



*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

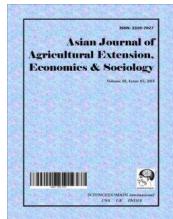
**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from AgEcon Search may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

*No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.*



## **Determinants of Savings among Rural Women in Borno State, Nigeria**

**H. S. Nuhu<sup>1\*</sup>, P. M. Bzugu<sup>1</sup> and A. P. Kwajaffa<sup>2</sup>**

<sup>1</sup>*Department of Agricultural Extension Services, University of Maiduguri, Borno State, Nigeria.*

<sup>2</sup>*Department of Economics, College of Education, Waka-Biu, Borno State, Nigeria.*

### **Authors' contributions**

*This work was carried out in collaboration between all authors. Author HSN designed the study, wrote the protocol and performed the statistical analysis. Author PMB supervised the work, managed the analyses of the study and edited the manuscript. Author APK wrote the first draft of the manuscript and managed the literature searches. All authors read and approved the final manuscript.*

### **Article Information**

DOI: 10.9734/AJAEES/2015/16056

*Editor(s):*

(1) Angel Paniagua Mazorra, Centre for Human and Social Sciences, Spanish Council for Scientific Research, Spain.

*Reviewers:*

(1) Anonymous, Japan.

(2) Francis Adebayo, Fiscal Policy Analysis Center, Abuja, Nigeria.

(3) Anonymous, Ghana.

(4) Anonymous.

Complete Peer review History: <http://www.sciedomain.org/review-history.php?iid=898&id=25&aid=8433>

**Original Research Article**

**Received 3<sup>rd</sup> January 2015**

**Accepted 17<sup>th</sup> February 2015**

**Published 13<sup>th</sup> March 2015**

### **ABSTRACT**

The study analysed the determinants of savings among rural women in Borno State. Primary data for the study were obtained through the use of structured questionnaires from 600 respondents selected through multi-stage sampling procedure. Frequency distribution, percentages, mean, bar chart and pie chart were used to examine the socio-economic characteristics of the respondents in the study area. Logit regression model was used to determine the effects of factors (socio-economic, institutional and cultural) on the probability of savings of the respondents. The study revealed that majority (88%) of the respondents were married. It was also evident from the study that about 90% of the respondents fell within the age range of 20-50 years. The mean household size was 6. The study also revealed that majority (64%) had Agriculture as their main livelihood activity, and many (54%) had no formal education. The result showed that income was obtained from farming and non-farming livelihood activities. The study went further to reveal that majority stored grains as assets. It was revealed by the study that many (41%) of the women in the study

\*Corresponding author: E-mail: [hadizasindamanuhu@yahoo.com](mailto:hadizasindamanuhu@yahoo.com);

area were involved in Rotating Savings and Credit Association (ROSCAs) as a financial saving tool. Based on the finding of this study, it is recommended that there is need to implement policies that will boost the productivity and improve the income of rural women. Institutions that are involved in developmental projects need to increase support to improve the business environment of rural women.

**Keywords:** *Savings; rural women; determinants; Borno; Nigeria.*

## 1. INTRODUCTION

In recent years, many studies in the area of microfinance [1-4] have indicated the need to depart from microcredit provision to microfinance with savings as the means for capital accumulation. This paradigm shift came about due to the realization of the inadequacy of loans to help the poor to improve their wellbeing, especially women [5]. The potential of the poor and low income groups to save has become evident through the many innovative ways of saving and institutions that have evolved to serve the poor in the informal sector. It was based on this fact that the low savings among the poor stems from inappropriateness of institutional structures and deposit facilities tailor made for them [6]. Studies have also shown that the poor do save when provided with the opportunity and appropriate conditions that address their concerns, such as reasonable subsidies [7].

In developing countries, Nigeria in particular, Women play vital roles in food production, processing and marketing; producing about 60-80 percent of food in the country [8,9] and contributing about 60-80 percent of agricultural labour force [10]. They also contribute to household well being through their income generating activities [11,12]. Despite the immense contributions of women, they face a number of constraints like socio-economic, institutional and cultural factors that limit their capacity to achieve their potentials.

Savings of rural women is one of the factors that could help them overcome the effect of these constraints and achieve their potentials. Their savings have a multiplier effect to the economy. It contributes to the accumulation of financial capital at household as well as national levels. It also helps to reduce vulnerabilities in times of shocks. Saving is a key component in any development endeavour as it is believed to be the surest way of increasing income and boosting productivity in an attempt to break out of the vicious cycle of poverty. Without savings,

people are likely to face severe problem of survival when they are no longer able to work. It is also argued that, when poor households' desire and need to save meets, a safe, easily accessible opportunity to do so, their capacity to save, commitment to saving, and the amounts they manage to save are remarkable. High incomes lead to alleviation of poverty in households, ultimately resulting into improved quality of life of people in rural communities.

In rural areas, rural financial programmes have been largely designed, crafted and implemented with the male heads of households as the intended client and fail to recognize that women are active, productive and engaged in different livelihood activities with their own financial needs and constraints [13]. Women constitute approximately half of the rural labour force and, while not always counted, they are economically active in each subsector of the rural economy. Even though millions of women throughout the world contribute to national agricultural output and family food security, detailed studies from developing countries consistently indicate that rural women are more likely to be financially constrained than men of equivalent socio-economic status [14].

Over the years, successive governments in Nigeria have tried to provide formal savings mobilization opportunities in attempt to make financial resources available to the people to actualise their livelihood activities that could lead to economic development. Examples of these formal savings mobilization opportunities include Rural Banking Scheme, Micro-Finance Banks and Community Banks with ease of accessing facilities by the people. Previous research findings on savings have dwelled more on household savings with the male heads of households as the respondents. While women are also active and constitute half of the working labour force in rural areas [14], they also take part in savings mobilization, but are not usually taken into consideration.

Considering the important contribution of women in the economy commonly indicated by their different livelihood activities, it is imperative to understand their savings mobilization from the perspective of rural women. This research was undertaken with forms on the women's savings, institutional and cultural factors in addition to socio-economic factors. The main objective of the study was to analyse the determinants of savings among rural women in Borno State, Nigeria.

## 2. METHODOLOGY AND CASE STUDY DESCRIPTION

The study was conducted in Borno State, Nigeria. The State lies between latitudes  $10^{\circ}00'N$  and  $13^{\circ}00'N$  and longitudes  $12^{\circ}00'E$  and  $16^{\circ}00'E$ . The State is bordered by Adamawa State to the south, Yobe State to the west and Gombe State to the southwest. It also shares border with Cameroon Republic to the east, Chad Republic to the north east and Republic of Niger to the north (Map 1). The state has a land mass of about 69,434 square kilometres and comprises of 27 Local Government Areas. The provisional census gives the population of the state as 2,653,015 for male and 2,446,985 for female, making a total of 4,998,033 [15].

In Borno State, women engage in a variety of economic activities essential to support the development of the state. They are involved in agriculture (food crop and livestock production) and micro-industries. They are also active in income generating activities such as processing and marketing. Other income generating activities are hair plating, mat making, pottery and tailoring [16].

The study used the three (3) Agricultural Development Programme (ADP) Zones in the state. Each zone comprised of nine (9) Local Government Areas (LGAs). A Multi-stage random sampling technique was employed in selecting the sample for the study. In the first stage, two (2) LGAs from each of the three (3) ADP Zones in the State were randomly selected; making a total of six (6) LGAs. These LGAs include: Kukawa, Mongono, Bama, Kaga, Gwoza, and Hawul. In the second stage, proportionate random sampling was used and twenty-three (23) villages were selected out of

the six (6) LGAs selected. In the third stage, there was a proportionate random selection of six hundred (600) respondents from the twenty three (23) villages for the study. The random selection of six hundred (600) respondents was done from the Lists of women involved in livelihood activities from the twenty three villages were obtained from extension agents working in these communities.

Primary and secondary data were used for this research. The primary data were collected using Interview Schedule. Trained enumerators from ADP were engaged in data collection. The secondary information was obtained from published materials such as journals, government publications and project reports.

The analytical techniques that were used in data analysis are the descriptive and inferential statistics. Descriptive statistical techniques used were frequencies, percentages, means, bar charts, pie chart, and Z score. They were used to categorize respondents based on their socio-economic characteristics. The Logit regression model (LRM) was used to determine the relationship between the probability of saving among rural women and the various factors affecting their savings. Logistic regression is useful for situations in which one can predict the presence or absence of a characteristic or outcome based on values of a set of predictor variables.

$$P(Y=1) = F(X, \beta) \quad (1)$$

Where:

$P(Y=1)$  is the probability of the dependent variable taking on a value of 1

$F$  is an appropriate functional form

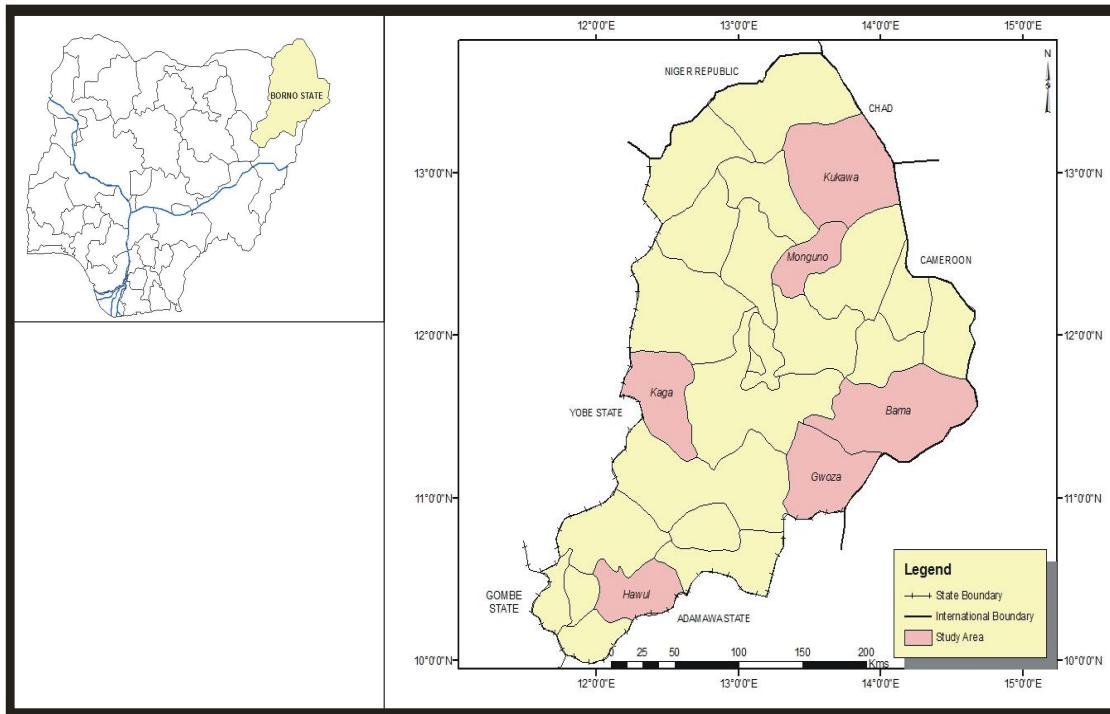
$X$  is the independent variable to be estimated

The logit function is represented by

$$PY_i = \frac{e^{(\alpha + \beta_i x_i)}}{1 + e^{(\alpha + \beta_i x_i)}} \quad (2)$$

Where:

$\alpha$  = the constant of the equation and  $\beta$  = the coefficient of the predictor variables.



**Map 1. Map of Borno state showing the study area**

An alternative form of the logistic regression equation is:

$$\ln(PY_i) = [\ln(PY_i)/1 - \ln(PY_i)] = \alpha + \beta_i X_i + U_i \quad (3)$$

Where:

- $\ln$  = Natural logarithm
- $P(Y_i)$  = Probability (P) of the occurrence of the dependent variable ( $Y_i$ ) (1)
- $1-P(Y_i)$  = Probability (1- P) of the dependent variable ( $Y_i$ ) not occurring (0)
- $\alpha_i$  = Coefficient of the constant term
- $\beta_i$  = Coefficients of the independent variables
- $X_i$  = independent variables
- $U$  = error term

## 2.1 Empirical Model Specification

The LRM has been shown to be more precise and appropriate in analyzing relationships involving binary dependent variable ( $Y_i$ ) taking the value of one and zero and a set of continuous independent variables ( $X_i$ ) as shown by some researchers [17-20]. In this study, the basic function for determining the socio-economic, institutional and cultural factors is:

$$\ln P(Y_i=1) = \ln P(Y_i = 1)/1 - P(Y_i=0) = \alpha + \beta_1 X_1 + \dots + \beta_{15} X_{15} \quad (4)$$

Where:

- $P(Y_i)$  = probability of saving part of income by respondent  $i$  from livelihood activity (taking on a value of 1)
- $1-P(Y_i)$  = probability of not saving part of income by respondent  $i$  from livelihood activity (taking on a value of 0)
- $\alpha$  = a constant
- $\beta_{15}$  are coefficients of the socio-economic, institutional and cultural factors in the model
- $X_1 X_{15}$  are socio-economic, institutional and cultural factors in the model
- $X_1$  = Age of respondent (AGE) in years;
- $X_2$  = Farm income of (INC 1, income from farm) in naira;
- $X_3$  = Non-farm income (INC 2, income from other livelihood activities apart from farm) in naira;
- $X_4$  = Household size (HHSZ, number of individuals living together);
- $X_5$  = Education (EDU, years spent in school) in years;
- $X_6$  = Marital status (MST)

$X_7$ = Working experience (WEXP, number years spent in a livelihood activity) in years;  
 $X_8$ = Type of Saving mobilization (TYSAV) formal= 1, non formal =0  
 $X_9$ = Physical wealth (PHYW, Assets in monetary value) in naira;  
 $X_{10}$ = Access to credit facilities (CREDIT) dummy where D= 1 if yes, and 0 if otherwise;  
 $X_{11}$ = Distance to saving institution (DISSAVE) in kilometres;  
 $X_{12}$ = Interest rate (INT RT) dummy= 1 if the person believes that the interest rate paid by banks are attractive, 0 if otherwise  
 $X_{13}$ = Purdah (PUR, a religious and social practice of female seclusion prevalent among some Muslim communities) dummy where D= 1 if yes, and 0 if otherwise  
 $X_{14}$ = participation in decision making on savings in household (DMS) dummy where  
D= 1 if yes, and 0 if otherwise;  
 $X_{15}$ = Spouse approval on saving (SAS, whether husband approves saving or not) dummy where D= 1 if yes, and 0 if otherwise;  
e = error term.

### 3. RESULTS AND DISCUSSIONS

#### 3.1 Socio-economic Characteristics of Respondents

Socio-economic characteristics of rural women differ significantly. Such difference in socio-economic characteristics play important role in influencing the saving behaviour of rural women.

The result in Table 1 present's data on socio-economic characteristics of respondents, revealed that about 90% of the respondents fell within the age range of 20- 50 years. This age range could be considered as the productive and energetic age bracket. Approximately 90% of the respondents were 50 years old or younger. The average age of the respondents was 36 years. This by implication means that the study area has large number of productive, energetic and active women that are involved in different forms of livelihood activities that can make them to engage in savings mobilization to generate funds in order to meet their family obligations. Also young people are believed to save. The

proportion of respondents above the labour force is 6% and below is 3.8%. This finding supports a study that observed that younger people have a higher capacity of saving than older people [21]. This finding also agrees to another study where it was showed that most of the respondents were in their active ages and can engage in activities that generates funds for their livelihood activities [22].

The study revealed that majority (88%) were married, 4% were single, 2.8% were divorced while 5.2% remained widowed (Table 1). Married people have enormous responsibility by the virtue of their status, this can make them engage in savings mobilization to generate funds especially to cater for their wards, hence this will make them work hard in order to utilize savings mobilisation to better the life of their family especially their children. This finding is in agreement with that of a study that revealed that substantial numbers of social clubs and ROSACAs formed are by married women, especially those with independent sources of income [23].

Result from the study (Table 1) shows that household size with the highest frequency was between 4-8 persons consisting a total of 64.2%. The least was household with twenty and above persons. The mean of household size was 6 indicating a large household size which is typical of a developing country like Nigeria. Large household size saves less since the needs of other members of the family have to be met. This conclusion is in line with the result of a study carried out in India on private saving [24], and in the Philippines on children and household savings [25]. The result indicated that larger family size and larger number of children in the family reduces savings, because money will be channelled through children's feeding and up keep.

Table1 shows that 64% of the respondents were engaged in Agriculture as their primary occupation. Of the respondents, 8% were traders, 6.3% of them were engaged in Agro-processing, 12.5% of them were Artisans, while 8.4% of them were civil servants. This implies that the major occupation of most of the women in the study area was agriculture. Due to the nature of agricultural activities which is mostly during raining season, respondents had to engage themselves in non-farm activities in order to supplement farm income. Non- farm income for those respondents that have farming as their

main occupation will serve as alternative source of income and vice-versa so that they will be able to utilize savings mobilization techniques efficiently.

Table 1 depicts that 40.8% had working experience of less than 10 years, 7% had working experience of 31 years and above, while more than half (52%) had 10-30 years working experience. The number of years one spends in a particular livelihood activity could improve the enterprise in which one is involved in which one can subsequently increase savings. The longer a respondent spends on an occupation often determines the income cycle, the stability and regularity of income can in-turn determine savings. Respondents with longer working experience in the study area are likely utilizing savings mobilization techniques more efficiently.

Results on level of Education (Table 1) shows that majority (52%) of the respondents had no formal education, 11.7% had gone through primary education, and 18% had completed secondary education, only 12% completed tertiary education. The major implication of this result could be that illiteracy level in connection with western education among the women is high. Education which is considered as an important capital asset, could affect the savings and investment behaviour of rural women. With high level of illiteracy the women may not be able to utilize formal savings mobilization techniques due to the complex procedures and formalities.

The result on table 1 revealed that 35% earned less than ₦50,000 from farming activities, 20.5% earned between ₦50,000- ₦100,000, 6.2% earned between ₦100,001- ₦150,000, 4.0% earned between ₦150,001- ₦200,000, while 5.2% earned above ₦200,000. About 65% of the women in the study area depend on farming as their primary occupation, and the annual farm income is very low, only 5.2% are able to get an income of ₦200,000 and above. This implies that farm productivity is low due to lack of inputs and credit that can help these women to achieve maximum output to be able to increase their income that can improve their savings.

According to Table 1, results on non-farm income revealed that respondents that earned above ₦200,000 rose to 11.7%, while those that earned between ₦50,000-₦100,000 were 21.0%. Due to the nature of farming activities which is done mostly during raining season, respondents that engage in farming as their primary occupation

had to engage themselves in non-farm activities in order to supplement farm income since farm income is low. Most of the respondents were involved in more than one livelihood activity. This implies that there will be increase in income and they will be able to save more. This concurs with the economic theory where an increase in income is bound to lead to an increase in savings.

With regards to total annual savings, the Table (1) showed that most (44.1%) of the respondents annual savings was between ₦21,000- ₦30,000, followed by 21% savings which was between ₦10,000-20,000 then 20.6% saved less than ₦10,000 annually. Those who saved above ₦30,000 were 14.3%. Looking at the result, the results suggest that there are great potentials for saving among women in the study area.

### 3.2 Respondents Engaged In Savings Mobilization Techniques

Fig. 1 shows that majority (76%) of the respondents save some income from their livelihood activities, while 24% of them do not save from their income. The findings revealed that despite the low income of the respondents, yet they set aside some amount from their income in order to save.

Those that do not save could not spare any amount from their livelihood activity to save. This is because most of the women that could not save depended on only one livelihood activity and so they had low income and could not have enough to save. Savings is made by these women out of the income from economic activities. In the study area, money saved by women is usually from sale of agricultural produce, wages and income from enterprise. Due to seasonality of cash flow in rural area mainly through sales of agricultural produce, availability of work, and also the income they receive, saving is seasonal and irregular. From the income they received, they have the tendency to save for future. Savings gives these women the ability to turn irregular cash flows into lump sums for larger purchases, emergencies, and investments. Where there is no health insurance and no social security, savings are critical for poor women's welfare. Credit can satisfy these needs, too, but at a higher cost and with higher risk. However, looking at the percentage of savers it shows that savings potentials are relatively large and widely unmobilized in the study area.

### 3.3 Reasons for Savings by Respondents

Information in Fig. 2 showed reasons for saving by respondents. From the figure, the respondents had different reasons for keeping away some money as saving. Most (34%) of the women save in order to boost their business enterprise. Of them 26% save for the purpose of children's education. This is in agreement with a finding which stated that in Senegal, savings was used to finance income generating activity, thus reducing the level of poverty of the people [26]. Again 16% also saved to smoothen consumption, 13% saved for precautionary reasons. Saving for precautionary reasons usually include saving for emergencies such as sickness, injury, death, natural disaster among

others. While 11% saved for projects, such as social in nature (birth, marriage, funeral, festivals) or investment (jewelleries, animals, home improvement).

### 3.4 Physical Assets of Respondents

Table 2 shows the distribution of respondents based on their physical assets. For women in the study area, not only do they save cash but they also keep assets as buffers in times of shock. This is the most common form of informal savings for poor women, also known as in-kind savings. These are high -value items that can be sold for cash in an emergency situation, such as gold jewellery etc.

**Table 1. Socio-economic characteristics of respondents (n=600)**

Socio-economic variable	Frequency	Percentage (%)	Mean
<b>Age</b>			<b>36</b>
<20	23	3.8	
20-30	182	30.3	
31-40	214	35.7	
41-50	145	24.2	
51-60	29	4.8	
>60	7	1.2	
<b>Marital status</b>			
Married	528	88	
Single	24	4	
Divorced	17	2.8	
Widow	31	5.2	
<b>Household size</b>			<b>6</b>
<4	107	17.8	
4-8	385	64.2	
8-12	98	16.3	
>12	10	1.7	
<b>Child dependency ratio</b>			
<0.2	8	1.3	
0.2-0.4	56	9.3	
0.41-0.6	149	24.8	
0.61-0.8	214	35.7	
>0.8	133	22.2	
<b>Primary occupation</b>			
Farming	389	64.8	
Trading	48	8.0	
Agro-processing & Marketing	38	6.3	
Artisans	75	12.5	
Wage earners	50	8.4	
<b>Years of working experience</b>			
<10	245	40.8	
10-20	213	35.5	
21-30	100	16.7	
31-40	35	5.8	
>40	7	1.2	
<b>Educational level</b>			
No education	349	58.2	
Primary education	70	11.7	

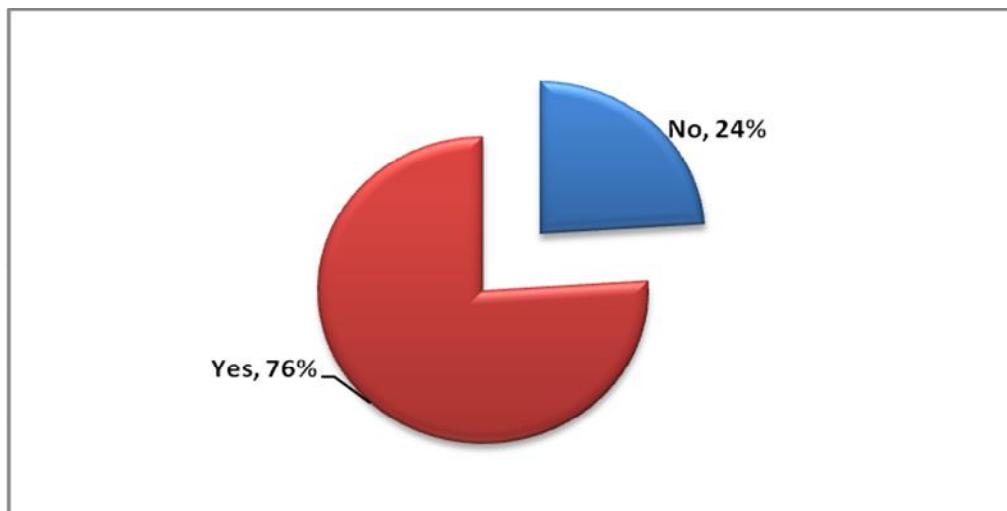
Socio-economic variable	Frequency	Percentage (%)	Mean
Secondary education	109	18.2	
Tertiary education	72	12	
<b>Annual farm income</b>			
<50,000	37	6.2	
50,000-100,000	123	20.5	
100,001-150,000	210	35	
150,001-200,000	24	4	
>200000	31	5.2	
<b>Annual nonfarm income</b>			
<50,000	126	21	
50,000-100,000	278	46.3	
100,001-150,000	26	4.3	
150,001-200,000	9	1.5	
>200,000	70	11.7	
<b>Total annual savings</b>			
<₦10,000	98	20.6	
₦10,000- ₦20,000	100	21.0	
₦21,000- ₦30,000	210	44.1	
₦31,000- ₦40,000	60	12.6	
>₦40,000	08	1.7	

Source: field survey, 2012

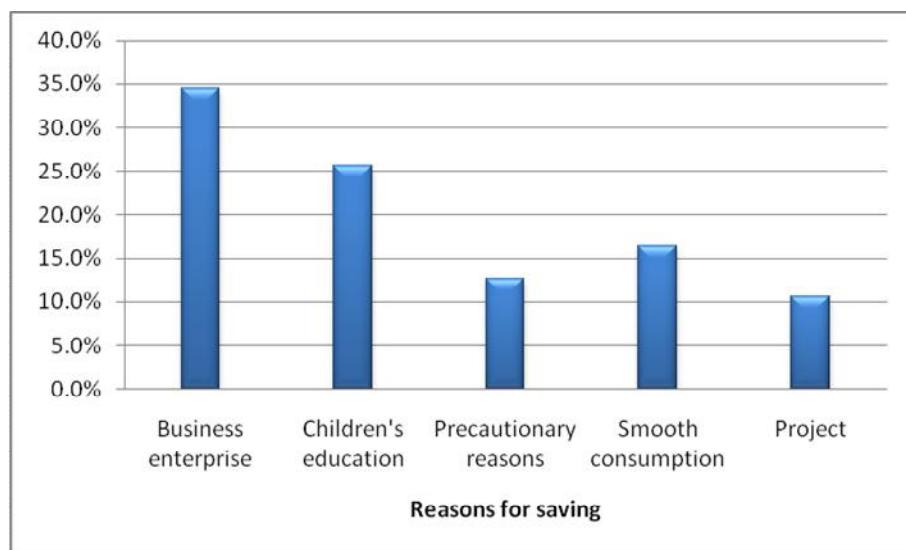
**Table 2. Distribution of respondents based on physical assets (n=600)**

Physical assets	Frequency	Percentage (%)
Land	88	6.39
Livestock	236	17.13
Jewelleries	280	20.32
Houses	25	1.80
Kitchen Utensils	349	25.33
Grains	380	27.58
Others	20	1.45

Source: field survey, 2012, \*multiple response existed, hence F>600



**Fig. 1. Respondents engaged in savings mobilization techniques**  
Savers and non savers, Source: field survey, 2012



**Fig. 2. Reasons for saving based on respondents**

Source: field survey, 2012

Table 2 shows that 27.58% of the respondents kept grains as a type of savings to be sold later when prices improve. A good number (25.33%) of the respondents had kitchen utensils as physical assets, followed by 20.32% and 17.13% of them kept jewellery and livestock, respectively. Jewellery are very important high-valued items for the women in the study area; they are always sold at high prices and never lose their values (example is gold and silver). Empirical study showed that jewellery traditionally serves as a buffer asset for consumption smoothing in Indonesia since they can be easily pawned or sold [27]. Only about 6% of the respondents had land as a physical asset. The issue of land has always been a problem for rural women, only few rural women have land as their own physical asset. Land has always been the most unequally distributed asset [28]. Women are less likely than men to have control over land, even when they do formally own it. Biased inheritance rights often bestow land to male relatives, leaving both widows and daughters at a disadvantage [29]. Other assets owned by 3.3% of the respondents, are grinding machines, bicycles, ox-ploughs and motor cycles. Only few women were able to have such assets.

### 3.5 Logit Estimate of Likelihood of Savings

Table 3 shows the Logit estimate of likelihood of savings based on socio-economic, Institutional

and cultural factors. The result is presented below.

The relationship between age and likelihood of savings was negative and statistically significant at 5%. The average age of respondents was 36 years; this means that majority of the respondents rally around that age. The result implies that younger women work hard in order to save and accumulate durable assets for future consumption during their working years but as they grow older, savings reduce. This means chances of savings will increase for younger women while the older women will save less in the study area. When respondents are young there could be possibility of taking more risks in their investment portfolio and diversify into other livelihood activities so as to get more income. The women become more aware of the risk they are involved in, therefore, they tend to save more. There could also be another aspect of responsibility. Having wards could make the women save more at younger age so as to cater for their wards especially daughters during marriage. This finding disagrees with a study on determinants of informal savings amongst vegetable farmers in Cameroon, which states age had a negative value on savings [21]. This means that younger people have a lower capacity of saving than older people.

Table 3 also shows that income from farming and non-farming activities is a very important factor

( $p<0.01$ ) that influenced the probability of savings. The result fits with the *a priori* expectation. The positive and significant relationship between income and savings agrees also with Keynesian saving's theory where an increase in income is bound to lead to an increase in savings. The study revealed that an increase in income will result in 1% increase in savings by the respondents.

The positive savings-income relationship found in this study agrees with the study on demand for financial services by members of credit unions in Zaire; it found a positive saving-income relationship [30]. The absolute income theory states that the level of income determines the level of savings [17]. It further indicates that savings increase with each rise in income.

Result in Table 3 also reveals a positive and significant (5%) relationship between education and the likelihood of savings. This implies that increase in education of the respondent will improve the probability of savings. Attaining some level of education by the women could help them understand the importance of savings and might also help them to comprehend procedures, formalities and associated risk and returns involved in various financial instruments and institution. The result agrees with a study on rural savings in Ondo state, it reported that human capital development (self knowledge acquisition) is positively related to level of savings [31].

In the study area, money saved by women is usually from sales of agricultural produce, wages and income from livelihood activities. Due to seasonality of cash flow in rural areas which is mainly through sales of agricultural produce, availability of work, and also the income they receive, their savings could be seasonal and irregular.

The coefficient of working experience was found to be significant at 5% in influencing savings in the study area. This implies that the more experienced a respondent has in a livelihood activity, the higher the likelihood of savings.

This is expected because the more experience a respondent has, the better her skills which will earn her more. This could also mean that knowledge gained over time from working experience could make the women more efficient and therefore more remunerated, that is, it is expected that the women will accumulate physical assets with long working experience and also save more.

Type of saving mobilization technique in the study area was found to be an important determinant ( $p<0.05$ ) influencing saving. The relationship between type of saving mobilization technique and savings was found to be positive and significant at 5% in the study area (Table 3). With more savings mobilization in the area, savings increases. More or different savings mobilizations provide alternatives to potential savers.

**Table 3. Logit estimate of likelihood of savings based on socio-economic, institutional and cultural factors**

Variables	Coefficients	Z	P> z
Age	-0.9874935	-2.05**	0.040
Income 1	1.000009	2.86***	0.004
Income 2	1.000014	2.63***	0.008
Household size	-0.8859392	-0.48	0.635
Education	1.27823	1.96**	0.050
Marital status	1.015823	3.02***	0.003
Working experience	-0.921041	-1.99**	0.047
Type of savings	8.176686	2.35**	0.019
Physical wealth	-0.999996	-2.73***	0.006
Credit access	9.459838	2.15**	0.031
Distance to savings institution	-0.1431861	-2.61***	0.009
Interest rate	-0.2436188	-1.47	0.141
Purdah	1.288239	0.11	0.911
Participation in decision making on savings	-0.1563272	-1.92**	0.055
Saving approval from Husband	-0.5644069	-0.34	0.737
Constant	2.955632	47.62***	0.000

Source: regression extract, 2012, \*\*\*= significant at 1%, \*\*= significant at 5%

Access to credit as one of the institutional factors was found to be positive and significant at 5% in influencing the likelihood of saving among respondents. This implies that the probability of saving could increase with credit access. Credit if properly utilized could strengthen the existing enterprise to a higher level, so that streams of income will grow and therefore enhance savings of the women. However, another study found that access to credit caused a reduction in savings in many industrial countries [32]. This could mean that credit was not channelled to the right purpose.

Table 3 further revealed that there was a negative and significant relationship ( $p<0.01$ ) between distance to savings institutions and the likelihood of savings among respondents. This means that saving institutions that are found within trekable distance were being utilized more than those that are far from location of the savers. Proximity to the financial institution determines the type of transport one should use, and this is an element of transaction costs. If the person walks or uses cheap means of transport, the likelihood of being motivated to come to financial institution is high, but if coming to the institution involves a cost which is not affordable, one will seek alternative savings instead.

The relationship between participation in decision making on savings in household and the likelihood of savings was found to be negative and significant at 5% (Table 3). This goes to show that many women in the study area do not take part in decision making on savings in their households. The explanation to this reason could be linked to the cultural practices taking place in the study area. Usually, men make most of the decision in the households and savings is not an exception.

#### 4. CONCLUSIONS AND SOCIO-POLITICAL RECOMMENDATIONS

Based on the findings of the study, it was observed that the women were in their active and productive ages so they were able to engage in activities that generated them funds to support their livelihood strategies. Most of the women were married, majority were self employed. They were engaged in various types of occupation, while only few were wage earners involved with the government. Many of the respondents were also engaged in secondary occupation which generated income resulting in high annual

incomes. More than half of the women had no formal education.

Most of the respondents were aware of saving mobilization techniques, it means that women's acceptance of saving mobilization techniques could lead to effective use of saving mobilization techniques as a source of capital for business investment. It will also enhance savings for investment opportunities leading to higher productivity, which is a necessary requirement for capital accumulation among rural women in the study area.

The study also concluded that there was high percent of savers and few non savers among the women in the area. The women preferred the use of informal saving mobilization type than formal savings mobilization types. This was because the informal saving mobilization type was more accessible to them than the formal. ROSCAs were the most preferred informal saving mobilization, followed by the daily contribution scheme. Income, education, marital status, working experience and type of saving institution used by respondents was found to influence their likelihood of saving. Based on the findings it is therefore recommended, that:

- i. There is need to educate women on saving institutions and enlighten them on the need of savings. Saving institutions such as micro-finance institution could be located at accessible locations. These will enhance saving mobilization and capital accumulation.
- ii. To improve on saving, there is great need for the government to increase employment among women in rural areas. This will take care of the effect of the dependency ratio observed in the study.
- iii. To improve the saving level of the rural women, there is need to implement policies that will boost the productivity and improve the income of rural women. Institutions that are involved in developmental projects need to increase their support to improve the business environment of the rural women. Such decisions will include improvement in transportation and communication infrastructure.
- iv. Rural women should be properly mobilized and organised to join cooperative societies and self help groups and register in other formal financial institution, so that the

Government, NGOs and Micro-finance institutions can easily reach out to them as this will improve their level of personal development. The saving mobilization organizations should adopt demand oriented approach in designing savings programs by considering the socio-economic characteristics of rural women.

## ACKNOWLEDGEMENTS

We wish to acknowledge the contributions of the enumerators of this research, extension agents of Borno State Agricultural Development Programme (BOSADP) who helped in the data collection. Thanks to Anjikwi Yakubu for assisting in the data analysis. Special thanks also goes to the various Women group that were used as respondents in this studies.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES

1. MacIsaac N. The role of microcredit in poverty reduction and promoting gender equity: A discussion paper, report to CIDA, Money Matters. Save the Children. London; 1997.
2. Vonderlack RM, Schreiner M. Women, microfinance and savings: Lessons and proposals. Washington University, St. Louis, USA: Center for Social Development; 2001.
3. Kamal V. Microfinance and poverty alleviation. *Economic and Political Weekly*. 2003;38(5):432-433.
4. Stenga J. Demand and challenges of accessing saving products in Tajikistan microfinance institutions. An M.Sc. Thesis, Universite Libre de Bruxelles; 2010.
5. Zeller M, Sharma M. Many borrow, more save and all insure: Implication for food and micro-finance policy, *Food Policy*. 2000;25:143-167.
6. Oloyede OJ. Informal financial sector, savings mobilization and rural development in Nigeria: Further evidence from Ekiti State of Nigeria. *African Review*. 2008;6(1):35-63.
7. Sherraden M. Asset building policy and programs for the poor. In: Thomas M. Shapiro and Edward N. Wolff (eds.) *Assets for the Poor: The Benefits of Spreading Asset Ownership*. New York: Russell Sage; 2001.
8. Buckland L, Haleegoah J. Gender analysis in agricultural production. 11TA Research Guide 58 training Programme of International Institute for Tropical Agriculture (IITA). Ibadan, Nigeria. 1996;10-12.
9. Rahman SA, Gabriel J, Marcus ND. Gender differentials in labour contribution and productivity in farm production. Empirical evidence from Kaduna State of Nigeria. Paper presented at the National Conference on Family at Makurdi, Nigeria; 2004.
10. Mgbada JU. Production of staple crops by rural women in Enugu and Ebonyi States. Lessons for enhancing poverty alleviation programmes. In Olowu TA. (eds). Agricultural extension and poverty alleviation in Nigeria. Proceedings of the 6<sup>th</sup> Annual National Conference of the Agricultural Extension Society of Nigeria. 2000;11.
11. Ayoola JB. Economic analysis of women entrepreneurship in low income households of Benue State, Nigeria. A PhD Thesis Submitted to Abubarka Tafawa Balewa University, Bauchi, Nigeria, in Partial Fulfilment of PhD Degree. 1999;53-55.
12. Rahman SA, Usman JI. Comparative analysis of women's participation in agricultural production in Northern and Southern Kaduna State, Nigeria. Mobilizing investors for sustainable agricultural research, development and production in Nigeria. Proceedings of the 38<sup>th</sup> Annual Conference of the Agricultural Society of Nigeria. 2004;105-108.
13. Diagne A, Zeller M, Sharma M. Empirical measurements of household's access to credit and credit constraints in developing countries. FCND Discussion Paper No. 90, Washington, D.C: International Food Policy Research Institute; 2000.
14. Fletschner D, Kenney L. Rural women's access to financial services credit, savings and insurance. ESA Working Paper. Agricultural Development Economics Division. The Food and Agriculture

Organization of the United Nations. 2011;07-11.  
Available: [www.fao.org/economic/esa](http://www.fao.org/economic/esa) (Accessed 3<sup>rd</sup> September, 2011)

15. National population Commission Report Abuja Nigeria; 2006.

16. Ministry of Women Affairs and Social Development Borno State: A Report; 2008.

17. Dellien H. Household savings and deposits in rural honduras. Masters Thesis, Department of Agricultural Economics and Rural Sociology, Ohio State University, Columbus; 1997.

18. Zhu Q. The Impact of Rural Enterprises on Household Savings in China, ZEF – Discussion Papers on Development Policy No. 86, Center for Development Research, Bonn. 2004;51.  
Available:<http://www.zef.de/content/3/6/2010> (Accessed 14 October, 2011).

19. Rha J, Montalto CP, Hanna SD. The Effect of Self-Control Mechanisms on Household Saving Behavior. *Financial Counseling and Planning*. 2006;17(2):66-79.

20. Ojo OC. Analysis of women resource accessibility and use efficiency in crop production in Borno State, Nigeria. Unpublished Ph.D. Thesis. Department of Agricultural Economics, University of Maiduguri, Borno State; 2011.

21. Bime MJ, Mbanasor J. Determinants of informal savings amongst vegetable farmers in North West Region, Cameroon. *Journal of Development and Agricultural Economics*. 2011;3(12):588-592.

22. Bzugu PM, Hayatu YW. Savings mobilization and agricultural production among small scale farmers in Mubi Region, Adamawa State, Nigeria. In Global Approaches to Extension Practice: A Journal of Agricultural Extension. 2007;4(2):26-31.

23. Adams D, Fitchett D. *Informal Finance in Low-Income Countries*, Westview Press, Boulder; 1992.

24. Loayza N, Shankar R. Private saving in India, *The World Bank Economics Review*. 2000;14(3):571-594.

25. Orbeta AC. Children and household saving in the Philippines. Philippine Institute for Development Studies. Discussion Paper, Series; 2006.

26. Goodland A. *Rural Finance*. Policy Series 1. U.K: Chatham; 1999.

27. Frankenberg E, Smith J, Thomas D. Economic Shocks, Wealth and Welfare, *Journal of Human Resources*. 2003;38(2):56-70.

28. Fletschner D. Rural women's access to credit: Market imperfections and intrahousehold dynamics. *World Development*. 2009;37(3):618-631.

29. Agarwal B. Gender and land rights revisited: Exploring new prospects via the state, family, and market. *Journal of Agrarian Change*. 2003;3(1-2):184-224.

30. Kabongo K. Demand for financial services by members of credit unions in Zaire. Unpublished M. Sc thesis, Department of Agricultural Economics and Rural Sociology. The Ohio State University, Columbus, Ohio; 1991.

31. Fasoranti MM. The influence of rural savings mobilization on economic development of rural areas: A study of Akoko Region in Ondo State in Nigeria. *International Business Management*, Medwell Journals. 2007;1(2):20-23.

32. Terrones MR. Are savings and investment trends fueling global imbalances? IMF Survey. Washington, D.C., IMF. 2005;34(17):89.

© 2015 Nuhu et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

**Peer-review history:**

The peer review history for this paper can be accessed here:  
<http://www.sciedomain.org/review-history.php?iid=898&id=25&aid=8433>