



Analysis of Factors Influencing Investment Patterns among Small Scale Rice Farmers in Kano State, Nigeria

¹Tahir, A.D., ²Onewo, D.E. and ¹Alkali, H.M.

¹Department of Agricultural Economics, Faculty of Agriculture,
University of Maiduguri, P.M.B 1069, Borno State, Nigeria

²Department of Agricultural Economics and Extension,
Faculty of Agriculture, Bayero University Kano

*Corresponding Author's email: tahirdori@gmail.com

Abstract

The study analyzed the socioeconomic factors influencing investment patterns among small-scale rice farmers in Kano State, Nigeria. The specific objectives were to determine the socioeconomic factors influencing the amount to save and describe the forms of investment in small-scale rice farmers in the study area. Multi-stage sampling technique was employed to select 158 respondents in the study area. Primary data were collected using a structured questionnaire, and the data analyzed using descriptive and multiple regression model. The result revealed the R^2 value of 57.7% and F statistics value of 13.2, which was significant at 1%. The result also revealed that gender and age were positive and significant at 10%, farm size at 5%, and annual income at 1%, while household size was negative and significant 1%. The result further revealed that the purchase of seed accounted for 54.4%, while 33.5%, 20.3%, 25.3%, and 38.6% of the farmers invested in purchasing fertilizer, chemical, farm tools, and labor. Farmers invested in processing and packaging for off-farm investment, which accounted for 48.1% and 22.8%, respectively. While for non-farm investment, trading accounted for 39.2%, while building houses, purchasing land, education of children, and purchasing animals and others accounted for 13.9%, 23.4%, 30.4, 34.2% and 20.9% respectively. The study concludes that factors found to exert significant positive influence on the amount invested was gender, age, farm size and annual income. While household size exerts a significant negative influence on amount invested. On-farm investment was the major form of investment among rice farmers in the study area. It was recommended that farmers diversify into other non-farm income generating activities, increase the number of enterprise and land size, which will help boost income and not rely on single on farm activities alone to increase their investment opportunities.

Keywords: *Factors, Investment, Pattern, Rice, Small Scale, Socioeconomic*

Introduction

Rice (*Oryza Sativa*) belongs to the family of Graminae. According to Gibbon and Pain (1985), rice has probably been cultivated for over 5000 years. It is one of the World's most important cereal crop. More than half of the world's population use rice as a staple food and has rice as their main source of calories and carbohydrates international rice research institute (IRRI, 2014). The average intake of calories from the rice is about 700 calories per day per person for almost three billion people worldwide, of which most live in developing countries and Less Developed Countries LDCs (FAOSTAT, 2012). It is the most widely consumed staple food for a large segment of the 'World's population, especially in Asia. It is the agricultural commodity with the third-highest worldwide

production after sugarcane and maize (FAOSTAT, 2012). Nigeria has over 79 million hectares of cultivable land, out of which 4.6 million hectares are suitable for rice production. Meanwhile, only about 1.8 million hectares, or 39%, are currently utilized for rice cultivation (FRN, 2017). Kano State is one of the most important -producing states in the country. This is largely due to the more than 22,000 ha of irrigated schemes under Phase one of the Kano River Project of the Hadejia Jama'are River Basin Development Authority; the vast Fadama areas that were further developed under the various other irrigation project under the Authority. In addition there are also upland production areas of Tudun Wada and Rogo.

Investment could be considered an act of lending out

money now in return for a future financial reward or sacrificing something now for the prospect of later benefits. The reward in this context may be received in the form of an income flow or by the receipt of a single capital sum or a combination of both. Over the years, many farmers in Nigeria have increasingly not been able to invest adequately on their farming activities. They have resulted in forming cooperative movements to achieve a common goal through democratically controlled business organizations. Abdulsalam (2018) identified two types of investment in agriculture; these are investment on operating or working inputs (seed, fertilizer, chemicals, fuel) and investment on capital assets (land, farm buildings, machinery, equipment and livestock). Savings are of great importance in Nigeria because of the direct bearing it has on the level of economic activity of the nation. Similarly, the degree of progress attained within the agricultural sector will largely depend upon what the farmers do with the additional income generated over the years from their farm activities (Adeyemo and Bamire, 2013). This clearly indicate that savings is closely related to investment. Adequate integration of saving and investment programmes into development strategies can improve resource allocation, promote equitable distribution of income, and reduce credit delivery and cost recovery (Adeyemo and Bamire, *ibid*).

Most rice farmers suffer from level of investment, saving and income. Savings and investment are important factors in developing any developing economy like Nigeria. Therefore, information on investment patterns among small-scale rice farmers in Kano is important to know their level of income, savings and investment, and the type of activities or assets where their savings have been invested. One of the predominant factors responsible for the stagnation of the agricultural sector in Nigeria is the low savings capacity of farming households. This is a result of low income, which leads to low investment in both farm and off-farm activities (Akpan *et al.*, 2016). Despite this problem, policymakers have not drawn up an adequate and comprehensive rural savings scheme that will motivate the farmers to invest their capital productively (Odoemenem *et al.*, 2013). According to Shitu (2012) capital accumulation is a major prerequisite of economic development. If the volume of savings is inadequate to meet investment requirements, major bottlenecks are likely to develop in the process of capital formation and the drive for development. The volume of

investment has been found to depend on income, cost of procuring investible funds, and entrepreneur's expectations on the business trend in the future. In line with these problems, and this study attempted to achieve the following objective. Determine the socioeconomic factors influencing investment among small-scale rice farmers in Kano State and describe the forms of investment engaged in by the small-scale rice farmers in the study area.

Methodology

The Study Area

Kano State was created in 1967 and presently has 44 Local Government Areas and a population of about 9,383,682 people with an annual growth rate of 3.3%. Based on this growth rate, the State's present population would have grown to about 11,551,314 (NPC, 2006). It is lies between latitude 11°33' North to 12°37' North of the equator and longitude 8°34' East to 9°29' East and covers a land area of about 20,760km² Square Kilometers (NIPOST, 2009). The State is bordered to the West and Northwest by Katsina State, to the East and Northeast by Jigawa State, to the South by Bauchi State and to the Southwest by Kaduna State. The annual rainfall is between 420mm-1000mm and the temperature is averagely warm throughout the year (KNARDA, 2007). The State has been a commercial Centre and agricultural state known for the production and marketing of groundnut and solid mineral deposits since. The major crops grown in the State include; rice, millet, groundnut, pepper, sorghum and maize, which are grown throughout the year because of the availability of irrigation facilities made possible by establishing artificial water bodies like earth dams across the State.

Sampling Technique

Multi-stage sampling technique was employed in selecting respondents for the study. The first stage involves a purposive selection of three (3) Local Government Areas (LGAs), which are Kura, Garun Malam and Bunkure. These LGAs were selected among other production clusters because of the intensity of rice production in the area. The second stage involves random selection of two (2) villages from each LGA. The villages include; Unguwar Gandu and Ubarawa (Kura), Chiromawa and Kadawa (Garun Malam) and Bunkure and Kuruma (Bunkure). The final stage involves proportionate random selection of 10% of respondents from each village, making one hundred and fifty eight (158) farmers in all.

Table 1: Sampling Frame and Sample Size

LGA	Villages	Sampling frame	Sample size (10%)
Kura	Unguwar Gandu	350	35
	Ubarawa	287	29
Garun Malam	Chiromawa	182	18
	Kadawa	233	23
Bunkure	Bunkure	304	30
	Kuruma	232	23
		1588	158

Source: KNARDA, (2007)

Data Collection

The primary data was collected using a structured questionnaire. This questionnaire was administered on the rice producers in the selected villages in the study area by the researcher with the help of enumerators.

Analytical Technique

Multiple regression analysis was used to determine the influence of socioeconomic variables on small-scale rice farmers' investment in the study area. The regression model for socioeconomic factors influencing investment considered the following variables.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_7 X_7 + e_i \dots \dots \dots (1)$$

Where;

Y = Investment (naira)

X₁ = Age (years)

X₂ = Gender (male = 1, female = 0)

X₃ = Marital status (married = 1, otherwise = 0)

X₄ = Household size (no of household members)

X₅ = Educational status (primary = 1, secondary = 2, tertiary = 3, religious = 4)

X₆ = Farm size (hectares)

X₇ = Annual income (naira)

e = Error term,

b₀ = Intercept or constant

b₁-b₇ = Coefficient of the factors

Results and Discussion

The result in Table 2 revealed that the R² (the coefficient of multiple determination), was found to be 0.577%, indicating 57.7% variability of farmers' investment was explained by the explanatory variables included in the model. The remaining 42.3% was not explained by the explanatory variable; this could be attributed to error or random disturbance in the model. The F-statistic value was 13.234 and is statistically significant at 1% probability level, indicating a model of best fit. The coefficient of gender was found to be positive and significant at 10% level. This implies that an increase in male headed household will lead to increase in amount invested. This result is not in agreement with the finding of Osondu *et al.* (2014) who found gender to be non significant to the amount of income invested by smallholder farmers in Abia State, Nigeria. The reason could be that both the male and females in Abia State are actively involved in rice investment. The coefficient of age was found to be positive and significant at 10%. This indicates that an increase in age leads to increased amounts invested in both on-farm and off-farm activities. The result agrees with Nwibo and Alimba (2013) who reported that age has a positive relationship with agribusiness investor decision to invest. This indicates that as the farmer's draws close to their retirement age, when they will no longer be active, they tend to invest more in on-farm or off-farm activities to enable them to have enough income to meet up with their future retirement needs. The coefficient of farm size was found to be positive and significant at a 5%

significant level. This indicates that as farm size increases, their savings will increase leading to increase in investment. A farmer with large farm size is expected to produce more output, which will likely bring about an increase in farmers income, thereby, increasing farmers' investment capabilities. This result agrees with Onwuka (2015) and Oputa (2015) that the larger the farm size of a farmer, the higher the propensity to invest. The coefficient of household size was negative and significant at a 1% level. This implies that as the number of the household increases, there will be a decrease in amount invested. This agrees with the *a priori* expectation, suggesting that the farmers may be forced to spend more money trying to meet the household consumption expenditure and other needs instead of investing in on-farm or off-farm activities that are income generating. The coefficient of annual income was positive and significant. The farmers' annual income was significant at 1% level on the amount invested. This implies that as the farmers income increases, the tendency to invest more increases also. This is in consonance with economic theory where an income is bound to lead to an increase in investment. This is in agreement with the *a priori* expectation. This result also agrees with the findings of Oseni and Winters (2017), who reported in their studies that households with increased farm income are more likely to diversify and invest more funds.

Table 3 shows the different forms of investment engaged in by the farmers in the study area; it revealed that the majority of the farmers are investing more of their savings on on-farm activities such as the purchase of seed, fertilizer, chemicals, farm equipment/tools, and labor (planting, weeding, harvesting etc). Purchase of seed accounts for 54.4% of the respondents, while 33.5%, 20.3%, 25.3%, and 38.6% of the farmers invest in purchasing fertilizer, chemicals, farm equipment/tools, and labor. For off-farm investment, the farmers invest in processing and packaging, accounting for 48.1% and 22.8%, respectively. While for non-farm investment, the farmers invest in trading, building houses, purchasing land, education of children, and purchasing animals. Trading accounts for 39.2%, while building houses, purchasing land, educating children, purchasing animals, and others account for 13.9%, 23.4%, 30.4%, 34.2%, and 20.9%, respectively.

Conclusion

The study concludes that on-farm investment was the major form of investment among rice farmers in the study area. Some of the factors found to exert a significant positive influence on the amount invested were age, gender, and farm size, while household size exerts a significant negative influence on the amount invested. It can be recommended that farmers diversify into other non-farm income activities, increase the number of enterprises and farm size that can help them boost their income and not rely on single on-farm activities alone to increase their savings and investment opportunities.

Table 2: Multiple Regression Estimates of Factors Influencing Amount Invested

Variables	Coefficient	Standard error	T-Value	P-Value
Constant	0.084	0.457	0.185	0.854
Gender	0.259	0.143	1.811	0.183*
Marital status	0.047	0.089	0.527	0.599
Age	0.018	0.009	2.055	0.042
Household size	-0.060	0.016	-3.734	0.000***
Educational status	-0.006	0.014	-0.425	0.672*
Farm size	0.266	0.101	2.630	0.009**
Annual income	0.378	0.098	3.861	0.000***
R-Square = 0.577				
R ² Adjusted = 0.558				
F-Value = 13.234***				

Source: Field Survey 2016.

* = Significant at 10% ($P < 0.1$), ** = Significant at 5% ($P < 0.05$), *** = Significant at 1% ($P < 0.01$)

Table 3: Distribution of Respondents According to Forms of Investment

Variables	Frequency	Percentage (%)
Forms of investment		
On-farm		
Purchase of seed	86	54.4
Purchase of fertilizer	53	33.5
Purchase of chemical	32	20.3
Purchase of farm equipment/tools	40	25.3
Labor (planting/weeding/harvesting etc.)	61	38.6
Off-farm		
Processing	76	48.1
Packaging	36	22.8
Non-farm		
Trading	62	39.2
Building of houses	22	13.2
Purchase of land	48	30.4
Education of children	37	23.4
Purchase of animals	54	34.2
Others	33	20.9

Source: Field Survey 2016. ()Multiple responses*

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