



**DETERMINANT OF SAVINGS AND INVESTMENT BEHAVIOR OF MAIZE
FARMERS IN ZARIA AND SABON-GARI LOCAL GOVERNMENT AREAS OF
KADUNA STATE, NIGERIA**

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ABSTRACT

The study analyzed the different determinants of saving and investment behavior of maize farmers in Zaria and Sabon-Gari Local Government Areas of Kaduna State, Nigeria. Multi-stage sampling procedure was used to select 120 maize farmers for the study. Data were collected with the aid of a questionnaire and analyzed using a multiple regression model. The results revealed that age, membership to cooperatives, non-farm income, and handling capacity were found to be statistically significant ($P < 0.05$) and positive in influencing maize farmers' savings behaviors. Also, age, membership to cooperatives, non-farm income, and handling capacity was found to be the statistically significant ($P < 0.05$) factors that influenced the investment behavior of maize farmers in the study area. Based on the findings of this study, it can be concluded that maize farmers do participate in savings and investment and there is a propensity to save and invest among farmers in the study area despite inadequate income and capital and age, membership in cooperatives, non-farm income, and handling capacity was found to significantly influenced saving and investment. The study, therefore, recommended that the government and other non-governmental organizations should make the extension of micro-credit to farmers through their cooperative society on time as a way of helping them boost production which invariably will give farmers have surplus for savings and investment.

Key Words: Behavior, Determinant, Farmers, Investment, and Savings

INTRODUCTION

Agriculture in Nigeria is practiced at a subsistence level and is characterized by numerous farmers operating several small-scale and fragmented plots of land using traditional methods such as land rotation, bush burning, and the use of crude implements (Odomenan, Uzihe, and Akerele (2013). According to Olawepo, (2010), the majority of the rural populace in Nigeria either depends entirely or largely on farming activities for survival or depend on other non-farming activities to supplement their main source of income. He pointed out that, over 90% of the county's local food production comes from small-scale farmers and about 60% of the population earns a living from these small-scale farmers who usually have a farm size of between 0.10-2.5 hectares. It could be seen that most farmers have limited resources, a factor that limits their production, income, savings and investment. Agriculture plays an important role in employment and revenue generation as well as in the provision of raw materials for industrial development. However, the nation's agricultural potentials are far from being fully realized and this has serious implications on food security, and sustainable economic development, the underdevelopment of agriculture is worrisome, given the fact that the country is naturally agriculturally endowed.

The capacity of the Nigerian agricultural sector to fulfill its roles in the economy has been constrained greatly by various socio-economic and structural problems such as; unavailability of sufficient capital in the form of credit to farmers, high interest rates on loans to farmers, urban-rural migration, ineffective institutions charged with policy implementations and more recently unrest in the north-east, north-west and middle belt areas of the country.



Relatively, the problem of unavailability of sufficient capital amongst others translates to low income or return, thus forming a vicious cycle of poverty. Ayegba and Ikani (2013), revealed that private money lenders constitute a major source of credit 53.33%, which is not healthy for an economy that is ready to grow. Crop farmers sell their farm yields to generate income to meet other family expenses or purchase other goods that they do not directly produce. Smallholders in developing countries face the same problem; the ability to accumulate sufficient capital for new and costly investments is rather limited.

The importance of savings in agriculture cannot be overemphasized because of the direct impact it has on the economic activity of the nation. Similarly, within the agricultural sector, the degree of progress attained will largely depend on what the farmers do with the additional incomes generated yearly from their farming activities. This stems from the fact that the growth rate in the farming economy largely depends on the stock of capital built up into the farming operation and a flowing back of such stocks in the form of investment for further improvement of farm organization. Adequate integration of savings and investment programs into development strategies is capable of improving resource allocation, promoting equitable distribution of income, and reducing credit delivery and recovery costs (Adeyemo and Bamire, 2005).

One of the major tasks facing Nigerian agriculture is the provision of an adequate and well-stable food supply to meet the requirements of a growing population and one such food crop is maize. The significance of maize to modern society is first and foremost reflected in the importance of the crop in the diet of humans and animals throughout the world (Onwueme and Sinha, 1991). According to Statistica (2019), a survey conducted reports that 49.7% of farming households in Nigeria are into maize farming, hence making it the most important crop in Nigeria amongst others.

A critical challenge facing agricultural development in Nigeria can be attributed to inadequate savings and investment by small-scale farmers. Agriculture in Nigeria like most developing countries is dominated by small-scale farmers and is faced with several constraints, consequently limiting the overall farming activities. The low saving capacity of farming families is one of the predominant factors responsible for the stagnation of the agricultural sector in Nigeria. Despite these problems, policymakers have not drawn up an adequate and comprehensive rural savings scheme that will encourage farmers to use their capital productively (Odoemenem *et al*, 2013). 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. However, Savers in developing countries, particularly in rural areas, prefer to save their money in terms of physical or tangible assets, such as land, buildings, and livestock. This practice leads to a scarcity of monetary savings for investment purposes.

However, there has been no consensus on factors that affect the proportion of income that is saved. Several variables have been indicated as factors influencing savings and these include permanent income, current income, wealth, price level, interest rates, demographic characteristics, and a host of other variables (Odoemenem *et al*, 2013). It is based on the above that this paper intended to determine the socio-economic factors that influences savings and investment in the study area.

MATERIALS AND METHOD

The Study Area

The study was conducted in Zaria and Sabon-Gari local government areas of Kaduna state. Zaria is one of the major cities in northern Nigeria, as well as a local government area

formally known as Zazzau, it has a total land area of 300 square kilometers (ZEDA, 2017). It had a population of 975,153 people in 2015, using a population growth rate of 3.05%, Zaria is estimated to have a population of 1,329,033 people in 2024. It lies on latitudes 11.04°N, 7042°E and latitudes 11.06°N, 7.700°E. Zaria's economy is primarily based on agriculture. Major staples are maize, guinea corn, sweet potato, soya beans, groundnut and vegetables. It is the home of numerous artisans from traditional crafts like; Leatherworks, dyeing and cap making, print shops, and furniture makers. Zaria is also the center of the textile industry that for over 200 years has made elaborately hand-embroidered robes that are worn by men throughout Nigeria and West Africa. Zaria is north of the rail junction at Kaduna and has equal rail access to the seaport at Lagos and Port Harcourt. (Kaduna State Government, (2012)).

Sabon Gari Local government area of Zaria, Kaduna state was created from the defunct soba LGA in 1991 with its headquarters located at Dogarawa and has a projected population of 536027 people. To ensure an efficient administrative structure, it was divided into six district areas which are; Basawa, Bomo, Hanwa, muchiya, samaru, and Sabon-gari districts. ZEMDA, (2017).

Sampling Procedure and Sample Size

A multi-stage sampling procedure was employed for the study. The first stage involved a purposive selection of all the Local Government Areas in the Zaria metropolis. The selection was based on the predominance of maize farming activities in the area. The second stage involved a purposive selection of two Wards each from the selected Local Governments. The third stage was the random selection of 30 maize farmers from each of the selected wards thus making a total number of 60 maize farmers per Local Government and 120 for the two LGAs. Data were obtained using a structured questionnaire that was administered to the selected respondents. The information obtained from these farmers were Age, sex, educational level, income tax from farming and non-farming activities, family size, membership of associations, cost of purchase, sales, cost of transportation, credit facilities, and interest (if any), storage facilities, market information, product channel, cost of loading and off-loading, commission agents and farming constraints among others.

Table 1: Study Sample Size

Local Government Areas in the Metropolis	Wards	Number of Samples Randomly Selected
Zaria	Wuciciri	30
	Gyallesu	30
Sabon-Gari	Bomo	30
	Basawa	30
TOTAL		120

Source: Author computation

Analytical Technique

Descriptive statistics and inferential statistics were used for the study. This involves the use of measures of central tendency such as frequency, and percentages to describe the constraints as reported by the respondents as well as multiple regression analysis. The regression analysis was done to determine the extent to which the selected variables influence savings as well as investment among the maize farmers. The explicit model adopted for savings was:

$$S = \alpha + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + e_i \quad \dots(1)$$

Where;

S= Savings

α = Constant

X1= Total income (N) from farming activities,

X2= Total income from other activities (N),

X3= Age of farmers (years),

X4= Education (years),

X5= Number of family members,

X6= Farming experience (years),

X7= Membership of association (dummy),

U= Error term.

Based on the various determinants of investment, the explicit form of the model adopted for investment is as shown below;

$$Y = \alpha + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + e_i \quad \dots(2)$$

Where;

Y= Amount of investment in farming (N)

X1= Quantity Harvested (Kg),

X2= Amount of loan / Capital (N),

X3= Income from farming activities (N)

X4= Income from non-farming activities,

X5= Interest charged on loans obtained by farmers (N).

X6= Farming experience (years)

X7= Membership of association (dummy)

U= Error term.

RESULTS AND DISCUSSION

Factors Influencing Savings of Respondents

The result of multiple regression analysis on the determinants of savings is shown in Table 2 and it indicates that the coefficient of determination (R^2) was 0.74 which signified that about 74% of total variation observed in the dependent variable was explained by the explanatory variables included in the model. The overall significance of the model was depicted by the F-statistics which was significant at 1% level. It was found that the coefficient of age of the respondents exerted a positive influence on the savings of respondents and was statistically significant at a 5% level. This implies that the amount saved by the farmers increases with increasing age. The finding of this study again was not consistent with the finding of Nwibo and Mbam (2013) who reported that the age of the farming household exerted a negative influence on the savings of the farming household.

The coefficient of membership to cooperative society was significant at 1% and positively related to the ability to save. The positive sign agrees with the a priori expectation, implying that farmers who are members of a cooperative society are more likely to save part of their earnings. Cooperatives offer its members the opportunity to increase their monthly income which translates to more savings through the social networking platform it provides to its members (Okpachu, Moses and Okpachu, 2019).

The coefficient of non-farm income was found to be positive and significant at a 1% level of significance. This implies that, as the farmer's non-farm income increases, the tendency to save increases too. A possible reason is that farmers who engage in non-farm activities diversify their income sources and have access to more capital for use in farming. Hence these farmers may have a greater propensity to save. This affirms the findings of Oseni and Winters (2009) who reported in their studies in Nigeria that households with increased farm income are more likely to diversify and invest more funds in off-farm income-generating activities, hence undertaking off-farm work.

The coefficient for volume/ handling capacity was found to be positive and statistically significant at a 10% level. This means a direct relationship exists between volume/handling capacity and with farmer's ability to save. This is in line with the general expectation and it

confirms the fact that increased handling capacity or volume tends to increase saving. It can be concluded that increased volume/ handling capacity has an effect on savings.

Table 2: Factors influencing savings of respondents

Variable	Coefficient	Standard error	T-value
Constant	-1.352	0.604	-2.238
Age	2.978**	1.287	2.313
Years of education	1.059	2.272	0.466
Household size	-2.676	3.062	-0.874
Farming Experience	-2.527	1.879	-1.344
Years of Membership of cooperative	1.832***	0.311	5.883
farm income	-0.092	0.121	-0.760
Non-farm income	0.887***	0.134	6.647
Amount Borrowed	-0.015	0.153	-0.101
Interest on Loan	1.125	1.068	1.053
Volume/ Handling capacity	4.315*	2.181	1.978
F-value	16.01		
Prob > F	0.000		
R-squared	0.74		
Adj R-squared	0.70		

Note: ***, ** and * significant at 1%, 5% and 10% levels of significance

Factors Influencing Investment of Respondents

The result of multiple regression analysis of the determinants of investment as shown in Table 3 indicates that the coefficient of determination (R^2) was 0.67 which signified that about 67% of total variation observed in the dependent variable was explained by the explanatory variables included in the model. The overall significance of the model was depicted by the F-statistics which was significant at 1% level.

The coefficient of age was positive and significant at 10% level. This shows that an increase in age of the farmers would stir up investments. The magnitude of the increase in investment level as a result of a unit change in the age of farm households is 1.517. Ibrahim and Srinivasan (2013) supported this assertion that rural households' likelihood to invest in farm activities increases as they grow older. This outcome may be due to the farming experience gathered over the years. Due to the risk and uncertainty associated with farming younger people with less farming experience invested much funds in non-farming enterprises.

The coefficient of years of experience in farming had a statistically significant and positive effect on the amount invested in farming. This implies that investment amount in farming increases among farmers within some range of years of farming experience. This could be explained by the fact that farmers who are highly experienced in farming and most likely older farmers are not very active economically to invest on farm a non-farm enterprise investment opportunity. This implies that as individuals increase their farming experience through training and learning, their investment in farming likewise increases. This affirms the earlier finding of Bosma *et al.* (2009) who deduced that having had experience in farming increases investment amount in such enterprise. The marginal effect value for years of experience in farming was statistically significant at a 5% significance level.

The coefficient of membership in cooperative society was found to be positive and statistically significant at 1% level which signified a direct relationship with investment. Being a member of an association will provide opportunities for higher exposure to various kinds of

information exchange and investment avenues. It could be said that the cooperative group can facilitate some benefits due to the interaction among members. Findings have shown that having membership and leadership in community organizations and frequency of participation assumes that farmers are more likely to be aware of new practices and investment opportunities as they are easily open to information.

The result also revealed a positive investment-farm income relationship, which was statistically significant at 5%. This implies that as farm income increases, there is a greater probability of investment. This finding is supported by Konig, Mhlanga, da Silva, and Mhlanga (2013) who posited that the higher the income, the more revenue the farmer generates from his produce and hence, the more he is encouraged to invest part of his earnings.

The coefficient of non-farm income was found to be positively signed and significant at a 1% level of significance, indicating that an increase in farmers' non-farm income would encourage investment. Non-farm income is reported to act as a substitute for borrowed capital in rural economies where credit markets are either missing or dysfunctional (Ellis and Freeman, 2004; Diirro, 2013). This was justified as an increase in the income level of a household will bring about increase in the investment as increasing income will result to surplus that will be invested after consumption expenditure has been made.

Table 3: Factors influencing investment of respondents

Variable	Coefficient	Standard error	T-value
Constant	2.027	1.140	1.779
Age	1.517*	0.846	1.793
Years of education	2.913	2.493	1.169
Household size	-0.912	2.012	-0.453
Farming Experience	2.961**	1.235	2.398
Years of Membership of cooperative	6.223***	2.046	3.042
farm income	0.165**	0.079	2.079
Non-farm income	0.425***	0.088	4.844
Amount Borrowed	0.010	0.101	0.097
Interest on Loan	0.235	0.345	0.681
Volume/ Handling capacity	-0.734	1.433	-0.512
F-value	11.44		
Prob > F	0.000		
R-squared	0.67		
Adj R-squared	0.61		

Note: ***, ** and * significant at 1%, 5% and 10% levels of significance

CONCLUSION AND RECOMMENDATIONS

Based on the findings of this study, it can be concluded that maize farmers do participate in savings and investment and there is a propensity to save and invest among farmers in the study area despite inadequate income and capital and capital and age, membership in cooperatives, non-farm income, and handling capacity was found to significantly influenced saving and investment. The study therefore recommended that the government and other non-governmental organizations should make the extension of micro-credit to farmers through their cooperative society on time as a way of helping them boost production which invariably will give farmers have surplus for savings and investment.



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