Income Diversification and Savings Pattern among Rural Women in Oyo State, Nigeria

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Abstract

The most important determinant of saving is the level of income. Higher levels of savings can translate to higher levels of investment and rural development. To boost income, rural women diversify their livelihood activities. This study examined income diversification and savings pattern among rural women in Oyo State, Nigeria. Various income-generating activities, patterns of diversity and savings, determinants of income diversification and saving rate, and the effect of income diversification on rural women savings were assessed. Structured questionnaire was administered on a sample of 204 rural women who were selected using multi-stage sampling procedure. Descriptive statistics, Simpson diversity index and Tobit regression models were used in data analysis. Results show that majority (75%) of the rural women were arable crop farmers and 96% were diversified in income generation. The mean diversity index was 0.44, implying that on the average, rural women engaged in more than one income-generating activities. Saving rate is relatively low with mean saving rate of 28.08%. Tobit regression results show that membership of cooperative society ($p<0.05$), credit received ($p<0.1$) and road network ($p<0.01$) significantly affect income diversification. Also, income diversification ($p<0.05$), total income ($p<0.01$), household size ($p<0.01$) and age ($p<0.01$) significantly affect savings rate. Having more than one source of income increases saving rate among rural women. Therefore, Government and Non-governmental organizations (NGOs) should assist in making credit facilities available to rural women and ensure adequate monitoring to prevent diversion of funds, provide social amenities and organize training to improve production processes among rural women.

Keywords
Income diversification, savings pattern, savings rate, rural women, saving mode

Introduction

Rural economy is dominated by agriculture enterprise, which constitutes a major income-generating activity among rural populace (Oluwepo, 2010). As

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estimated by the World Bank, three-quarters of the rural dwellers draw their livelihood from agriculture related activities (Kotze, 2003), with a large percentage of the total workforce provided by women. A study financed by the United Nations Development Programme (UNDP) showed that women make up 60-80 percent of the agricultural labour force in Nigeria (World Bank, 2003). Contributions of women to agricultural production in Nigeria have been elicited in literature (Rahman and Alamu, 2003; Auta *et al.,* 2000; Green, 2000; Amali, 1989). As pointed out by International Labour Organisation (ILO, 2017), women play vital roles in food production, processing and marketing; producing the country's chunk of food. Their activities are associated with subsistence system of production (Melamed, 1996). The subsistence and seasonality of agricultural production, as well as the high level of risk involved, have resulted in activities adjustment (Barrett *et al.,* 2001)

In order to offset agricultural risk and attain livelihood sustainability, women participate in different livelihood activities. Livelihood diversification is a strategy to improve economic conditions for agricultural production in Africa (Simtowe *et al.,* 2016). The components of livelihood diversification can be grouped by sector (agricultural or non-agricultural), by function (wage employment or self-employment) or by location (on-farm or off-farm) (Loison and Loison, 2016). Of the two major activities performed in rural Nigeria - agricultural and non-agricultural economic activities, non-agriculture is the integral component, with rural women engagement economically dominant (Haggblade *et al.,* 2007). Non-agricultural employment offers the most diversification strategies among rural women (Barrett *et al.,* 2001; Ellis, 2000). Rural women engage in various non-farm income-earning activities, in addition to the vital roles they play in domestic duties, thereby insuring against agricultural production and market risks with declining farm incomes (Zezza, 2007; Kijima *et al.,* 2006). The substantial and increasing share of non-agricultural income in total household income, as reported by several studies (Haggblade *et al.,* 2007; de Janvry and Sadoulet, 2001; Ruben and Van den Berg, 2001), show the importance of women in improving household welfare and the economy at large (Lanjouw and Murgai, 2008; Siti and Rosian, 2008).

Income Diversification is a form of self-insurance that entails building an increasingly diverse portfolio of activities and assets. Sekunmade and Osundare (2014) put it as attempts by individuals and households to find new ways to raise income in order to stay alive, lower all forms of risk and improve their wellbeing. Savings, on the other hand is the proportion of income not spent on current consumption. According to Amu and Amu (2012), saving simply means putting something aside for future use or what could be considered as deferred expenditure. It is used for meeting contingencies and combating emergencies confronted by individuals. The desire and ability to save depend on having more than the resources dedicated to basic needs, thereby making income a significant determinant of household savings (Carpenter and Jensen, 2002). Nuhu *et al.* (2015) posited that income viability

of farming households has positive influence on their saving potentials. Both income diversification and savings are risk-averting mechanisms, providing safety nets for households in times of scarcity or difficulty. Development process will be hastened with diversification and saving.

More women taking up roles of income earners shows their position in economic enhancement. Food and Agricultural Organization (FAO, 2017) submitted that women globally could raise the yields on their farms by 20-30 percent, thereby increasing incomes and alleviating poverty if granted the same access to productive resources as men. As noted by the Department for International Development (DFID, 2000), ensuring the income of rural women is an essential precondition for boosting rural development. Women make meaningful contribution to family income through combination of conventional farming and wage labour. Increase in income generation will boost saving rate, thereby raising investment level, which translates to development.

Despite the aforementioned significant roles of women in building the economy, most development literature has neglected their participation in economic development; and national development is said to be hardly achieved with the negligence of women, who make up substantial segment of the society (Kishor *et al.,* 1999). There is therefore need to examine income diversification and savings pattern nexus among women.

This paper examines income diversification and savings pattern among rural women in Oyo State, Nigeria. The specific objectives are to:
  i. examine sources of income-generating activities among rural women
 ii. analyze income diversification and saving patterns among rural women
iii. determine factors influencing income diversification by rural women
 iv. analyze the effect of income diversification on rural women saving rate in the study area.

Conceptual Framework

Income plays a significant role in determining household saving. Studies have reported that savings is highly influenced by income (Pailwar *et al.,* 2010; Browning and Lusardi, 1996). Saving the income generated through diversification (agricultural/non-agricultural activities) is an essential instrument for investment, hence, economic growth (Mapa and Balisacan, 2004). Saving takes different forms (cash and kind), different modes and is carried out in formal and informal financial institutions (Ahmed, 2011).

Figure I shows the link between income diversification and saving patterns among rural women, and the effect on rural community development.
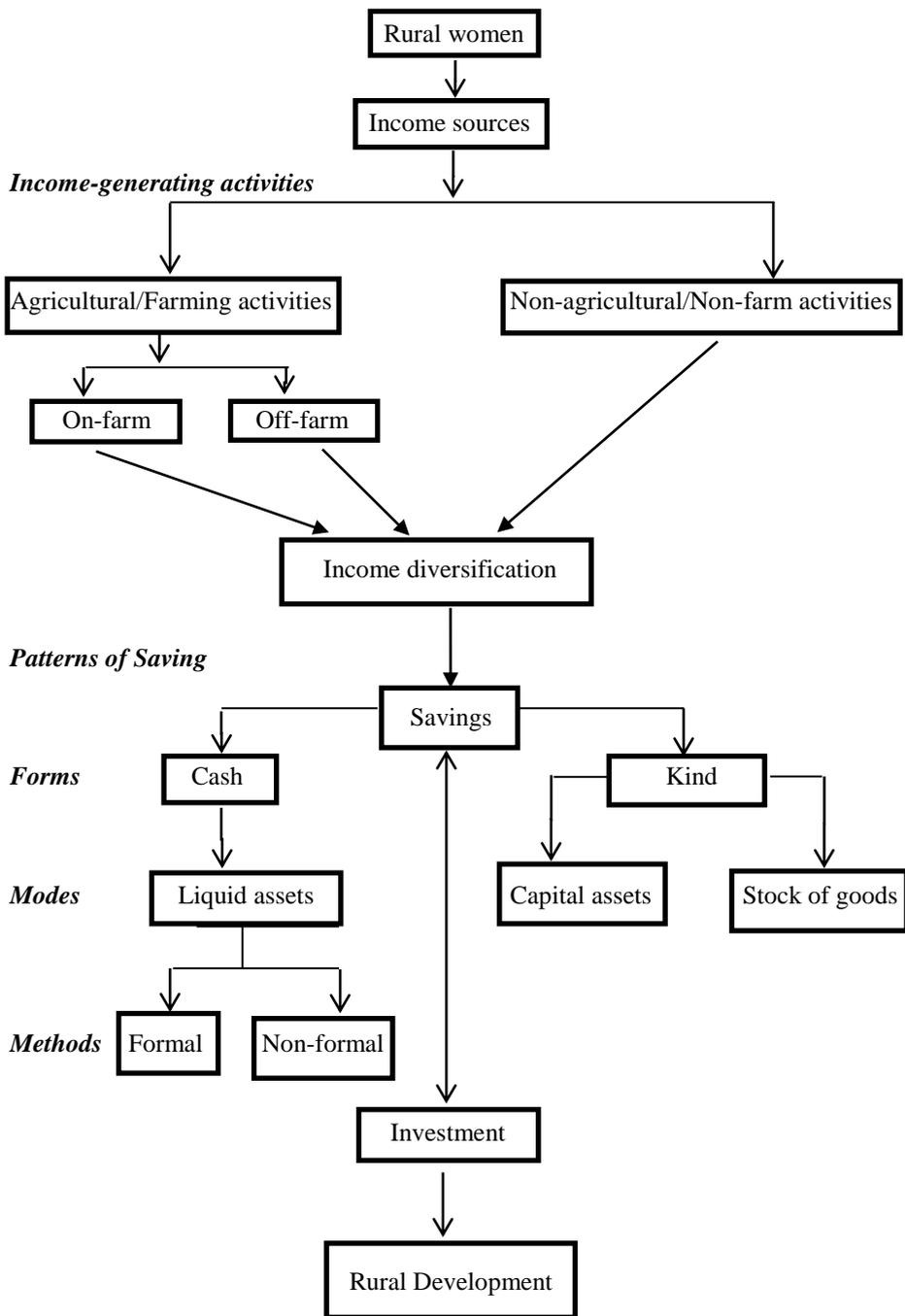
Figure 1: Conceptual Framework on Income Diversification and Savings Pattern
Source: Authors' Conception, 2018

Methodology

Nature of Data and Sampling Procedure

The study was conducted in Oyo state. It is an inland State in Southwestern Nigeria. It covers $27,249km^2$ (Oyo State Government, 2010). The state lies between latitudes 7^0N and 9^0N of the equator and between longitudes 2.5^0E and 5^0E of the prime meridian (Oladejo *et al.,* 2011). It is bounded in the south by Ogun State, in the north by Kwara State, in the west partly by Ogun State and partly by the Republic of Benin, and in the east by Osun State (Meludu and Ajayi, 2005). The climate is equatorial, notable with dry and wet seasons and relatively high humidity. Average daily temperature ranges between 25ºC (77.0ºF) and 35ºC (95.0ºF). The rainfall pattern is bimodal with the peaks in June, early July and September. Agriculture is the major occupation of the people of Oyo state with about 70% rural population. The prevailing climate and soil characteristics favour the cultivation of crops like maize, yam, cassava, millet, rice, plantain, cocoa, palm produce, cashew, and so on. Asides crop production, livestock production is practiced among the people of the state. Livestock raised include Sheep, Goats, Pigs, Rabbits, Poultry, Snail, and etcetera.

A multi-stage sampling procedure was used for the study. The first stage was the purposive selection of two out of the four agricultural zones in Oyo State based on pure agrarian communities. The selected zones were Ibadan/Ibarapa and Oyo, from which four blocks were randomly selected (second stage). In the third stage, two cells were randomly selected from each of the eight blocks. The final stage was the random selection of thirteen respondents each from the sixteen cells, making a total of 208 respondents, of which 204 responses were valid for use.

Analytical Techniques

Descriptive Statistics

Descriptive statistics such as frequency counts, percentages and mean were used to analyze various sources of income-generating activities, savings pattern, constraints to saving and rural women's perception of the effect of income diversification on savings. Results are presented in frequency distribution tables.

Index analysis

The Simpson index of diversity (SID) is widely used to measure the biodiversity of an ecosystem and can also be interpreted as the probability that two randomly selected organisms will be from the same species. Joshi *et al.*

(2003) adopted the Simpson Index to compare crop diversification in several South Asian Countries. In this study, SID is used to measure income, interpreting p_i as the proportion of income from source "i" (that is, the proportion (n/N) of income from one particular source (n) divided by the total amount of income generated from various sources (N), Σ is the sum of the calculations). If there is just one source of income, $p_i = 1$, so SID = 0, as the number of income sources increases, the share "p_i" declines as does the sum of the squared share, so that SID approaches 1. If there are K sources of income, then SID falls between zero and 1-1/K. The closer SID is to zero, the more the specialization, and the further it is from zero, implies diversification (Ibrahim *et al.,* 2009).

It is expressed as SID = $1 - \sum p_i^2$

Where:

p_i = Proportion of income from source "i"

$\sum$ = Summation sign

Saving Rate

Following Obayelu (2012), saving rate was analyzed using:

Saving rate = $\underline{\text{Total income - Total expenditure}}$ x 100
                                    Total income

Tobit Regression Models

Determinants of income diversification among rural women and the effect of income diversification on saving rate were analyzed using Tobit regression model as a result of the nature of dependent variable. Tobit model is a statistical model proposed by James Tobin (1958) to describe the relationship between a non-negative dependent variable (Y) and independent variables X_i. β_s are the coefficients determining the relationship between the independent variable and explanatory (dependent) variables. It is a censored regression model with a normally distributed error term U_i to capture random influences on this relationship.

Tobit model can be specified empirically as:

$Y_i^* = \beta X_i + U$ $i = 1, 2 ….n$

$Y_i = Y_i^*$ if $Y_i^* > 0$, $Y_i = 0$ if $Y_i^* \leq 0$

Where, Y_i = the observed dependent variable, which in this case is income diversification and saving rate among rural women.

Y_i^* = the latent variable which is not observable.
X_i = vector of factors determining the extent of income diversification and saving rate.
β = vector of unknown parameters to be estimated.

U = residuals that are independently and normally distributed with mean zero and a constant variance.

Determinants of income diversification among rural women and the effect of income diversification on saving rate were analyzed using Tobit regression models. The models assume a threshold value of zero, assigned to respondents that are not diversified and with no saving. For the remaining respondents, the variables take a wide range of values above the limit.

Tobit Regression Model for Determinants of Income Diversification

Following Agyeman *et al*. (2014), the model is specified as:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 \ \beta_7 X_7 + \beta_8 X_8 + U_i$

Where:

Y = Income diversification (diversity index)

X_1 = Age (years)

X_2 = Membership of cooperative society (yes= 1, no= 0)

X_3 = Credit received (naira)

X_4 = Years of Education

X_5 = Access to electricity (yes= 1, no= 0)

X_6 = Farm size (hectare)

X_7 = Household size (no of persons)

X_8 = Access to good road network (yes= 1, no= 0)

U = error term

Tobit Regression Models for the Effect of Income Diversification on Saving Rate

The model specification:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + U_i$

Where:

Y = Rural women saving rate (percentage)

X_1 = Income diversification (diversity index)

X_2 = Income diversification (diversity index)

X_3 = Years of education

X_4 = Household size (number of persons in the household)

X_5 = Farm size (hectare)

X_6 = Total income (naira)

U_i = error term

Results and Discussions

Results in Table I show that 75% of rural women were into crop production, 48.5% were marketers of farm produce and 38% were processors of farm produce. These indicate that agriculture remains the major source of income among rural women. The results follow the findings of Idowu *et al.* (2011) in a study on non-farm income diversification and poverty among rural farm households in Southwest Nigeria, where it was found that majority (94.89%) of the rural farm households were involved in arable cropping.

The main on-farm activity engaged in by rural women was crop production. They were mostly vegetable farmers, producing leafy vegetables, fruit vegetables and spices. They also produced arable crops like maize, cassava, yam, and so on. Production was done on small scale probably because women are denied access to land, with some customs forbidding them from owning land. The small scale nature of production embraced by rural women also resulted from their physiological makeup. Women generally lack the vigour for the rigour of farming activities, and most of the time, they use hired labour.

Processing of agricultural produce is done mainly by women. The women were into cassava processing, palm fruit processing, soap making, and so on. They process cassava into fufu, garri and cassava flour. They produce palm oil, palm kernel oil and flint from palm fruits. Black soap production also generates income for rural women. Rural women were major marketers of agricultural products; they act as middlemen between farmers and consumers. Rural women were also earning a living through non-farm income-generating activities: Tailoring, Hairdressing, Laundry, Grinding, Food vendor and Trading. Some were into Rental services, they rent out cooking materials such as pots, plates, spoons, water tanks and tripod stand for ceremonial purposes. Some older women were recipients of pension and remittances.

Income Generation among Rural Women

Average amount of income generated from the various activities and the shares in total income are also shown in Table I. It was observed that more income (59.4%) was generated from non-agriculture related activities. The results show that though the majority of rural women were into agricultural activities, a larger percentage of their income generation was from non-agricultural related activities. Hence, diversification into non-agricultural activities among rural women had a significant effect on their income.

More income was generated from the marketing of agricultural produce (10.5%) compared to crop production (5.1%). This is contrary to the findings of Babatunde and Qaim (2009) in a study on patterns of income diversification in rural Nigeria, where arable crop production was found to be the most important single source of income providing about 45% of total income. Though greater number of rural women were into crop production (75%) as

compared to marketing of farm produce (48%), it was observed that the share of income generated through marketing was higher than the share of income got from crop production. This is as a result of the subsistence nature of crop production among rural women. It could also be inferred from the findings of this study that the bulk of profits from farming activities is made by marketers. This is one of the reasons why the poverty rate is high among farmers, hence, making it a rural phenomenon, with higher percentage of rural women affected.

Table 1: Distribution of Respondents by Income Sources

Activities	Frequency (n = 204)	Percent	Average income (₦)	Share in total income (%)
Agricultural activities				
On-farm				
Livestock	23	11.3	674,956.54	7.4
Crop production	153	75.0	466,518.96	5.1
Fishery	8	3.9	902,000.02	10.0
Off-farm				
Processing farm produce	77	37.7	693,005.19	7.6
Marketing farm produce	99	48.5	952,568.69	10.5 **40.6**
Non-Agricultural activities				
Civil service	4	2.0	563,999.82	6.2
Private salaried job	9	4.4	670,666.77	7.4
Trading	20	9.8	400,825.01	4.4
Artisan				
Tailoring	7	3.4	382,428.60	4.2
Hairdressing	8	3.9	468,874.88	5.2
Grinding	9	4.4	241,611.03	2.7
Food vendor	9	4.4	1,086333.32	12.0
Laundry	8	3.9	288,000.06	3.2
Blacksmithing	3	1.5	464,000.04	5.1
Basket weaving	2	1.0	134.000.46	1.5
Other sources				
Remittance	14	6.9	124,285.69	1.4
Rent	4	2.0	97,499.76	1.1
Others	6	2.9	478,679.88	5.3 **59.4**
			9,090,254.72	

Source: Data Analysis, 2018.   *Multiple responses recorded*

Income Diversification and Savings Patterns among Rural Women

The level of diversification in income-generating activities and the patterns of saving by rural women are presented in this section.

Diversity Index

Table II shows the extent of diversity in income-generating activities among rural women. The mean diversity index of 0.440 indicates that on the average, rural women were involved in more than one income-generating activities.

Table II: Distribution of Rural Women According to Diversity Index

Diversity index	Frequency (n = 204)	Percent
0.00	8	3.9
0.01-0.25	14	6.9
0.251-0.50	137	67.2
0.501-0.75	42	20.6
> 0.75	3	1.5
Mean (0.440)		

Source: Data Analysis, 2018

Savings Pattern among Rural Women

Two kinds of savings were identified among the women in three modes; liquid assets, capital assets and stocks of goods. Liquid asset is a form of savings made in cash while capital assets and stock of goods are savings made in kind, hence, the two forms of saving identified in this study; cash and kind. Cash is saved in financial institutions (both formal and informal), while saving in kind is done through investment in livestock (rearing animals like goats, sheep, pig and local fowls) and capital assets (such as rentals, building of houses, purchase of land, storage of agricultural produce, and so on). Table III shows patterns of saving; saving modes, saving method and the rate at which rural women engaged in saving.

Saving Mode

Results in Table III show that 87.3% of rural women saved in liquid form, 55.4% in stock of goods, while 7.4% saved in capital asset. This implies that liquid asset is the commonest mode of saving by rural women.

Saving Method

Money is saved in both formal and informal financial institutions. Cooperative, thrift and credit society is the preferred (25%) method of saving in a formal financial institution while daily contribution (40.7%) is the most preferred method of saving in informal financial institutions. This is in line with the findings of Obi-Egbedi *et al.* (2014).

Saving Rate

Saving rate was obtained by calculating the percentage of the amount saved out of the total income generated from the various activities. Amount saved is the

difference between total income generated from the various activities engaged in by rural women and their expenditure on food and non-food items. Results from Table III show that most (59.8%) of the women saved less than 30% of their income, and the mean saving rate was 28.08%, indicating a low saving rate among rural women. Obi-Egbedi *et al.* (2014) also found both formal and informal savings of rural households in Southwest Nigeria to be generally low.

Table III: Distribution according to saving pattern

Saving pattern	Frequency (n = 204)	Percent
Saving mode		
Cash		
Liquid assets	178	87.3
Kind		
Capital assets	15	7.4
Stock of goods	113	55.4
Saving method		
Formal financial institution		
Bank	34	16.7
Cooperative thrift and credit society	51	25.0
Non-formal financial institution		
Home	44	21.6
Self-help groups	54	26.5
Daily contributions	83	40.7
Rotating savings and credit association (ROSCAs)	57	28.0
Relatives, friends and neighbors	5	2.5
Saving rate (%)		
0.00	2	1.0
0.01-30	122	59.8
30.01-60	63	30.9
> 60	17	8.3
Mean (28.08)		

Sources: Data Analysis, 2018.   *Multiple responses recorded*

Constraints to Saving

Rural women saving rate was found to be low due to certain constraints. These constraints were analyzed using Likert rating scale. Based on the degree of agreement, results in Table IV show that greater percentage of rural women attested to high consumption rate out of available income (1^0), delay involved in putting and withdrawing saving from the institution (2^0), bureaucracy involved in opening bank account (3^0), and inadequate income sources (4^0) as major constraints to saving, and more than half of the women identified these constraints.

The high level of consumption among the rural households has been noted as one of the obstacles to savings among the rural women. This results from large family sizes, leading to consumption pressure on the income generated and invariably affecting their saving rate. High level of illiteracy, amidst other factors, has also discouraged them from opening bank accounts, as well as fear of losing money to theft and mismanagement on the part of management of financial institutions. According to Obalola *et al.* (2018), distance to banks predicts saving behaviour of rural dwellers, as such, resulting into delay in putting and withdrawing savings from such institutions.

Table IV: Likert Scale Distribution on Constraints to Saving

Constraints (n=204)	Agree (%)	Disagree (%)	Indifferent (%)
High Consumption rate out of available income	1^0 (83.3)	12.2	4.4
Delay involved in the putting and withdrawing savings from the institutions	2^0 (54.9)	16.2	28.9
Bureaucracy involved in opening bank account	3^0 (52.4)	18.6	29.0
Inadequate Income sources	4^0 (54.0)	42.2	6.8
Lack of skills due to low level of literacy and formal education	5^0 (29.8)	53.5	16.7
Low interest paid on saving by the bank	6^0 (26.0)	44.6	29.4
Lack of access to banks or financial services	7^0 (14.7)	57.3	27.9
Fear of institution failure	7^0 (14.7)	33.8	51.5

Source: Data Analysis, 2018

Factors Influencing Income Diversification among Rural Women

Socio-economic Characteristics of Rural Women

Results of the socio-economic characteristics of respondents considered in the study are presented in Tables V.

Age

From Table V, results show that 47.5% of the women were between 41-55 years while 27.5% were 40 years and below, and 25% were above 56 years. The average age of rural women was approximately 49 years, implying that rural women were in their active age group and this may deduce high productivity. This can influence diversification in income-generating activities and savings pattern. The results were similar to the results obtained by Oluwatayo (2009) in his work on poverty and income diversification among households in rural Nigeria. He reported an average age of 45 years and noted that only a few of those surveyed were either too young or too old to engage in one activity or the other in his study area.

Marital Status

More than three-quarters (79.4%) of the rural women were married, 12.3% were widowed and 7.8% divorced while 0.5% was single. It is expected that married women will engage in more income-generating activities than other categories of rural women, as they have responsibilities. Also, it is expected that family labour would be more available where the respondents are married (Amaza *et al.,* 2009).

Years Spent in School

More than three-quarters (77.5%) of the rural women had formal education. The mean year of education being 7.78(±4.915) indicates that on the average, rural women dropped out of school. This finding corroborates the earlier finding of Ezike (1999) who found that rural women farmers hardly spent more than 9 years in formal education; implying the completion of primary education and non-completion of secondary school education. The findings of this study show that the level of illiteracy among rural women is high (22.5%).

Household Size

Per capital expenditure of a given household tends to be affected by household size. Most (64.2%) rural women had large household sizes (6-10). The average household size being 6 indicates that most rural households had fairly large household sizes, resulting in increased expenditures, thereby creating pressure on income and as well, affecting saving rate. Ahmed (2011) has shown that large household size is associated with increased household consumption expenditure which reduces the level of investment.

Farm Size

Results on the area of land cultivated by rural women show that, on the average, 1.3 hectares of land was cultivated by respondents. This is of the implication that rural women cultivate small areas of land and could therefore be classified as small scale farmers. It could also be inferred that the limited farm size held by rural women in agricultural production encourages them to diversify into non-farm activities.

Membership of Cooperative Society

Three-quarters (75%) of rural women were non-members of cooperative societies. Membership of cooperatives will enhance the access of rural women to credit facility and serve as a medium for exchange of ideas that can improve their farm, off-farm and non-farm activities. Majority claimed that the high consumption level from the income generated prevented them from being members of associations while some opted out of associations as a result of fund misappropriation by both leaders and members of associations in time past.

Volume of Credit Obtained from Various Sources

The results on the amount of credit received show that 26% of rural women had no access to credit while 40.7% got not more than ₦75,000 and 5% received credit above ₦150,000. On the average, the rural women received ₦61,519.61 naira. Access to credit encourages women to invest in various income-generating activities. This result is similar to that reported by Babatunde and Qaim (2009) who noted that credit can increase the capacity of households to start off-farm business. Ibrahim *et al.* (2009) also noted that access to credit without any means of increasing farm size will cause the households to invest in non-farm activities in order to increase the rate of return to capital investment.

Proximity to Market

Many of the rural women (70.1%) lived less than 2km away from local markets while 0.5% was more than 4km away from the market. The average distance to market was 1.8km, showing that on the average, rural women were enjoying market proximity. Market proximity will reduce transportation cost, which invariably encourages savings.

Table V: Distribution of Respondents by Socio-economic Characteristics

Socio-economic characteristics	Frequency (n=204)	Percentage
Age		
26-40	56	27.5
41-55	97	47.5
56-70	49	24.0
71-85	2	1.0
Mean 48.61 (±10.612)		
Marital status		
Married	162	79.4
Single	1	0.5
Divorced	16	7.8
Widowed	25	12.3
Years spent in school		
0	46	22.5
≤ 6	57	27.9
7-12	96	47.1
13-19	5	2.5
Mean 7.78 (±4.915)		
Household Size		
1-5	72	35.3
6-10	131	64.2
11-15	1	0.5
Mean 5.98 (±1.8714)		
Farm size (ha)		
0	21	10.3
0.01-1.50	121	59.3
1.51-3.00	58	28.4
3.01-4.50	1	0.5
4.51-6.00	3	1.5
Mean 1.343 (±0.8723)		
Membership of Cooperative Society		
Yes	51	25.0
No	153	75.0
Credit Obtained from Various Sources		
0	53	26.0
≤ 75000	83	40.7
75001-150000	58	28.4
150001-225000	5	2.5
225001-300000	5	2.5
Mean 61,519.61 (±56,425.94)		
Proximity to market		
<2.0	143	70.1
2.1-4.0	60	29.4
4.1-6.0	1	0.5
Mean 1.779 (±1.0466)		

Source: Data Analysis, 2017

Factors Influencing Income Diversification among Rural Women

Table VI shows the Tobit regression results of the factors influencing income diversification. Three variables were found to be significant; membership of association, credit/loan received and access to good road network.

Membership of cooperative society was found to have significant effect on income diversification at 5% (P<0.05). Asides credit accessibility, ideas that will result in income diversification are being shared in societies. Such information helps in boosting income generation. The negative coefficient of membership of cooperative society on income diversification is against *a priori* expectation. This could be due to the fact that majority were not members of cooperative societies.

Credit received, though significant at 10% (P<0.1), had an inverse relationship with income diversification. This is contrary to the *a priori* expectation that access to credit will avail rural women the opportunity of diversifying their income-generating activities. The negative relationship could be due to the fact that most rural women did not have access to enough credit, or they diverted borrowed funds to other non-income-generating uses.

Access to good road network was significant at 1% (P<0.01) and had positive relationship with income diversification. Availability of good road network will boost diversification, in that it aids the ease of movement of people and getting produce across to final consumers. This will enhance liquidity of assets.

Table VI: Tobit Regression Results on Factors Influencing Income Diversification

Variable	Coefficient	Standard error	t-value	P > /t/
Age	-0.0004369	0.0013508	-0.34	0.747
Membership of cooperative society	-0.0720831**	0.0284781	-2.53	0.012
Credit received	-4.02e-07*	2.18e-07	-1.84	0.067
Years of education	0.0022893	0.0026978	0.85	0.397
Access to electricity	0.0343147	0.0270616	1.27	0.206
Farm size	-0.0140132	0.0127141	-1.10	0.272
Household size	0.0047623	0.0063345	0.75	0.453
Access to good road network	0.914919***	0.0251064	3.64	0.000
Constant	0.4204555	0.0842505		

Number of observation 204	Observation summary
LR Chi^2 (8) 36.39	8 Left-censored observations at saving rate ≤ 0
Prob > chi^2 0.0000	196 Uncensored observations
Pseudo R^2 -0.2773	0 Right-censored observation
Log likelihood 83.814575	

Source: Data Analysis, 2018

*** *1% significant level*   **5% significant level*   **10% significant level*

Effect of Income Diversification on Rural Women Saving Rate

Income diversification, as one of the determinants of saving rate, was found to have significant positive effect on saving rate. There are other variables in the model; age (p<0.01), household size (p<0.01), and total income generated (p<0.01) were also found to be significant. The results are presented in Table VII.

Income diversification was significant at 5% (P<0.05) with a positive coefficient (0.7860487). This indicates that the higher the level of diversification in income-generating activities, the higher the saving rate. This is expected because income diversification will increase rural women income, hence, increases the chances of investment and thereby boosting saving rate.

Age was found to be directly related to saving rate, significant at 1% (P<0.01). This implies that the proportion of savings to total income increases as the rural women grow older. This follows the findings of Adeyemo and Bamire (2005) but inconsistent with the life cycle hypothesis of saving that a person is expected to save up to a point and then start dissaving as he grows old.

Household size had a negative coefficient, significant at 1% (P<0.01), thus conforming to *a priori* expectation, as increasing household size reduces the saving capacity of rural women. This could be as a result of increased expenditure in large households. When expenditure increases, saving rate will be reduced since there will be reduction in amount of money to save. This result contradicts the findings of Osondu *et al.* (2015) that farmers with large household sizes save more of their income.

Total income, having direct significant relationship with saving rate at 1% (P<0.01), conformed to the *a priori* expectation that increase in rural women total income will lead to a significant increase in their saving capacity. The finding corroborates Reddy *et al.* (2005), who posited that income viability of farm families has positive influence on their saving potentials.

These findings corroborate the submissions of Shanti and Murty (2019) that age, income level and employment have positive impact on financial literacy, while education is less associated with financial literacy of women.

Table VII: Tobit Regression on Effect of Income Diversification on Saving Rate

Variable	Coefficient	Std. Error	t-value	P >/t/
Income diversification	0.786049**	03480395	2.26	0.025
Age	0.210692***	0.067894	3.10	0.002
Years of education	0.175717	0.137471	1.28	0.203
Household size	-1.102615***	0.347317	-3.17	0.002
Farm size	-0.339963	0.641122	-0.53	0.597
Total income	0.000016***	5.09e07	30.59	0.0000
Constant	1.656341	4.668819		
Number of observation 204 *Observation summary*				
LR Chi^2 (7) *365.82* *2 Left-censored observations at saving rate ≤ 0*				
Log likelihood *-699.30503* *202 Uncensored observations*				
Prob>chi^2 *0.000* *0 Right-censored observation*				
Pseudo R^2 *0.2073*				

Source: Data Analysis, 2018.
***1% significant level   ** 5% significant level

Conclusion and Recommendation

Rural women are diversified in income generation. Even though agriculture constitutes their major occupation, more income was generated from non-agricultural related activities as compared to agriculture related activities. Government and Non-governmental organizations (NGOs) should assist rural women in skill acquisition to engender more effective diversification of income sources. Also, rural women, though diversified in income generation, had low saving rate as a result of some constraints, especially, high consumption rate from income and low formal financial literacy. Development policies should be targeted at educating rural women on the need to use formal financial institutions to enhance saving. Since access to credit, though significant, had negative influence on income diversification, available credit should be adequately monitored to prevent diversion of funds, and access to credit facilities through joining of viable cooperative societies should be encouraged.

Moreover, the share of income from marketing was found to be higher than from agricultural production, though more people were into agricultural production than marketing of farm produce. Therefore, marketing boards should be put in place to curb excessive extortion of farmers by marketers, resulting from the difference in farm gate and market prices. Programmes and trainings targeted at improving production processes, which will enable locally produced goods to meet market standards, should be organized for rural women and social amenities should be in adequate supply to boost rural economy.

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