

# Analysis of Determinants and Savings Propensity of Women Cassava Processors in Ekiti State Nigeria

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## Abstract

This study was carried out in Ekiti State Nigeria to examine the savings avenue of women cassava processors; determine factors affecting their propensity to save and analyze the determinants of savings. Information was gathered from a total of 180 women cassava processors through a wellstructured questionnaire. A multi-stage random sampling procedure was adopted in the selection of respondents. The analytical tools employed were descriptive statistics, Friedman ranking analysis, multiple regressions, and Pearson correlation analysis. Findings showed that the mean annual income and savings of respondents were ₦488,750 and ₦121,180 respectively with Marginal Propensity to save (MPS) at 0.254. The MPS of the respondents for every income generated was ₦0.254. The regression coefficients showed that age, level of education, household size, annual income, and quantity of Garri processed were the determinants of savings of the respondents. The study showed that saving potential existed among the women cassava processors in the study area. Findings recommend that government should subsidize modern cassava processing facilities to reduce processing cost and increase the income of the processors.

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**Index terms**— saving avenue, saving propensity, annual income

## 1 Introduction

Women play significant and potentially transformative roles in agricultural growth in developing countries. They have the potentials necessary to evolve a new economic order, to accelerate social and political development and consequently transform the society into a better one (Safiya, 2011). Kayode and Sunday, (2013) emphasized that women are mainly responsible for the bulk of crops production, agro-based food processing, preservation of crops and distribution of outputs/products from farm centers to urban areas. Cassava is a versatile crop; all parts of the plant including its root can be process into some products. These include food for human consumption, animal feeds and industrial based products, making cassava-based diets sources of dietary energy (Ashaye et al., 2007). Women play a central role in cassava production; they harvest, process and market contributing about 58 percent of the total agricultural labor in the Southwest, 67 percent in the Southeast and 58 percent in the North Central zones (FAO, 2004 ?? Onyemauwa, 2012). In Nigeria, women play significant roles in reducing post-harvest losses through processing. Crop processing is the responsibility of women while men engaged in operations like cultivation, land clearing, weeding, etc. cassava processing is challenged with myriads of problems such as dilapidating processing sheds and expensive processing facilities. Women processors, therefore, need credit and adequate savings to acquire modern processing facilities that would add value to their products. Savings is considered in economics as disposable income minus personal consumption expenditure. Amu and Amu (2012) explained that savings means putting something aside for future use, or what is considered as deferred expenditure. It is also regarded as income that is not consumed immediately by buying goods and services. As explained by Odoemenum, Ezihe and Akerele (2013), it includes earnings from all sources during a year.

Dwivedi, (2005) emphasized that economic development of any nation is contingent upon the savings potential and consumption pattern of its people, while the channelization of savings in productive investment avenues leads to an increased capital formation that constitutes the determinant of economic growth in the developed country. According to (Rutherford, 1999, Zeller and Sharma, 2000) savings are very imperative for supporting rural enterprise, improving well being, insure against times of shock and providing a buffer to help people cope in times of crisis. For a country to achieve higher economic growth, the marginal propensity to save should be higher. They opined that the determinants and patterns of savings differ from rural to the urban region. In rural areas, the marginal propensity to consume is more rather than the marginal propensity to save which seems to be viceversa in the urban areas where the marginal propensity to save is more than the marginal propensity to consume.

As for an individual farmer, savings becomes the cushion for the futures intercourse of the unforeseen, upcoming as well as the uncertain circumstances of life. It can be carried out in numerous forms such as property acquisition, e.g., jewelry, land, livestock, etc. or in form of currency notes deposited in the bank or more often hoarded. In whichever way, savings gives the farmers the possibility of future investment at the various levels in the economy. The more the income is at a higher rate, the more it encourages the farmer to have more savings, which according to Brata, (1999) could be used directly for investment purposes thus enhanced capital formation. The ability, willingness and opportunity of farmers and processors to save and invest can therefore significantly influence the rate and sustainability of capital acquisition leading to economic growth in developing countries (Oluwakemi, 2012).

One of the problems confronting the development of the cassava processing activities in Nigeria is inadequate savings despite the income generated by its active processors. Meanwhile, growth attained within cassava processing activities depends mainly on what the processors do with the incomes generated from their processing activities. Ayanwale and Bamire, (2000) in their study on rural savings in Osun state Nigeria, asserted that saving behavior of rural farmers in developing nation is less depended on the aggregate income (but more on the relationship between current and expected), the nature of the business, household size, wealth, and age. Osundare, (2013) in his study identified age, the amount saved, farming experience, farm size and household size as the determinants of income, savings and investment among cocoa farmers in Idanre, Ondo state. While drawing from the experience of these authors, this study focused on savings propensity of women cassava processors to make them more potentially transformational. It's against this background that this study was carried out to examine the savings avenue used by the respondents; determine the factors affecting saving propensity and examine the determinants of savings among women cassava processors in Ekiti State.

## 2 II.

### 3 Research Methodology a) The Study Area

This study was carried out in Ekiti State, Nigeria. What the state lies entirely within the tropics is located between latitude 7° 15' to 8° 5' North of the equator and Longitude 4° 45' to 5° 45' East of the Greenwich meridian. It enjoys a typical tropical climate with two distinct seasons, the rainy season which lasts roughly from April to October and the dry season which prevails for the remaining months of the year. Ekiti is an agrarian society with a land area of about 5,307 square kilometers of which over 90% is available for farming and agricultural related enterprises. Equally, the state enjoys favorable agro-climatic conditions suitable for agricultural productions of tree crops such as oil palm, citrus, mango, kola nut and guava and arable crops such as maize, cassava, rice, plantain, tomato, okra, and melon, etc.

### 4 b) Sampling technique and Data collection

Multi-stage random sampling technique was adopted in the selection of the population. At the first stage, Five (5) LGA were selected from the sixteen LGA in the state. At the Second Stage, Six (6) towns were randomly selected from each of the five (5) LGA. This gives a total of 30 communities. Finally, six (6) respondents were selected from each town using Snowball sampling method, giving a total sample size of 180 women cassava processors. Structured questionnaire were used to elicit information from respondents on their socio-economic characteristics, savings avenue, factors affecting their savings. These were personally administered to women cassava processors in the study area.

### 5 c) Data Analysis

Descriptive statistics such as frequencies, means, and percentages were used to analyze the socio-economic characteristics of the respondents and to discuss the constraints to savings and investment of the respondent. Friedman Ranking Analysis was used to rank the Savings Avenue of the respondents; multiple regression models were used to determine the factors affecting savings propensity in the study area.

i. Friedman Ranking The savings avenue were ranked using Friedman Ranking analysis with the implicit model specified as  $\chi^2 = 12 \frac{N(N+1)}{k} \frac{\sum R_j^2}{N} - \frac{N(N+1)}{4}$  (1)

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## 6 $R_n^2 = \frac{R^2}{n}$

Where  $R_n^2$  = square of the total of the ranks for group  $n$  ( $n = 1, 2, \dots$ )  $r$  = number of blocks  $c$  = number of groups  $ii$ .

## 7 Multiple Regressions

A multiple linear regression models were used to determine the factors affecting savings propensity in the study area. Only quantifiable factors, which were hypothesized to affect savings were included in the models, the implicit model specified as:  $S = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, e)$  (1) Where:  $S$  = savings of respondents defined as Inc -Con in (N)  $X_1$  = income of respondents defined as farm income + off-farm income in (N)  $X_2$  = Age of respondents in years  $X_3$  = processing experience of respondents in years  $X_4$  = Educational level of respondent in years  $X_5$  = Household size number  $X_6$  = quantity of Garri produced in (Kg)  $X_7$  = Membership of Social Organization (1 if yes) or (0) otherwise  $e$  = Error term.

## 8 III.

## 9 Results and Discussion

### 10 a) Socio-economic Characteristics of the Respondents

The respondents characteristics that are of interest to this study are Age, marital status, educational background, household size, income, and processing experience etc 68.9% of the respondents were married with a relatively large household size of 8 -16. Large household sizes could be advantageous to processors if the adolescent members are willing to provide family labor otherwise they could constitute constraints to the provision of adequate investment funds to farm enterprises because they determine the dependency ratio as well as consumption rate.

### 11 d) Educational Distribution of the Respondents

As indicated in Table 1, 73% of the respondents acquired formal education while 27% of the respondents had no formal education. The research findings also show that the educational level of the respondents was very low since 67.3% could not attain up to secondary education and hence, an indication that the rate of adoption of cassava processing innovations may be low. The result of this research work was in accordance with the findings of Shitu (2012) that low level of literacy is frequent in the rural areas and this will affect their level of new technology adoption as well as their income and savings.

### 12 e) Processing experience

The respondents were veteran in cassava processing with the mean processing experience of 10.6 years and maximum processing experience of 21 years. Based on the findings of Osaka (2006), the experience is measure of management ability; it could be that the women cassava processors in the study area are likely to make decisions that would increase their productivity all things been equal.

### 13 f) Quantity of Garri Processed

The result of Garri processed by the women cassava processors shown in Table 1 indicates that the modal quantity of Garri. However, 13.9% processed above 1000kg while 12.2% processed below 300kg monthly.

### 14 g) Annual Income Distribution of women cassava processors in Ekiti State

Cassava processor in the study area generates their income mainly from cassava processing, though they engaged in some other activities such as farming and trading. From the result (Table 5), the modal income generated from cassava processing was ₦100,000 -250,000 annually with the mean income of ₦195. The modal total annually generated was ₦251,000 -500,000 while the mean was ₦488,750 per annum. This implies that the respondents made considerable income annually but still living below \$1(₦375) per day, an indication that they are living below the poverty line (FAO 2011). The result in Table 6 shows the saving avenue of respondents based on their mean rank using Friedman ranking analysis. The table revealed that cooperative society with the mean score of 5.90 was ranked highest among the respondents. This negates the apriori expectations that rural household's safe at home. The tenable reason is the quick loan availability at low-interest rate offered to carry out their processing activities. Meanwhile, home savings with the mean score 5.76 was ranked second among the mostly used savings avenue by the respondents. This is as a result of the use of cash to meet the immediate household needs even though it has the risk of theft and tendency to spend on frivolous things. Daily contribution with the mean score of 5.36 and Rotating Savings and Credit Association (ROSCAs) also known as ESUSU with the mean score of 5.00 was ranked third and fourth respectively. This is because the respondents regard this avenue as a fast means of savings compared to the rigorous queue and delay in the banks. Also, their money is made available as at when due. Formal savings method (Bank) with 4.28 mean score was ranked fifth because of the

## 17 K) DETERMINANTS OF SAVINGS AMONG WOMEN CASSAVA PROCESSORS IN EKITI STATE

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nonavailability of bank in the rural communities, the delay encountered and the cumbersome saving procedures involved in bank transactions, while NON-ROSCAs with 3.36 mean score was ranked sixth Savings Avenue used by the respondents. The respondents claimed not having access to their money when they urgently need it, and this makes it difficult for them to use the medium at times. Relative/friends/neighbors at a distance had a mean score of 3.26 and were ranked seventh (7th) saving avenue by the respondents. Because the respondents noted that it's not safe to use this avenue due to insecurity and insincerity yet they still constitute a method of saving to the respondents. The result of this research complement the findings of Odoemenem et al., (2013) that farmers make use of informal financial sectors to mobilize savings and develop their rural communities because it gives them access to loans that they cannot get from formal financial institutions due to lack of collateral security. Also, processors that use this avenue are likely to be beginners with small savings.

### 15 i) Propensity to Save of Women Cassava Processors in Ekiti State

The annual income of the women cassava processors were use in the analysis, and it consists income from cassava processing and non-processing activities. Non-processing covers both earnings from other auxiliary activities engaged. The processors were asked to give what they were able to save from both processing and non-processing income; the result is presented in Table 7. The modal amount saved was ₦120,000 -150,000 annually, the mean savings was ₦121,180 and the maximum savings was ₦300,000 per annum. The average propensity to save (APS) was approximately 0.25 implying that 25 percent of the annual income of the respondents was saved while 75 percent may go to consumption. The results affirmed the findings of Olofinsao, Oluwatusin, and Adekunmi (2016) that rural households have higher marginal propensity to consume (MPC). Average propensity to save (APS) = In the same vein, The Marginal propensity to save (MPS) of respondents was analyzed using linear regression; the results presented in Table 8. The result shows that Marginal propensity to save is equal to 0.254 for every increase in the income, i.e., a ₦1 increase in income leads to 0.254 increase in savings of the respondents. The result indicates that savings capacity not only existed among the respondents, but the women cassava processor were saving.

### 16 j) Factors Affecting the Marginal Propensity to Save (MPS) of Women Cassava Processors in Ekiti State

The results of the factors affecting the marginal propensity to save MPS of the respondents were shown in Table ???. It was gathered from the oral interview that the willingness and fulfillment derived from sending children to school, fulfillment of obligations to cater for family, investing in processing and farming activities for future gain and quest for personal upkeep are the factors affecting the respondents MPS. Therefore negates the findings of Osondu et al (2015) that the main constraints to the small holder farmers' inability to save are inadequacy of income and risk of losing it.

### 17 k) Determinants of Savings among women cassava processors in Ekiti State

Table 10 shows the result of Two-Stage Least Square Estimates of saving function. The linear function was chosen as the lead equation because it exhibited better diagnostic test statistics than other models. The R<sup>2</sup> of the lead equation indicates that about 61.4 percent of the variability of processors' saving is attributed to the specified explanatory variables in the model. This shows that the specified explanatory variables were determinants of savings among the respondents. The Fstatistic value of 45.4 is statistically significant at 1 percent probability level, suggesting that the R<sup>2</sup> and the estimated linear regression equation have the goodness of fit.

Specifically, the coefficient of age was negative and significant at 5.0% probability level. It shows that 1% increase in age of the processor would stir up the decrease in savings by 0.12 and it is in contrary to a priori expectation. It is likely that the women processors in the study area spend more as a result of responsibility that comes with age. This result corroborates the findings of Omonona (2009) who opined that at the early stage of life, earnings rise before gradually declining in later years and this is usually the case for households who are into energy-sapping occupations like cassava processing. Processing with crude implements which are a labor intensive decline with age. So as age increases, income shrinks, which automatically reduces per capita savings.

The educational level had a significant (negative) effect on saving of the women cassava processors in the study area at 10% significant level. It implies that 1% decrease in the number of years spent in school, would lead to 0.088 reduction in the amount saved. It is probable since majority of the respondents (67%) have low levels of formal education which may deprive them of certain benefits such as accessibility to loans from formal lending institutions, adoption of improved technology etc. The result complements the findings of Orebiyi, (2005) and Osondu et al. (2015) that significance of education on savings cannot be disregarded. Household size has a significant (negative) effect at 5% significant level on savings of the respondents, i.e., as household size increases, savings decrease. It may be credited to the fact that the respondents with larger household will have more mouth to feed i.e., the respondents will channel more of their income to consumption expenditure rather than savings.

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The result is in line with empirical results reported by Orebiyi (2005) that household with a smaller size has high tendency to save than larger ones.

Income has a significant positive effect at 1% level on the amount saved by the respondents suggesting that a Naira increase leads to a ₦0.78 increase in their savings. similar result has been obtained from Nigeria and other parts of the world by The coefficient of the quantity of Garri processed is positive and statistically significant at 1% level. An indication that an increase in the quantity of cassava processed leads to ₦0.665 increases in the savings of the respondents. It confirms the a priori expectation that significant increase in the value and the magnitude of Garri brings an increase in income of the respondents. By extension increase the savings.

## 18 1) Relationship between Determinants of Savings and Marginal Propensity to Save

The Pearson correlation coefficient between the determinants of savings and marginal propensities to save among the women cassava processors were presented in Table 11. From the result, the significance (negative) relationship between the quantity of Garri processed and annual income with the respondents MPS indicates that a decrease would lead to significant drop in the MPS. The magnitude of the reduction is 0.374 and 0.375 respectively. The null hypothesis that there is no significant relationship between the determinants of savings and marginal propensities to save among the women cassava processors was accepted. It was accepted because the majority of the variables has no significance relationship with the MPS. IV.

## 19 Conclusion and Policy Recommendation

Findings showed that women cassava processors in Ekiti State had an average saving propensity of 0.248 and marginal propensity to save of 0.254 all suggesting that the women processors had the potentials to save but seriously militated by low income, expenses on children education and some other domestic responsibilities they had to meet. All these increase their consumption tendency. The determinants of savings among them were age, educational status, household size and annual income. The processors depend mainly on non-formal saving methods because of the convenience despite the risk involved. Based on the findings of this study, it was recommended that government should subsidize modern cassava processing facilities to reduce processing cost and increase the income of the processors.

determinants of saving mobilization by farmer's cooperators in Kwara State Nigeria, using multiple-regression and descriptive statistics techniques. The results revealed that household size, farmer's expenditure, and membership experience are the determinants of savings. Adeyemo et al. (2005) examined the pattern of saving and investment among cooperators farmers in south west Nigeria and reported that income, loan repayment, and amount of money borrowed are significant variables that influenced saving pattern.

research empirically

Several investigators have investigated the factors influencing savings habit of individuals and households in different parts of the world. In Ghana Quartey and Blankson (2008), identify savings as a necessary engine of economic growth for the Ghanaian economy, but the level of savings in the country remains very low. Lisa et al. (2006) in the study of Patterns and Determinants of Household Saving in the Philippines using the Generalized Least Squares Estimation and Instrumental Variable Estimation, discovered that education, the proportion of young dependent and proportion of elderly are the determinants of household saving. A study of saving pattern in Netherlands and Italy by Alessie et al., (2004) reported that child's income share has positive effects on the household saving rate. The study found that bank deposits is the main preference for investment, and income influences investor awareness. Harris et al. (1999) in Australia, Horioka and Junmin (2007) in China, as well as Abdelkhalek et al. (2009) in Morocco confirmed a positive relationship between the household saving and income growth.

1

Variables	Frequency	Percentage	Mean	Standard deviation	Minimum	Maximum
Age						
20 -30	34	18.9				
31 -40	65	36.1	36.5	8.979	20	53
41 -50	55	30.6				
?50	26	14.4				
Total	180	100				
Marital status						
Single	24	13.3				
Married	124	68.9				
Widow	32	17.8				
Total	180	100				
Educational level						
No formal education	48	26.7				
Primary	73	40.6				
Secondary	35	19.4				
Tertiary	24	13.3				
Total	180	100				
Household size ?3						
4 -8	28 90	15.6 50	8	3.78	2	16
9 -12	33	18.3				
?12	29	16.1				
	180	100				

[Note: b)]

Figure 2: Table 1 :

5

Cassava processing			Total In- come	
Income	F	%	F	%
<100,000	16	8.9	12	6.7
100,000 -250,000	92	51.1	30	16.7
251,000 -500,000	62	34.4	78	43.3
501,000 -1,000,000	10	5.5	60	33.3
>1,000,000	0	0	2	1.1
Total	180	100	180	100
Mean	195,000		488,750	
Std. Deviation	99,889.222		247,233.055	
Minimum	75,000		35,500	
Maximum	620,0 00		1,012,500	
			Source, field survey 2017	

h) Friedman Ranking Analysis of Savings Avenue for  
Women Cassava Processors in Ekiti State

Figure 3: Table 5 :

6

Saving Avenue	Mean	Rank
Cooperative society	5.90	1 st
Home savings	5.76	2 nd
Daily Contributions	5.29	3 rd
ROSCAs (ESUSU)	5.00	4 th
Bank	4.28	5 th
NON ROSCAs (Awidodun)	3.36	6 th
Relatives/Friends/Neighbuors	3.26	7 th
Source; field survey 2017		

Figure 4: Table 6 :



7

Amount Saved	Frequency	Percentage
No Savings	7	3.9
<120,000	20	11.1
120,000 -150,000	63	35.0
150,000 -200,000	50	27.8
200,001 -300,000	27	15
>300,000	13	7.2
Total	180	100
Mean	121,180	
Std deviation	52710.567	
Minimum	21,000	
Maximum	330,000	

Source: field survey  
2017.

Figure 5: Table 7 :

8

Variables	coefficients	Std. Error	T -values
Constant	46997	8930.199	5.263
Annual income	0.254*	0.016	15.575
R 2		57.7	
Adjusted R 2		57.4	

Source: Field survey  
2017.

Figure 6: Table 8 :

4

Factors	Frequency	Percentage
Child education	54	29.75
Household maintenance	56	30.63
Processing and farming activities	37	20.35
Personal upkeep	33	19.40
Total	180	100

Source: Field Survey, 2017

Figure 7: Table 4 :

## 10

Determinants of savings	coefficients	Std. Error	T -values
Constant	3908*	599.434	5.352
Age(x 1 )	-0.122**	0.0487	-2.504
Education(x 2 )	-0.088***	0.0038	-1.832
Household size(x 3 )	-0.114**	0.0606	-2.378
Processing experience (x 4 )	-0.008	0.0500	-0.160
Annual Income(x 5 )	0.779*	0.0479	16.259
Quantity of Garri processed (x 6 )	0.655	0.0429	15.259
Member of coop association(x 7 )	0.006	0.0472	0.127
R <sup>2</sup>	0.614		
R <sup>2</sup> -Adjusted	0.600		
F -Stat.	45.386*		

Source:  
Field  
Survey,  
2017.

Note: \*, \*\* and \*\*\* represent 1%, 5% and 10% significant levels respectively.

Figure 8: Table 10 :

## 11

Variables

[Note: Source: Field survey, 2017. Note \*\* means correlation significant at 1% level.]

Figure 9: Table 11 :

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