Determinant of Saving Among Rural Farming Households in Udu Local Government Area, Delta State, Nigeria.

Oluwakemi AYAMOLOWO[1*], Samuel AWONIYI[2], *Jonathan AKINWALE* [3]

[1] Federal University of Technology Akure, School of Agriculture and Agricultural Technology, Department of Agricultural Resource Economics , 340252 Akure, Ondo State
[2] Joseph Ayo Babalola University, College of Agriculture and Natural Science, Department of Agricultural Economics and Extension, Ikeji- Arakeji, 233121, Osun States
[3]Federal University of Technology Akure, School of Agriculture and Agricultural Technology, Department of Agricultural Extension and Communication Technology, 340252 Akure, Ondo State
*Correspondent: olamidekemo@gmail.com; Mobil Number: +2348101271643

Abstract

Research Background: Low savings in an economy could lead to ineffective mobilisation of funds for domestic investment and is the reason for developing countries heavy dependence on external borrowing for developmental and investment projects. One area that can serve as elevation in an economy is the agricultural sector; therefore, the need to evaluate the household savings of the rural farming households (since a great percentage of agricultural production depends on this category) is crucial for the increase in the future investments.
Purpose of the Article: This study examined determinants of savings in Udu Local Government Area, Delta State, Nigeria.
Method: The multi-stage sampling procedure was adopted to randomly select 120 rural farming households. Only 109 rural farming households' savers were used for the descriptive analysis. Data was collected using a well-structured questionnaire and analysed using descriptive statistics and a logistic regression model.
Findings & Value: The results revealed that the mean age of the farmers was 44 years. Most (55.8%) were male with a mean household size of 10 persons and a mean annual income of ₦53,000 ($128.80). Rural farmers' identified savings purposes were children's school fees, debt defrayment, and emergencies. The 109 respondents who saved during the survey have an annual mean volume of savings of ₦17,000. The non-cash form was the most preferred form of saving by the farming households, and they were saved primarily for cooperatives. Educational level (negative), proximity to a bank, and farm size (both positive) are significant savings determinants among rural farming households. Therefore, enhancing their income and saving capacity requires improved access to land and education, especially lifelong learning, since most farmers are adults. In addition, financial institutions can embark on mobile banking to assist rural farmers in increasing their willingness and saving rate.
Keywords: Determinants of Savings; Rural Farming Households.

1. Introduction

The majority of the populace engaged in agriculture is evidence of the significant contribution of agriculture to Nigeria's economy. Meanwhile, inadequate market information, poor access to credit, dysfunctional market facilities, illiteracy, cultural and other socio-economic factors inhibit the sector's growth and development. Moreover, the poor saving attitude of the rural farmers hampered agricultural productivity and deepened their poverty level. A pathway to economic development, most especially from the household level to the whole country, is household savings.

In both developing and developed countries, it has been affirmed empirically of its role (i.e. household savings) in the circular flow of income in the economy (Mayer, 2018). The ability and opportunity of households to save and invest are linked to capital accumulation and economic growth (Obayelu, 2012). Therefore, addressing the factors constraining saving among farmers is a panacea to low economic growth in the country.

In developing a robust rural financial system, saving is crucial. Nevertheless, achieving this for peasant farmers has been a herculean task because of farmers' characteristics and agriculture peculiarities, especially in developing nations (Ogheneruemu et al., 2014). The attractiveness of agricultural investment must be very concerning for agriculture to compete with other industries or sectors for resources. Under this situation, household savings are central to increasing investment in the sector. Low savings in the economy could lead to ineffective mobilisation of funds for domestic investment, a probable reason for Nigeria's dependence on external borrowing for its developmental and investment projects. Inadequate savings by rural farmers is one of the fundamental problems confronting agricultural development in Nigeria, leading to low investment, productivity, and income. This situation has perpetuated the vicious cycle of poverty where most rural farmers find themselves because savings is inconsequential to poor households grappling with daily sustenance. This study investigates determinants of savings among rural farming households in Udu Local Government Area, Delta State, Nigeria, to suggest policy direction for enhanced saving in the area and rural prosperity.

2. Literature review

Past studies bared the major reasons people choose to save (). Some are related to regular expenses, making emergency needs, purchasing regulating fees, providing a sense of security in case of unusual situations, and reserves for leisure and pleasure are the most popular motivations for saving (Chudzian et al., 2015). Likewise, a variety of motives for household savings from theoretical literature reveals many variables that may influence household saving decisions. Temam et al. (2018) study in Ethiopia revealed gender, age, household's family size (both working or not) and distance to financial institution (km) to be negatively associated with household saving. An indication that an increase in one of these variables would decrease households saving. In contrast, respondents' educational level and experience, interest in saving, primary occupation, household income, and total farm size positively correlates with rural household saving. An indication that the covariates moved in the same direction as rural household savings. Also, Odoemenem (2013), in his studies on saving and investment patterns of small-scale farmers of Benue State, Nigeria, used a multiple linear regression model that showed that income and sex were determinants of savings. Further study on household savings behaviour showed that the ability to save, which is contingent on household disposable income and expenditure, propensity to save as influenced by socio-cultural and economic factors like the family's obligation to educate children and the returns on savings were the three determinants of savings behaviour of households in Africa (Thomas et al., 2014).

3. Methodology

3.1. Study Area: The study was done in Udu Local Government Area of Delta State, Nigeria, with coordinates 5^0 45'North and 5^0 43' East. Udu has 142,480 people spread across about 137 km^2 in the evergreen tropical rainforest (National Population Census, 2006). Udu's natural resources include rubber and rubber products, palm oil and palm oil products, cassava, fruits, vegetables and maize available in large quantities.

3.2. Sampling Procedure: The population was sampled using a multi-stage sampling technic. Udu Local Government has 32 communities which are in three sections. Evwrirhe section was selected

from the three due to its centrality and higher population. Eight communities out of the 26 were selected purposively, while 15 farming households from each of the eight communities were randomly selected for proximity and cost. About 120 farming households were sampled and only109 of them were involved in saving. The entire sample was used in the Logistic regression but only 109 that saved were used in the descriptive analysis.

3.3. Method of Data Collection: Data was obtained from primary sources through a well-structured questionnaire. They were administered to the occupants of the study area to sample opinions and have various views about the study. The information gotten includes socio-economic characteristics of the rural households, reasons for savings, determinants of savings and place of saving.

3.4. Data Analysis: The data were analysed using descriptive and inferential statistical measures such as frequency counts, means, percentages, tables, and Logistic Regression Analysis. Descriptive statistics were used to analyse the socio-economic characteristics of the respondents, saving patterns, and reasons for savings. It involves using central tendency such as mean, frequency distribution, percentage, and variance.

3.4.1 Logistic regression analysis

Logistic regression analysis was used for determinants of savings. This technique is selected to determine the factors affecting savings among rural farming households in the study area. The logistic regression equation is:

$$\ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9$$

Y_i (dependent variable) = Save = 1; don't save = 0

X_1 = Gender (male = 1; female = 0)
X_2 = Age (years)
X_3 = Marital status (married = 1; others = 0)
X_4 = Education years (years)
X_5 = Household size (number)
X_6 = Annual income (naira)
X_7 = Farming experience (years)
X_8 = Farm size (hectares)
X_9 = Bank distance (km)

4. RESULTS AND DISCUSSION

Socio-economic Characteristics of Rural Farming Households.

Findings show that the modal age ranges between 38-47 years (33.33%), followed by ages between 48-57 years (27.5%). The mean age is 44 years, implying that most farmers are still young active and productive adults who can withstand most farming operations and stress. Hlouskova et al. (2020) research on age implication in agricultural production to cost revealed that the younger farmer group has the best ratio of total production because of the ability of this segment of the population to effectively withstand the strictness, strain and stress involved in agricultural production. The stage is their active period in which the family fully engages them. As depicted in table 1, 55.8% were male while 44.2% were female. Males were more into farming than females, probably resulting from the women's domestic responsibilities.

The findings reveal that 68.3% of the respondents are married and it is expected given the age distribution of the sample. Therefore, most rural farming households would have significant financial responsibilities at home, like meeting children's demands, household sustenance and many more.

Many of the farmers had some form of formal education qualification as the mean years of education is eight years and about 40.8% had 7 -13 years, while 9.2% had 14 – 20 years. However, about 50% of the farmers have no primary school leaving certificate because they had less than six years of formal education Possession of literacy (ability to read and write) would enable the farmers to utilise effectively and efficiently better whatever available resources in the area. Ninh (2020) theorised that education enhances farmers' ability to receive, decode and understand information, thereby increasing their innovative receptiveness to develop pertinent and appropriate solutions to low agricultural productivity in the developing world.

Table 1 shows that 47.5% of the rural farmers had 6-10 household size, 18.3% had 11-15 household size and 17.5% had 1-5 household size. Finally, 16.7% had >15 household size with a mean household size of 10 persons (approximately). Farming households in the study area had moderate to large family sizes, positively influencing farming productivity. Ariyo (2020) corroborates the finding that relatively large household size may likely enhance the farm labour supply, thereby favouring the farmers' productive capacities already enhanced by their age. However, it also implies an increase in consumption expenditure which does not favour an increased saving capacity of the rural farming households.

The majority (85.83%) of the respondents were fully involved in farming with few having a secondary occupation, indicating that farming is the respondents' primary livelihood source, which aligns with the *a priori* expectation. Also, some combine farming, crafts and arts in varying degrees.

The farming experience distribution of the farmers shows that 34.2% of the farmers had <10 years of farming experience while 40% had 11 – 30 years experience with a mean of 22 years (approximately). Farming experience is a measure of management ability; thus, the more experienced the farmers are, the more they can make productive farm decisions that increase their output and income. John & Johnny (2014) research suggested using farming experience for adopting technology at an early stage when farmers are still testing its potential benefits, which later determines its retention or non-adoption over time, supporting this study result.

Table 1 also reveals that 79.2% of the farmers had 0.2 – 2.5 hectares, 16.67% had 2.6 – 5.1 hectares, 2.5% had 5.2 – 7.7 hectares, and 1.67% had >7.8 hectares of farmland. The mean farm size is 2 hectares. According to Oluwatoba (2021), small-holders ability to expand the scale of their activities could substantially increase farm productivity, thereby increasing their income and solving food insecurity in Nigeria and also be applicable for the rural farming households in this study area.

Furthermore, about 75.8% of the rural farmers had to cover 1 – 5 km to transact business in banks, while 24.2% covered 6 – 10 km distance with a mean of 5km. The additional cost of transporting to the bank could affect their saving ability. The distance covered by the farmers is considerably large and could impede saving as most rural farmers lack mobility means to reach the financial institutions mainly located in the urban areas. The nearness of financial institutions encourages saving and deposits and reduces the cost and risks associated with cash movement when needed by the rural farming households. Masaood & Keshav (2020) stated that small farmers are always in need of money at the start of a season to purchase necessary farming inputs and to smooth consumption unto the harvest; therefore, the nearness to a financial institute is crucially important.

About 89.2% of the farmers earned less than ₦90,000 as their annual income. The farmers earn low income probably due to low input levels and other factors. Some (7.5%) earned income ranging between (₦90,000 – ₦149,999), 1.7% earned (₦150,000 – ₦209,999), and another 1.7%

earned income greater than ₦210,000 annually. Low income earners may be indisposed to saving minding their pockets. The low agricultural yield was experienced by 38.3%, moderate yield by 35.8%, 13.3% of the farmers have very low yield and 10.8% have a high yield. Only a few (1.7%) have a very high agricultural yield from their farms. The low rate of agricultural yield could reflect their small farm size, which could influence their saving.

Table 1: Socio-economic Characteristics of the Rural Farming Households

Personal Characteristics	Category	Frequency	Percentage	Mean
Age (years)	<27	12	10.0	
	28-37	23	19.2	
	38-47	40	33.33	44
	48-57	33	27.5	
	>58	12	10.0	
Gender	Male	67	55.8	
	Female	53	44.2	
Marital Status	Married	82	68.3	
	Single	14	11.7	
	Divorced	12	10.0	
	Widowed	12	10.0	
Educational level	Primary	47	39.2	
	Secondary	24	20.0	
	Tertiary	18	15.0	
	Informal	28	23.3	
	None	3	2.5	
Education Years	<7	60	50	
	7 – 13	49	40.8	8
	14 – 20	11	9.2	
Household Size	1-5	21	17.5	
	6-10	57	47.5	10
	11-15	22	18.3	
	>15	20	16.7	
Occupation	Farmers alone	103	85.83	
	Traders	61	50.83	
	Civil Servant	7	5.8	
	Vocation/Apprentice	10	8.3	
Farming Experience (Years)	<10	32	26.7	
	10-30	68	56.7	21
	31-50	18	15	
	>50	2	1.7	
Farm size (Hectares)	0-2.5	95	79.2	
	2.6-5.1	20	16.67	2
	5.2-7.7	3	2.5	
	>7.8	2	1.67	
Distance to Bank (Km)	1-5	91	75.8	5
	6-10	29	24.2	

Annual Income (₦)	<90,000	107	89.2	
	90,000-149,999	9	7.5	
	150,000 – 209,999	2	1.7	53,000
	>210,000	2	1.7	
Farm Yield	Very high	2	1.7	
	High	13	10.8	
	Moderate	43	35.8	
	Low	46	38.3	
	Very Low	16	13.3	

Source: Field Survey 2020

4.1. Saving Pattern of the Rural Farming Households

Saving Attitude of the Rural Farming Households: Table 2 shows that 90.8% of the rural farming households save while 9.2% do not. This shows that a great proportion of the farmers have saving culture.

Table 2: Distribution of the Saving Attitude of the Rural Farming Households

Saving Attitude	Frequency	Percentage
Save	109	90.8
Don't save	11	9.2
Total	**120**	**100**

Source: Field Survey 2020

4.2. Saving Periods of the Rural Farming Households

Table 3 shows that 66.1% of the rural farming households maintained savings daily, weekly (11.9%), monthly (17.4%), and annual (4.6%) basis. Daily saving is the most preferred because it is sourced from daily sales of their farm produce, especially during harvest periods, and from their secondary occupation. Monthly saving is next and common among those involved in cooperatives. Yearly saving is rare because their agricultural produce does not have that long gestation period, hence the preference for daily saving.

Table 3: Distribution of the Farmers Saving Preferred Periods

Saving periods	Frequency	Percentage
Daily	72	66.1
Weekly	13	11.9
Monthly	19	17.4
Yearly	5	4.6
Total	**109**	**100**

Source: Field survey, 2020

4.3. Savings Forms of the Rural Farming Households

Table 4 shows that 82.6% saved in cash forms while 91.7% saved in non-cash form. Thomas et al. (2014) also reveal that households often keep their savings in the form of liquid assets such as gold, jewellery, livestock or cash (at home and/or short-term deposits at financial institutions).

Table 4: Distribution of the Savings Forms of the Rural Farming Households

Savings Forms	Frequency	Percentage
Cash	90	82.6
Non-cash	100	91.7

*Multiple Responses N= 109
Source: Field survey, 2020

4.4. Place of Saving by the Rural Farming Households

Table 5 reveals livestock production (71.6%), crop production (71.6%), building houses (55%), and farmland (45.9%) as non-cash saving methods. Meanwhile, cooperatives (85.3%), cash at home (47.7%), banks (45%), and moneylenders (33.9%) were identified as cash saving methods. High prevalence of cooperatives can be attributed to the ease of accessing loans from cooperatives. In addition, maintaining high liquidity to solve immediate problems and avoiding traveling far distances to withdraw cash from banks favoured cooperatives. Obayelu's (2012) investigation of rural saving behaviour revealed that most rural households in Nigeria saved within their environment (cooperatives, homes, etc.) while the least saved at banks.

Table 5: Distribution of the Rural Farming Households according to their saving place.

Saving Pattern	Place of saving	Frequency	Percentage
Cash	Banks	49	45
	Cooperatives	93	85.3
	Moneylender	37	33.9
	Cash at home	52	47.7
Non-cash	Farmland	50	45.9
	Livestock	78	71.6
	Crops	78	71.6
	Building House	60	55

*Multiple responses recorded (N=109)
Source: Field survey, 2020

4.5. Amount Saved by Respondent

Table 6 shows that 53.2% saved below ₦10,000 while 42.2% saved between ₦10,000 to ₦49,999, 2.8% saved between ₦50,000 to ₦99,999 and 1.8% saved greater than ₦99,999. The mean amount saved is ₦17,000. This result shows that the amount being saved annually by the rural farmers is low.

Table 6: Distribution of the Amount Saved by the respondents

Amount Saved (₦-Annual)	Frequency	Percentage
< 10,000	58	53.2
10,000 – 49,999	46	42.2
50,000 – 99,999	3	2.8
>99,999	2	1.8
Mean	17,000	

Total	**109**	**100**

Source: Field Survey 2020

4.6. Reasons for saving

Table 7 shows that 82.6% saved for children's education, 55% for debt defrayment, 50.5% for emergencies, 45% for agricultural investment and 22% for building projects. However, only 2.8% saved for retirement, indicating their low educational level, lack of knowledge of financial planning and probably poverty.

Table 7: Reasons for saving

Reasons	Frequency	Percentage
School Fees	90	82.6
Pay off debt	60	55.0
Emergencies	55	50.5
Investment	49	45.0
Building houses	24	22.0
Retirement	3	2.8

*Multiple responses N=109 **Source: field survey 2020**

4.7. **Factors Affecting Savings**:

The logistic regression analysis results in Table 8 indicate that the coefficient of determination (Negelkerke R^2) was 0.891, signifying that about 89.1% of the total variation observed in the dependent variable was explained by the explanatory variables ($X_1 - X_9$) included in the model. Educational level is negative and a significant predictor of the probability of saving. The Odd Ratio on the educational level is < 1 indicating that for every one unit increment on the predictor, the odds of saving increase by a factor of 0.488 (meaning that the odds of saving are decreasing). Contrary to the a *priori* expectation, education did not influence their saving probably because education requires money, thereby increasing the consumption rate. It could also be an interplay of covariates, income and household size, as farmers in the developing counties usually keep high household sizes for cheap farm labour.

Bank distance (km) is negative and a significant predictor of the probability of saving. The Odd Ratio indicates that for every one unit increase on this predictor, the odds of saving change by a factor of 0.017 (meaning that the odds are decreasing). It reflects in the choice of where to save. The rural farming households preferred other places of saving apart from banks due to their proximity and accessibility.

Farm size (hectares) is positive and a significant predictor of the probability of saving. The Odd Ratio indicates that for every one unit increase on this predictor, the odds of saving change by a factor of 3041.860 (meaning the odds are increasing). An increase in the farm size of the rural farming households would increase agricultural productivity, thereby increasing income and saving ability.

Table 8: Logistics Regression Result of the Factors Affecting Savings

Variables	B	S.E.	Sig.		95% C.I.for EXP(B)	
				Exp(B)	Lower	Upper
Constant	14.813	11.083	0.181	2710123.85		
Gender	4.941	3.971	0.213	139.864	0.058	335426.459
Age	-0.109	0.101	0.282	0.897	0.735	1.094
Marital Status	-2.619	2.079	0.208	0.073	0.001	4.286
Educational level (years)	-0.718	0.388	0.064*	0.488	0.228	1.042
Household size	-0.762	0.535	0.154	0.467	0.164	1.331
Annual income	0.005	0.008	0.628	1.000	1.000	1.000
Farming experience	0.278	0.178	0.119	1.320	0.932	1.870
Farm size	8.020	4.067	0.049**	3041.860	1.050	8813346.614
Bank Distance (km)	-4.099	2.055	0.046**	0.017	0.000	0.932

Source: field survey 2020

Nagelkerke R Square = 0.891 Significance level:** $p < 0.05$, * $p < 0.10$

5. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

It can be deduced that the rural farming households participate in savings irrespective of their income and have the potential for the overall growth of national savings in Nigeria. Findings from this study confirmed and identified factors affecting saving among rural farming households in Udu Local Government Area. Farm size and bank distance have a positive significant (their increase would lead to an increase in saving) effect on the farmers' willingness to save in the study area, while the educational level is negative and significant (an increase would lead to a decrease in saving). The rural farming households choose to save mainly for children's education and debt defrayment. They also save in financial institutes favourable to them in terms of distance and accessibility to loans.

5.2. **Recommendations:** The following are recommended based on the findings:

i. Rural farmers should be encouraged to continue saving in their various cooperatives to have access to loans, increase their agricultural production, and increase their income level.
ii. Both private and public banks should be encouraged to establish branches in rural areas to reduce the distance that would help improve rural farmers' savings thereby enhancing financial inclusion.

iii. The rural farmers should also be encouraged to keep big farm size through a good and favourable land tenure system that discourages land fragmentation.
iv. Education in rural areas should be given priority by the government and at a low cost to enable farmers to save more and prevent spending a more significant percentage of their income on their children's education. In addition, financial education could also be added to encourage the farmers to save more.

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