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Do Rural Farmers Save? Evidence from Toro, Bauchi State, Nigeria

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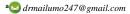*Corresponding author

ARTICLE INFO	ABSTRACT
	The study attempted to examine the question whether rural farmers save their income. Rural farmers in Toro Local Government of Bauchi State, Nigeria were used as a case study. The factors that influence saving and investment were also determined. Out of the three districts in the LGA, two villages were purposively selected from each district and twenty farmers were randomly selected to bring the number of villages to six and total number of farmers to one hundred and twenty. This constituted the sample size; they were administered the questionnaires from where data for the study was generated. The data were analyzed using descriptive statistics and multiple regression analysis. The result indicated that contrary to traditional theory of saving where the poor are deemed incapable of saving, the rural farmers do indeed save from their little income. They need to be encouraged in this regard. The regression result showed that age, educational level, farm income, membership of cooperative societies, farming experience and access to credit were significant factors that influence saving. The result also revealed that inadequate income and too many children to carter for were major constraints to saving. To promote saving culture in the area, the capacity of the farmers to save should be enhanced by enabling them adopt birth control, providing them opportunities to work all year round and provision of simple preservation technologies.

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Introduction

In Nigeria agriculture takes place at subsistence level. It is characterized by the use of traditional practices and crude tools, by numerous farmers operating various small and fragmented plots of land (Odoemenem et al., 2013). The majority of citizens who reside in rural areas in Nigeria depend on farming for survival and income generation, or depend on other non-farming activities to augment their major income sources (Olawepo, 2010). Olawepo (2010) further posited that over 90% of the country's local food production is supplied by small-scale farmers wherein a large percentage of the population (about 60%) derive their living from these small and often fragmented farms which usually range between 0.10-5.99 hectares. A combination of challenges restricts the farmers from expanding among which is insufficient resources, a factor that reduces production, investment, savings and income or profit. The farmers majorly generate income from crop sale which is usually to meet other family expenses or purchase other goods that they do not produce. Ogungbile and Olukosi

(1991) held that low capitalization of farm sector had led to low income which in turn translates into low savings; low savings translates into low investment which in turns translates into low income or return, thus, forming a vicious cycle of poverty.

Saving and investment is significant in a developing economy like Nigeria because it has a direct influence on the nation's economic activity (Olawepo, 2010). Similarly, the degree of progress achieved in the agricultural industry will depend to a great extent on what farmers do with the additional revenue generated from their agricultural activities year after year. This is because the rate of growth of farming depends largely on the capital stock of a farming organization and the ploughing back of these stocks by investing to further strengthen the farming organization (Ayanwale and Bamire, 2000). The rate of growth in the agricultural economy depends largely on a farmer's stock of capital and on reinvestment of that stock in order to further improve farm households. In economics, savings

are generally regarded as disposable earnings minus expenses on personal consumption.

To put it another way, it is defined as income that is not immediately spent on goods and services. This clearly shows that saving and investment are inextricably linked. It is more likely for a resource to be invested in order to build tangible and intangible capitals if revenue is not used to buy consumer goods and services. On the other hand, Ajayi (1998) stated that investment can be defined as the act of putting money aside now in exchange for a future financial reward or as the sacrifice of something now in exchange for the possibility of future benefits. In this case, the reward can be in the form of an income stream, a single capital payment, or a combination of both.

As a result, saving is critical for increasing the quantity of capital available. Savings play a crucial part in economic development, and it can be described as a driving factor for economic growth and development. A person's savings habit is measured by his or her marginal propensity to save, which is influenced by a number of factors. According to World Bank (2002), households in developing nations save an average of 13% of their GNP and invest 6% of it, leaving a savings surplus of 9% of GNP. Businesses, on the other hand, save approximately 7% of GDP yet invest more than 15% of GDP. The report goes on to say that households finance all of their investments with their own money, whereas companies finance 45 percent of their investments using borrowed money. However, available data indicates that this region of the world has a low saving and investment foundation. For example, between 1980 and 2001, Nigerians saved an average of 21.6 percent of their income from the agricultural sector (based on World Bank data base, year 2000). Capital accumulation is a major prerequisite for economic development, according to the United Nations Organization in 2003, and if the volume of savings is insufficient to meet investment requirements, major bottlenecks in the capital formation process and the drive for development are likely to occur. The amount set aside for investment is decided by the amount earned, the cost of getting investible funds, and the entrepreneur's predictions for future business trends. Farmers' saving behavior in developing nations, according to Ayanwale and Bamire (2000), is more dependent on the link between present and prospective income, the nature of business, household size, wealth, and demographic characteristics than on the absolute level of aggregate income.

According to Haruna (2011), there have been debates on whether or not farming households can save. Two opposing viewpoints have been presented based on this premise: the traditional or old viewpoint and the new viewpoint. The traditional perspective held that farming households are unable to save since their production is low due to their reliance on traditional farming methods. Furthermore, Adams and vonPischke (2008) suggested that rural households are too impoverished to save, and that even if they do have additional income as a result of a windfall, they spend it on consumption or ceremonies. Contrary to popular belief, the new perspective asserted that rural households have the ability and desire to save and would respond correctly to saving opportunities and incentives. The proponents of the new perspective listed a variety of reasons why rural communities can expect significant savings. To begin, they opined that households save after harvesting when they sell a portion of their crops for consumption and others for investment and debt repayment. Second, they claimed that rural homes are heterogeneous, consisting of both rich and poor households, with the wealthy having the ability to save for both short and long periods of time.

Many studies have been conducted in Nigeria on the savings and investment potentials of rural and farming households (Inuwa and Haruna, 2013; Nwibo and Mbam, 2013; Osaka, 2006). One of the problems confronting the development of the agricultural sector in Nigeria could be attributed to inadequate savings by the small-scale farmers (Osundare, 2013). This has led to so many of the famers being unable to finance or expand their farming business ostensibly due to a combination of factors such as poor access to credit, poor savings rate, risk and uncertainty, poor weather condition. However, despite the large number of studies in this field, there appears to be a scarcity of empirical knowledge in Toro Local Government Area of Bauchi State. The study seeks to investigate the subject using rural people in Toro LGA, based on the traditional perspective of rural household saving behavior, which claims that rural farmers do not save Specifically, the study showed the preferred places the rural dwellers save their income, the entrepreneurial activities they invest in, the factors that determines savings among the rural famers and the constraints to savings facing the farming households.

Theoretical Background

The significance of saving in boosting economic growth has been extensively debated in the literature. Increased saving, according to classical economists like Lewis (1955), is a necessary and sufficient condition for investment since it provides more funds for investment, which promotes growth. The Harrod-Domar growth model recognizes investment as the key to the attainment of economic growth in any economy. Furthermore, according to the neoclassical Solow (1956) model, an increase in the saving rate enhances steady-state production by more than its direct impact on investment since the induced gain in income raises saving, which then leads to an increase in investment (Jangili, 2011; Verma, 2007; Hundie, 2014). Higher investment leads to higher aggregate demand, which increases economic growth due to the multiplier effect. This viewpoint is backed up by endogenous growth models, which predict that raising the savings rate boosts economic growth through boosting investment and capital accumulation (Barro and Sala-i-Martin, 1995). Furthermore, Ramsey's Optimal Growth model assumes that increased saving leads to an increase in national income, which speeds up the investment process. Increases in investment, on the other hand, can only stimulate growth in the short run, with little or no impact on economic growth in the long run (Romer, 2006). Other research, such as Bacha (1990) and Japelli and Pagano (1994), support the idea that saving makes money accessible for investment, which leads to short-term GDP growth.

The Carroll-Weil hypothesis (Carroll and Weil, 1994) contends that saving often follows, rather than precedes, economic growth, in contrast to the common theory of saving-led growth proposed by classical growth models. On the other hand, since the 1980s, new growth theories

such as Barro (1990), Lucas (1988), and Romer (1986, 1990) have reaffirmed that capital accumulation, as a component of aggregate demand and a vehicle for the creation of productive capacity, is a key driver of long-run economic growth, and that high saving and investment are critical in determining growth due to their strong positive correlation.

Around the world, a large number of empirical research on the causation between saving, investment, and economic growth have been done. This is due to the growing concern over diminishing saving rates in the majority of Organization for Economic Cooperation and Development (OECD) countries, as well as the continued gap in saving and investment rates in so many other countries, and a growing emphasis on the importance of capital accumulation in economic growth literature (Hundie, 2014; Verma and Wilson, 2005).

Methodology
Sampling Procedure and Sample Size
Farmers within the area constituted the sample frame for the study. Toro Local Government Area (LGA) has three districts; Toro, Lame and Jama'a. Two villages were purposively selected from each district and twenty farmers were randomly selected to bring the number of villages to six and total number of farmers to one hundred and twenty. This constituted the sample size and they were administered the questionnaires to generate data for the study.

Data Collection and Analysis
Primary data were used for this study. These were collected with the aid of structured questionnaire. The information was collected on farmer's socio-economic characteristics and preferred places where they save their money. The data were analyzed using both descriptive (frequency distribution, percentages) and inferential statistics (multiple regression).

Model Specification
Multiple regression
The multiple regression analysis was used to determine the factors that influence saving and investment among the farmers. The explicit form of the model adopted is as follows:

$$S = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + e_i$$

Where:
- S = savings (N)
- X_1 = Age (years)
- X_2 = Education (years of education)
- X_3 = Farm income (N)
- X_4 = Farm size (hectare)
- X_5 = Membership of cooperative (saving=1; focus group=2; community development=3; farmers association=4)
- X_6 = Farming experience (years)
- X_7 = Access to credit (dummy)
- X_8 = Main occupation (Fulltime famer=1; civil servant=2; business=3; artisan =4; others specify=5)
- X_9 = Distance from bank (km)
- e_i = Error term

Table 1. Distribution based on saving avenues.

Foam/Places of saving	Frequency	Percentage
Commercial bank	48	40
Microfinance Bank	15	12.5
Cooperatives	35	29
Adashe	79	65.83
Others form	2	1.67

Multiple responses were allowed

Table 2. Distribution based on investments

Enterprise/Investment	Frequency*	Percentage
Provision store	6	5.00
Sales of farm produce	106	88.33
Food vending	8	6.66
Meat selling	2	1.66
Tea and bread	2	1.66
Fruit selling	10	8.33
Cloth selling	2	1.66
Sales of fertilizer	3	2.50
Grinding/threshing	6	5.00
Livestock selling	13	10.83
Sales of grain in the market	63	52.50

Multiple responses were allowed

Table 3. Distribution based on amount saved and or invested

Amount invested (N)	Frequency	Percentage
1000 – 10000	36	34.29
11000 – 20000	55	52.38
21000 – 30000	6	5.71
31000 – 40000	2	1.90
Above 40000	7	6.67

Table 4 Estimate of the determinant of amount of savings in the study area

Variable	Coefficient	Standard error	T-value
Age	0.107***	0.013	7.82
Educational level	0.068***	0.024	2.83
Farm income	3.95E-06**	1.70E-06	2.32
Farm size	0.005	0.087	0.06
Membership of cooperative	0.177**	0.067	2.62
Farming experience	-0.053*	0.028	-1.9
Access to credit	2.626***	0.325	8.08
Main occupation	0.243	0.152	1.59
Distance to bank	0.051	0.051	1.02
F-value	69.92***		
R-squared	0.9833		
Adjusted R-squared	0.9819		

*Note: ***, ** and * represents significant at 1%, 5% and 10% level, respectively.*

Table 5. Distribution based on constraint to savings and investment decision

Constraint	Frequency*	Percentage
Lack of idea on what to do	8	6.66
To many children	48	40.00
Difficulty in accessing loans	7	5.83
Absence of secondary income	16	13.33
Lack of all year employment	28	23.33
Inadequate income	66	55.00
Lack of preservation technologies	13	10.83
Lack of power	4	3.33

Multiple response was allowed

Results and Discussion

Do Rural Farmers Save?

The distribution of respondents based on preferred places where they save is presented in Table 1. The result shows that most of the respondent (66%) saved in *Adashe* – an informal way of saving where money is contributed for an agreed time period or the contribution is handed to the members in turns. The policy of *adashe* is based on the monthly collection of fixed amounts of money from member contributors and loaning out the money to members on low interest rate (mostly 5%) and higher interest rate to non-members (mostly 10%). At the end of the financial year, both the accrued interest paid and the principal contributions will be shared among members. This finding aligns with Odoemenem et al. (2005) and Schrooten (2003) that farmers utilize informal financial sectors to mobilize savings and develop their rural communities because it gives them access to loans that they cannot get from formal financial institutions because of their inability to produce collateral. Meanwhile, farming households that save through formal credit institutions was 40%. This category of savers complained of the bureaucracy which in turn makes it difficult to access the money in time. Savers in cooperatives and microfinance banks accounted for 29% and 13%, respectively. This finding is justified on the ground that most farmers fear to save in formal financial institutions because of the bureaucracy involved in withdrawing the money back, and the higher interest rates charged by banks.

Do Rural Farmers Invest?

Result of the study showed that the rural farmers invest their resources into so many enterprises as captured in Table 2. It was found out that almost all of the farmers (88%) invest in farming. This is expected because farming is their main occupation. The money realized is used in buying agricultural inputs and payment for services rendered on the farms. The predominance of investment in farming in the rural areas corroborates the widely quoted statistics that over 90% of the food produced in the country comes from the rural small-scale farmers. Unlike the category above who sale their produce after harvest and or horde to when prices are high, 53% of the farmers have fix shops or tables where they sale grains in the market in all seasons. This set of farmers in addition to their own harvest, also buy from other buyers after harvest and sale same from their shops. A few (11%) were involved in selling livestock. Others invested their monies in non-agricultural entrepreneurial activities as shown in the table.

Saving and Investment Profile.

The result shows that majority of the respondent (52%) have a monthly capital saving capacity of N11000 - N20000. Capital saving include sales of grains, sales of livestock etc. This at best is indicative of relative low capital available to the farmers. The main finding is that the households save and invest mainly in real form like acquiring new tools such as hoes and cutlasses, purchase of fertilizers, chemicals and new seed, hired labour and irrigation equipment. This finding is in line with that of Raman's (2002) observation that in areas where the monetary system and capital markets are still not well developed, and are in primitive forms, these real investments are extremely popular among individuals and families. The results of empirical studies on household saving behavior in developed and emerging countries have frequently differed from those of developed countries. The micro- and macro-studies were founded on the premises of perfect capital markets and the absence of risk aversion, and they looked at the savings behavior of families in industrialized countries. These ideas, on the other hand, have been found to be insufficient in describing household saving behavior in developing nations, where the majority of families are impoverished, risk averse, and operate in an unpredictable and imperfect financial market environment.

Furthermore, Babani (2015) discovered that income is "positively related to savings," implying that "people are more willing and able to increase their savings when their income is high than when it is low," a finding that he noted "is quite expected in the sense that a higher disposable income encourages a positive attitude toward savings."

Determinant of Amount of Saving in the Study Area.

The result of the multiple regression analysis, shown in Table 4, indicates that the coefficient of determination (R^2) was 0.983 which indicate that 98.3% of the total variation observed in the dependent variable was explained by the explanatory variables (X_1- X_9) included in this model. Also, the overall significance of the model depicted by the F – statistic was significant at 1% level. The significance of the F ratio shows that the regression result was statically reliable.

It was discovered that the farmer's age had a beneficial impact on the savings of the farmers and was statistically significant at 1%. This result is in line with a priori expectations, as the propensity to save tend to increase as people get older. Inferring that the quantity of money saved by small-scale farmers grows as they get older. This supports the findings of Attanasio and Szekely (2000), who reported that as people get older, their savings capacity increases. The elderly is more frugal and economical. At a 1% level of significance, the farmer's educational level was found to be positively connected to savings. This meant that a farmer who is educated can save more money than a farmer who is illiterate. This conclusion is supported by Burney and Khan's (1992) hypothesis that educated farmers save more than uneducated farmers since their savings can be used to support their children's education.

The coefficient of farm income was found to be positively signed and statistically significant at the 5% level. This was justified since an increase in a household's farm income level will result in an increase in savings because increased income will result in surplus that will be saved after consumption expenditures are deducted. This finding supported the Keynesian theory of consumption, which holds that there is a positive relationship between income and saving, and that household savings are affected directly and strongly by income levels. The findings were consistent with those of Samroyina (2004), who investigated saving behavior among Russian households and discovered that the marginal propensity to save out of income was positive. This is in line with economic theory, which states that an increase in income will always lead to an increase in savings.

Membership cooperative society had a positive coefficient and was significant at 5% level. This is in tandem with a priori expectation because a major benefit of cooperative membership is education. Cooperative societies exist to educate their membership on benefits of savings and how to nurture and grow their farm businesses. Farming experience had a positive impact and was statistically significant at 10%. This meant that farmers with a lot of experience tend to have more knowledge and are more likely to save and invest in agricultural operations with a better rate of return.

Access to farm credit by small-holder farmers had a positive coefficient and was significant at the 1% level, indicating that increasing farmers' access to farm credit would enhance farm income. This variable's sign identity makes sense in this investigation and is consistent with a priori expectations. Credit has been identified as a critical aspect in farm business and as a beneficial tool for supporting transaction costs for farm wage activities (Ibrahim and Srinivasan, 2013). It is also considered one of the most important factors in increasing production and income (DBSA, 2005).

Constraint to Savings
The constraints to savings are discussed in Table 5. The result indicates that the major constraint is inadequate income which accounted for 55%. Most of the rural farmers stated that what they earned is too little, barely enough to meet their daily consumption, as such, little is left to be saved. This seems to be reasonable explanation because most of them are small scale farmers that use crude implements on very small pieces of lands. The little gain from these farms is diminished by too many children as reported by 40% of the farmers. A major feature of rural farmers is procreating too many children beyond their economic capacity. Ostensibly because they don't use birth control methods, most of the farmers complained that savings will be difficult with such large number of dependents. Other constraints identified include lack of year-round employment (23%), absence of secondary income (13%) and lack of preservation technologies (11%).

Conclusion

The conclusion from this study is that rural farmers in the study area do save albeit on a small scale irrespective of their low income. Some of the contributory factors found to exert significant positive influences on the level of saving include household's status, age of farmers, educational levels, farming experience, sources of credit, main occupation, and years of business experience. Through deliberate policies, steps should be taken to further consolidate on these strengths with a view to further encouraging saving by the rural farmers.

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