of 1.800 means that with other variables held constant, for each unit increase in income, the estimated log-odds of financial inclusion increase by 1.800, suggesting a positive relationship between income and financial inclusion. Farm income generated from rice sales significantly contributed positively to the inclusion of farmers. Therefore, an increase in farm income accounted for a greater likelihood of financial inclusion in the study area. According to several studies (Soumaré *et al*., 2016; Zins & Weill, 2016; Abel *et al*., 2018 and Ngwang and Bime, 2023), income is one of the main drivers that positively enhances financial inclusion. So, access to inputs and proper agronomic practices can be achieved through subsidies and training in order to enhance the return (benefit) from production.

Educational level is equally positive with a coefficient of .085, the implication is that increase in the educational level of rice farmers will also increase financial inclusion all things being equal. According to Le *et al.* (2019), higher literacy enables farmers to understand the pros and cons of financial services and enables them to use financial services wisely. The coefficient of farming experience was 0.008, an increase in the years of farming experience exhibited

a significantly higher likelihood of farmers being included than their fellow counterparts with lesser experience. Hence, experience just like knowledge in the mastery of farm operations enabled the farmers to be more productive. This in turn generated more farm income and with many years of farming, the farmers could realize the need for financial inclusion through which they were able to scale up their production by obtaining loans. (Ngwang and Bime, 2023). Thus, farm size, with a coefficient of 1.928, suggests that holding other variables constant, as farm size increases by 1 hectare, the estimated log-odds of financial inclusion increase by 1.928. This suggests a positive relationship between farm size and financial inclusion, contradicting Ngwang & Bime (2023), who found that when land size increases, there is a greater likelihood of financial exclusion. However, age had a negative coefficient (-0.041). This implies that as the age of the farmer increases, the log-odds of financial inclusion decrease, showing a negative relationship between the age of the farmer and financial inclusion. This is consistent with the study of Peña *et al*. (2014), Abel *et al*. (2018) and Ngwang and Bime (2023), where financial inclusion increases with age up to a particular age and then begins to fall due to the negative quadratic nature.

Constraints Militating Against Financial Inclusion amomg Rice Farmers in Ikwo LGA

The results in Table 4 showed that high interest rates were identified as the most serious constraints, with a mean score of 3.7396. This was followed by insufficient collateral, with a mean score of 3.6146. The results further revealed that a lack of (or inadequate) financial institutions, with a mean score of 3.4792, was equally a very serious constraint. This reiterates the findings of Ogunbiyi *et al*., (2018), who found that the lack of access to formal financial services, high interest rates, and inadequate collateral were major challenges to financial inclusion in Nigeria.

Conclusion

The study highlights a promising level of financial inclusion among rice farmers in Ikwo LGA with a significant majority holding bank accounts and maintaining savings. However, access to credit remains a significant challenge. Factors such as farm size, income, farming experience and educational level were found to positively influenced financial inclusion, while age presents a barrier to it. The major constraints militating against financial inclusion are high interest rates and insufficient collateral.

Recommendations

Based on the findings, the following recommendations are made:

1. There is a need to implement community-based training to educate farmers about financial services, loan processes, and credit management to increase awareness and understanding.
2. The formation of farmers' cooperatives should be encouraged to improve land access and bargaining power, thereby facilitating better access to loans and financial services.
3. The government and relevant stakeholders should work towards establishing commercial bank branches in the study area and ensure that rice farmers can access loans at concessionary interest rates.

4. Given, that income is significantly influenced by financial inclusion, farmers are therefore, encouraged to increase their income through diversification so as to increase their level of financial inclusion.

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Table 1: Socio-economic characteristics of rice farmers in Ikwo Local Government Area of Ebonyi State

Variable	Frequency(n=96)	Percentage	Mean
Age(year)			
20-29	8	8.33	
30-39	34	35.42	
40-49	35	36.46	
50-59	11	11.4	
60 and above	8	8.3	
Total	96	100	44.60
Sex			
Male	51	53.12	
Female	45	46.88	
Total	96	100	
Educational Level			
No primary education	6	6.25	
Primary education	23	23.96	
Secondary education	54	56.25	
Tertiary education	13	13.54	
Total	96	100	
Income			
100,000-200,000	71	73.9	
200,001-300,000	2	2.1	
300,001-400,000	4	4.2	
400,001-500,000	2	2.1	
500,001 and above	17	17.7	
Total	96	100	237,500.13
Household size			
1-5	63	65.6	
6-10	33	34.4	
Total	96	100	5

Marital status			
Married	56	58.3	
Single	40	41.7	
Total	96	100	
Farming experience			
1-10	66	69.0	
11-20	22	23.0	
21-30	5	5.0	
31 and above	3	3.0	
Total	96	100	9.77
Land ownership			
Yes	50	52.0	
No	46	48.0	
Total	96	100	
Occupation			
Farming	38	40.0	
Non farming	58	60.0	
Total	96	100	
Distance			
1-5	20	20.83	
6-10	35	36.46	
11-15	25	26.04	
16 and above	16	16.67	
Total	96	100	9.92

Source: Field survey, 2024.

Table2: Level of financial inclusion among rice farmers in the study area

Form	Frequency(n=96)	Percentage
Own an account		
Yes	82	85.4
No	14	14.6
Accessed loan		
Yes	33	34.6
No	63	65.4
Savings with bank		
Yes	69	71.9
No	27	28.1

Source: Field survey, 2024.

Table 3: Logistic regression on determinants of financial inclusion among rice farmers in Ikwo Local Government Area

Variable	coefficient(B)	SE	Z-statistics	Sig.	Exp(B)
X_1=age	-0.41	.036	-1.138	.057**	0.959
X_2=farm size	1.928	1.038	1.857	.083*	6.876
X_3=marital status	1.023	.735	1.392	.164	2.782
X_4=distance	.053	.090	0.589	.551	1.054
X_5=occupation	.348	.913	0.382	.703	1.416
X_6=sex	2.981	1.393	2.139	.245	1.092
X_7=income	1.800	1.236	1.456	.027***	6.050
X_8=household size	.094	.231	0.407	.562	1.098
X_9=educational level	.085	.135	.630	.064*	0.918
X_{10}=farming experience	.008	.078	0.103	.087*	1.008
Constant.	1.420	2.59	0.548	.436	4.137

NagelkerkeR^2 = 0.40= 40%
LR statistic (10df) =20.483
***, **, *=significant at 1, 5 and 10%
Source: Data analysis, 2024.

Table 4: Constraints Militating Against financial inclusion among rice farmers in the study area

Challenge/constraint	Mean	Rank
High interest rate	3.7396	1st
Lack of financial institutions	3.4792	3rd
Insufficient collateral	3.6146	2nd
Lack of awareness	3.4688	4th
Lack of financial literacy	3.1873	5th

Source: Field survey, 2024