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Rural Household Savings and Financial Inclusion as Determinants of Sustainable Rural Economic Growth in Nigeria

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ABSTRACT

This study investigated the determinants of savings among rural households in Kebbi State, Nigeria, using data from 240 respondents selected through a multi-stage random sampling technique across 16 villages in 4 LGAs. Data were collected using structured questionnaires and analyzed with descriptive statistics and linear regression models. The results revealed that most respondents (31.7%) were aged 41–50 years, 75% were married, and 84.2% were male. Households were typically large (66.7% had 6–10 members), with 32.1% having 10–20 years of farming experience. Annual incomes for 58.7% of respondents ranged between ₦120,001 and ₦240,000, with crop farming as the primary occupation (53.3%). Land was mostly inherited (56.7%), and farm sizes were generally small (1–5 hectares). while 41.7% traveled 11–20 km to access financial institutions. The regression results showed that interest rates and expenditure had significant positive effects on savings, whereas distance to banks negatively influenced savings. Low savings capacity emerged as the main barrier, as resources barely covered basic needs. The study recommends diversifying income sources and expanding rural banking infrastructure to stimulate savings culture and financial inclusion.

KEYWORDS: Household saving, incomes, rural finance, financial inclusion, financial literacy

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INTRODUCTION

Savings, which are defined as the amount of income that is not spent on current consumption is an important flow variable that causes capital accumulation and poverty alleviation (Olusoji, 2003; Bime, 2008). The principal determinants

of savings mobilization are generally known to include income level, financial literacy, availability of savings institutions, and culture of savings (Awosika & Noke, 1993; Odoko et al., 2004). Recent research shows the critical nature of savings in development: since savings-led programs targeting low-income household savings (such as the Savings and Internal Lending Communities (SILC) developed in Lesotho and Zambia) have been shown to promote greater income, greater asset accumulation, and overall improved welfare (Makara et al., 2024; Chewe et al., 2024), and community saving groups in Uganda have been shown to contribute better overall livelihood due to greater access to education, healthcare, and nutrition as a result of their improved savings habits (Okuna et al., 2023). In Nigeria, financial inclusion benefits savings and poverty reduction in the short run (Akande et al., 2024; Nwadike & Ani, 2024).

Household savings are fundamentally necessary for economic growth, because they not only improve welfare, but they provide a buffer against shocks, and allow for capital to be accumulated as a driver of growth (Iyoha et al., 2003; Zeller & Sharma, 2000). A healthy financial system enabler savings mobilization, because the system connects the saver with borrowers, lowers transaction costs, creates liquidity, shares risk, and channels resources into productive investment (Shaw 1973; Gibson et al., 1994). However, in Nigeria, savings mobilization has consistently been weak given the low deposit rates, poor financial habits, and limited access to formal pathways to save (Nnanna et al., 2004; Odoko, 2004). Most recently, evidence shows that while there are barriers to household savings attributable to gaps in financial literacy and lack of physical local patronage, there are noteworthy attempts by some to use digital finance and mobile money to broaden participation (Adegbite & Akande, 2023; Afolabi, 2024). Household savings appear to always be a fundamental part of sustainable economic growth, but governments must engage in policies that empower financial inclusion and improve intermediation (Omodero, 2023).

Nigeria's savings culture is still very weakly developed compared to other developing economies. These factors deter households from saving at formal financial institutions, especially in rural households: poor banking habits; the failure of banks to cater for small savers; lack of employment in the formal sector; and systemic instability (Uremadu, 2006; Tochukwu & Festus, 2008). Weak agricultural output, high propensity to consume (in contrast to save), and poor financial literacy, are restricting rural savings more than most people realize (Inaya, 2011; Yaron et al., 1997). Despite the efforts of the government’s policy to establish more banking facilities (i.e rural banking scheme, micro-finance, community banks), not much has been done to mobilize savings, which would have provided scope to invest and diversify Nigeria's borrowing base (Romy, 2002). Recent scholarly work still maintain that inadequate financial literacy and rural infrastructures are major barriers to savings, though digital finance, i.e. mobile money, are now starting to positively impact participation (Adegbite & Akande, 2023; Omodero, 2023; Afolabi, 2024). Nevertheless, it is astonishing to see the extent of the gap that still exists and that there is an urgent need to change and enhance the mobilization of savings and, thereby, support sustainable rural economic growth in Nigeria.

RESEARCH METHODS

This study was conducted in Kebbi State, Nigeria. It is located in North Western part of Nigeria which lies between latitudes $10^0$8'N and $13^0$15'N and longitudes $3^0$30'E and $6^0$02'E. The area falls within the dry Savanna agro ecological zone of Nigeria with an average annual rainfall of between 650mm and 1100mm, with distinct wet (May-October) and dry (November-April) seasons (Tanko, 2004). Farming constitutes the major occupation of the rural people. Major tree crops grown in the area are mango, cashew, etc. and food crops grown are cassava, potato, rice, millet, maize, sorghum, cowpea, ground nut, sesame, etc. Among the livestock raised in kebbi state are poultry, pig, sheep, goat, and rabbit. Other sources of livelihood in the rural areas are craft making, processing, trading, civil service, hunting, transporting, fishing and small-scale industrial activities. The estimated population of about 3,630,931 people (NPC, 2006). The estimated population by 2013 was 9,860,521 people.

The state has twenty-one (21) Local Government Areas which are grouped in to four agricultural zones in the state, namely; Argungu, Bunza Yauri and Zuru. Kebbi State was chosen for the study due to the existence of large volume of economic activities in the area, which has made it possible for the location of banks in the areas. Again, semi- formal and informal financial intermediaries are operating under different names in the area such as *jojima, asusu, adashe,* etc

Multistage random sampling across two ADP zones (Bunza, Argungu). Two LGAs were chosen from each zone (Aliero, Argungu, Bunza, and Kalgo). Eight villages per LGA were selected, and 15 households per village (total 240 households). Data sources: structured household questionnaires, key-informant interviews with bank and non-bank staff, and secondary records. Descriptive statistics and multiple linear regressions were used to analyze household saving determinants and institutional mobilization drivers. Key variables included: household saving, age, farm size, household size, annual income, dependency ratio, interest rate, distance to formal financial institution, membership in savings groups, and asset/financial net-worth.

To achieve objective 3 an empirical model was specified. A linear regression model on savings adapted from Rogg (2000), Kibet *et al*. (2009), and Haruna (2011) was used. Earlier studies assumed linearity because the aim of the study was to test whether there existed any association between the variables under study. However, this study experimented with four different equation forms which were fitted to the data.

The implicit form of the regression model was specified as:

$$Y = f(X_1,X_2,X_3,X_4,X_5,X_6,X_7,X_8,X_9,X_{10},X_{11},u) \quad (1)$$

Where,

Y = amount of savings (Naira) (from both formal financial and non-financial institution accumulated within one year);

X_1 = Age of respondent (years); X_2 = Farm size (hectare); X_3 = Household size (number of persons); X_4 = Amount of personal (disposable) income (₦); X_5 = Dependency ratio; X_6 = Interest rate on savings (%); X_7 = Level of education (No. of years spent in school); X_8 = Membership of organized group or association; X_9 = Distance to financial institution (km); X_{10} = value of household assets (₦); X_{11} = Expenditure (₦); u = Error term.

The functional forms of the regression model namely, double logarithmic (Cobb-Douglas) form fitted to the data. The Cobb-Douglas model was adjudged to be the best based on the normal economic, econometric and statistical criteria were

used for further analysis. The explicit form of the models is:

Double log (Cobb-Douglas):

$\ln Y = \ln\beta_0 + \beta_1\ln X_1 + \beta_2\ln X_2 + \beta_3\ln X_3 + \beta_4\ln X_4 + \beta_5\ln X_5 + \beta_6\ln X_6 + \beta_7\ln X_7 + \beta_8\ln X_8 + \beta_9\ln X_9 + \beta_{10}\ln X_{10} + \beta_{11}\ln X_{11} + u$----------(2)

Where,

ln = Natural logarithim β_0 = constant term, β_1 – β_{11} = Parameters to be estimated X_1-X_{11} and u are as previously defined.

The *a priopri* expectations regarding the signs of estimated regression coefficients are as follows:

$\frac{\partial y}{\partial x1} < 0$ (β_1) i.e. negative. This implies that as the age of the household head increases, the propensity to save declines.

$\frac{\partial y}{\partial x2} > 0$ (β_2) i.e. positive. It implies that as the farm size increases, the tendency to save increases. This is because; larger farm sizes imply increased utilization of production inputs.

$\frac{\partial y}{\partial x3} < 0$ (β_3) i.e. negative. This implies that larger household sizes and larger number of children in the family is expected to reduce the amount of savings by the household as resources would be needed to cater for the needs of members.

$\frac{\partial y}{\partial x4} > 0$ (β_4) i.e. positive. This implies that income and saving are positively related. Wealth ~~is~~ has been shown to be an important determinant of household saving.

$\frac{\partial y}{\partial x5} < 0$ (β_5) i.e. negative. This implies that household income will be depressed owing to larger family size.

$\frac{\partial y}{\partial x6} > 0$ (β_6) i.e. positive. This implies that the rate of interest on savings, the higher the propensity to save.

$\frac{\partial y}{\partial x7} > 0$ (β_7) i.e. positive. This implies that higher levels of education improves awareness and financial literacy of household by enabling them to comprehend the complex procedures, formalities and associated risk and returns involved in various financial instruments and institutions.

$\frac{\partial y}{\partial x8} > 0$ (β_8) i.e. positive. This implies that members of co-operatives/organizations are likely to save more because of the orientation and savings mobilizing stance of cooperative societies.

$\frac{\partial y}{\partial x9} < 0$ (β_9) i.e. negative. This implies that households whose financial institutions are far away from them tend to be discouraged from saving.

$\frac{\partial y}{\partial x10} > 0$ (β_{10}) i.e positive. Households with more assets tend to be wealthier and consequently save more.

$\frac{\partial y}{\partial x11} < 0$ (β_{11}) i.e. Negative. This implies that households with huge expenditure are less likely to save.

RESULTS AND DISCUSSION

The results revealed that most households were male-headed (84%), married (75%), and in the 41–50 years age group, with household sizes typically 6–10 members. The vast majority were engaged in farming as the primary occupation (≈53%), and most cultivated between 1–5 hectares of land. Their reported yearly expenditure typically fell in the range of ₦120,001–₦240,000, while many had an income of between ₦960,001 and ₦1,200,000. The survey results reflect similar overall evidence from rural Nigeria that large household sizes, dependence on agriculture for occupation and seasonal income flow limit savings (Rowland, 2022; EFInA, 2021; Lukwa, 2022). Recent research has also similarly noted that the socio-economic characteristics were substantial into determine financial inclusion and their associated saving behavior. However, Zambrano et al., 2023;

UNCDF, 2024 reported that Household demographics and farm-based livelihoods are critical features of income variability and ability to save.

Table 1
Distribution of Respondents by Socioeconomic Characteristics of Respondents

Variables	Frequency (214)	Percentage %
Marital Status		
Married	180	75.0
Single	21	8.8
Divorced	21	8.8
Widowed	18	7.4
Sex		
Male	202	84.2
Female	38	15.8
Age		
21–30	48	20.0
31–40	59	24.6
41–50	77	32.1
51–60	38	15.8
61 and above	18	7.5
Household Size		
<5 Members	65	27.1
5-10	160	66.7
11-15	12	5.0
16-20	2	0.8
21 and above	1	0.4
Primary occupation		
Crop production	128	53.3
Fishing	29	12.1
Livestock production	52	21.7
Orchard/Forest exploitation	31	12.9
Farm Size (ha)		
<1	3	1.3
1-5	104	43.3
6-10	101	42.2
>10	32	13.3
Annual Income		
<240,000	30	12.5
N 240,001 – N 480,000	10	4.2
N 480,001 – N 720,000	50	20.8
N 720,001 - N960,000	20 90	8.3 37.5
N 960,001 - N1,200,000	40	16.7
>1,200,000		
Annual Expenditure		
< 120,000	70	29.2
N120,001- N 240,000	141	58.7
N 240,001- N360,000	6	2.5
N 360,001- N 480,000	3	1.3
>N 480,000	20	8.3

Source: Field Survey, 2023

Participation of Respondents in Savings

The main factor that determines the level of saving by households is the actual participation/ contribution by the respondents. Distribution of respondents according to participation in savings is presented in Table 2.

Table 2
Distribution of Respondents according to Mode of Savings

Mode of savings.	Frequency	Percentage
Formal Financial Institution	55	25.7
Informal Financial Institution	159	74.3
Total	**214**	**100.0**

Source: Field Survey, 2023

In Table 2, 25.7% of respondents saved at formal financial institutions while the remainder saved in informal mechanisms, based on a high degree of flexibility and accessibility. Although formal saving is less risky and highly-interest bearing, challenges such as a lack of bank presence, poor outreach, and operational inflexibility lead to infrequent use. Recent research indicates the robust presence of informal savings groups in rural Nigeria, (Zambrano et al., 2023; Lukwa, 2022), but access to formal

banking is slowly improving as a result of the growth in microfinance banks and agent banking.

Constraints to Savings and Savings Mobilization

The principal obstacles to saving were limited knowledge of financial institutions (27.3%) and remoteness from banks (19.6%), with reported absence of local branches (16.3%) and insufficient literacy (14.6%) following closely behind. Other constraints were the lack of guidance, bad banking practices, and sectoral instability were less frequently reported. These results are consistent with recent evidence showing that spatial inaccessibility, insufficient literacy and limited financial awareness have continued to be fundamental constraints to rural financial inclusion in Nigeria (EFInA, 2021; Rowland, 2022; UNCDF, 2024; Lukwa, 2022). A means to mediate those constraints is enhancing agent/mobile banking and financial literacy (Zambrano et al., 2023 and VoxDevLit, 2023).

Table 3

Distribution of Respondents according to Constraints on Savings

Constraint	Frequency*	Percentage
Poor Banking Habit	11	4.6
Poor Orientation	17	7.1
Absence of bank branches	39	16.3
Lack of access roads	14	5.8
Instability in the banking industry	10	4.2
Lack of full knowledge on how the financial institution operate	65	27.3
Unstable political system	5	2.1
Distance to financial	47	19.6
Non literacy	59	14.6
Poor market structures	8	3.3

Source: Field Survey, 2023

Note: * multiple responses recorded

Determinants of Savings

The determinants of savings in the study area were examined using Ordinary Least Squares (OLS) multiple regression analysis. The functional forms of the regression model namely, Double logarithmic (Cob-Douglas) fitted to the data. The model adjudged to be the best based on the normal economic, econometric and statistical criterion was used for further analysis. The results of the analysis are presented in Table 4.

Table 4 indicates that the Cobb-Douglas (Double Log) functional form provided the best fit for modeling household savings, based on the coefficient of multiple determination (R^2), conformity of coefficient signs with a priori expectations, number of significant variables, and the F-ratio. The chosen model had an R^2 value of 0.641, suggesting that 64.1% of the variation in household savings was explained by the explanatory variables, while the remaining 35.9% is due to omitted factors and random errors.

The model contained eleven explanatory variables, of which three were found to have significant impacts on saving: interest rate, household expenditure and distance to financial institutions.

Table 4

Regression Estimates of the Double Log Regression Model of Savings

Independent Variables	Regression Coefficient	T-Values	Beta Coefficient
Constant	-17.919	-4.039	
	(0.000)		
Age	0.661	1.024	0.058
	(0.307)		
Farm Size	0.268	1.126	0.045
	(0.261)		
Household size	-0.027	-0.117	-0.007
	(0.907)		
Annual Income	0.164	0.830	0.034
	(0.407)		
Dependency ratio	0.279**	1.683	0.072
	(0.094)		
Educational Level	-0.020	9.632	-0.005
	(0.000)		
Organized Farmers group	2.462	1.895	0.077
	(0.059)**		
Distance	-0.262**	-1.858	-0.075
	(0.064)		
Value of house hold asset	-0.336	-1.618	-0.066
	(0.107)		
Interest rate	1.434	9.632	0.402
	(0.000)		
R^2	0.641		
R^2 adjusted	0.624		
F- ratio	37.071		

Source: Field Survey, 2023

Note: *** Significant at the p<0.01 level; ** Significant at the p<0.05 level; * Significant at the p<0.10 level.

Interest rate (coefficient = 1.434, $p < 0.05$): The positive and significant coefficient indicates that higher interest rates on savings increased the likelihood and amount that respondents saved, as expected. These results are in line with (Rowland, 2022; EFInA, 2021)who reported that the emerging evidence suggesting that when rural households perceive financial returns as a 'strong-enough' incentive to switch from informal to formal saving, they are likely to increase saving in formal institutions those institutions are accessible and credible.

Household expenditure (coefficient = 2.116, $p < 0.05$): The coefficient can be interpreted with a positive sign; however, the reality of high household expenditure points to resource constraints and a lowered ability to save. Larger household sizes household size and associated consumption obligations typically consume household income that could otherwise be spent on saving, consistent with an understanding that higher dependency ratios carry lower propensity to save (Lukwa, 2022). Studies Zambrano et al., (2023) reveals that consolidated from across Africa have confirmed that rural households are slashing saving rates largely as a result of rising living costs and consumption behaviours.

Distance to banks and other financial institutions (coefficient = -0.262, $p < 0.05$): The negative coefficient is significant and makes it clear that physical

distance represents an actual and serious geographic barrier to formal saving. Respondents who were further away from formal banking or microfinance outlets were less likely to save. This finding aligns with more recent literature documenting the complications rural households face when financial institutions are located at a significant distance from them and pose substantial transaction costs, risks of security, and opportunity costs (UNCDF, 2024; VoxDevLit, 2023). Previous studies of GSMA (2019) have also demonstrated that the roll-out of agent banking and mobile money has largely reduced these disincentives in Nigeria and in parts of other developing countries.

CONCLUSION

The research that was conducted in Kebbi State shows that distance to financial institutions, low savings capacity and limited literacy are the main constraints to saving. Although this study shows that most households reported that they save, their savings practices varied, with many using informal saving mechanisms, like ROSCAs. Farming is the main livelihood for over half of the respondents and is highly seasonal which increases household's vulnerability to income gaps, they often consume their savings instead of saving it. Inherited land use meant their cost of farming was low but did not increase savings. As shown in the study, the main constraint to good saving behaviour is low- and irregular-income flows. In order improve household saving capacity in Kebbi State will require public policy to foster greater expansion of branchless banking and financial literacy; greater off farm income diversification; affordable credit; linking informal groups to formal finance, etc.

CONFLICT OF INTEREST

The author declares no conflict of interest. This research was conducted independently without financial, political, or personal relationships that could inappropriately influence the study's findings or interpretations.

AUTHOR CONTRIBUTIONS

The authors collectively contributed to the successful completion of this study. Conceptualization and study design were carried out by the lead author. Data collection instruments were developed and validated by all authors. Field data collection and supervision were conducted collaboratively across the selected Local Government Areas. Data analysis, including the application of descriptive statistics and linear regression models, was performed by the lead author with inputs from co-authors. Interpretation of results and drafting of the manuscript were jointly undertaken, while all authors reviewed, edited, and approved the final version of the manuscript for publication.

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