International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2015): 78.96 | Impact Factor (2015): 6.391

Socio -Economic Characteristics and Factors Affecting Credit Acquisition and Output of Rice (*Oryza sativa)* Farmers in Yakurr Local Government Area of Cross River State, Nigeria

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Abstract: ***Socio-economic characteristics of farmers and other factors are known to affect agricultural credit acquisition resulting to low output. The study therefore attempts to examine the socio-economic characteristics and factors affecting output of credit beneficiaries of rice farmers in Yakurr Local Government Area of Cross River State, Nigeria. One hundred and eight respondents were selected through a three stage random sampling technique. Data were collected with the use of a structured questionnaire. Descriptive statistics and multiple regression analysis were used to analyze the collected data. The result showed that farmers were in their productive age (35 years), male dominated rice production (69.44%), 81% of the farmers were married. Results of socio-economic characteristics also show that majority of the farmers only have primary education (57%) and only 8 years of farming experience respectively. Household size was observed to be only 8 persons mostly, 2.6 hectares of farm land were mostly cultivated by the farmers and 88% and 85% had no training and no membership of association respectively, while an average of ₦100,086 realized as their farm-income. Result of the regression analysis shows that farm size, income and household size positively affected output of farmers at various levels of probability, while age negatively affected the output of farmers. It was recommended among others that farmers should be encouraged to belong to farmers' association to enable them take advantage of such associations, extension services and training programmes should be organized for farmers by government and relevant NGO's and policies that would make farmland available to farmers should made.***

Keywords: Rice, socio-economic characteristics, farmers, regression analysis, agricultural credit

1. Introduction

The vantage position of the agricultural sector in Nigeria need not be over emphasized. The importance of the sector is evidenced in the nation's endowment in production factors- extensive arable land, water, human resources and capital (Okigbo, 1989). Despite several bottlenecks in the sector, agriculture remains a resilient sustainer of the populace. The sector alone accounted for 60% of national income, generated 88% of non-oil foreign exchange and provided paid and self-employment to more than 70% of the population (Famoriyo and Nwagbo, 1991). In the recent past and till now the oil sector took over the feat of the agricultural sector, suffice it to say that in spite of the fact that oil still accounts for our major revenue (gearing toward 80 percent) and almost 100 percent of our export earnings (C.B.N, 2003), agriculture especially farming, forestry, livestock and fishing is shown to be the major activity of Nigerians (Chigbu, 2004). Regrettably, the trend performance has declined over the years, falling to an abysmal 4.7% in the third quarter of 2016 (C.B.N, 2016). The agricultural sector is expected to have a growth rate of between 7 percent and 10 percent, in order to have any meaningful effect on poverty reduction (Eze, 1997).

Credit has a technical meaning even though it is used interchangeably as meaning about the same thing as loan in financial cycles. Kuye (2016) sees credit as such assistance offered to farmers either in cash, kind or both for the purpose of agricultural production, the repayment of which the beneficiaries are expected to make at a future date with or without interest rate. Credit means also the ability to command the capital of another in return for a promise to pay at some specified time in future (Arene, 1991). Agricultural credit has been observed as one sure way of increasing agricultural output. This would be achieved through the improvement of efficiency and the expansion of production. Credit to farmers according to Ettah (2010) would assist in the following ways: Procure new improved technologies in agriculture, purchase high yielding and disease resistant crops, put more land into cultivation and organize the farm better and more purposeful. Insufficient and non-extension of production credit to farmers according to Kuye (2016) is the most critical factor responsible for the declining agricultural production. There is a big gap between the demand for and supply of credit to farmers for agricultural activities. Problems faced by farmers in raising money for agricultural production is colossal, because according to Chidebelu (1983), commercial and merchant banks are reluctant to give credit for agricultural production. He stated that the reluctance is due largely to the fact that agriculture is biological in nature, hence prone to risk.

The establishment of several credit schemes in Nigeria is intended to solve the problem of lack of credit to the agricultural sector. Efforts to encourage farmers in Nigeria with credit and other agricultural incentives have only given individuals with political loyalty to the reigning government access to exploiting the ordinary farmers. Such incentives usually get to the false farmers who use it for other non-agricultural activities (Ettah, 2010). Repayment of credit by farmers is a pathetic story; there is a general tendency of

farmers not to repay agricultural credit (Arene, 1991). F.A.O (1994) asserted that the inability of small-scale farmers in developing countries to repay agricultural credit could be traced to imperfection of the delivery system, a host of institutional factors and to the farmers themselves. Arene, (1992) listed some of these factors to include: inadequate supervision and quality of supervisory staff, poor market outlets, poor management ability of the borrowers, poor selling prices, unsuitable disbursement procedures, wrong attitude of farmers towards credit (regarded as gift from government), natural disasters, etc. Problems of repayment also stifle further credit to farmers, since most agricultural credit recycles. Small-scale farmers are supposedly potential beneficiaries of agricultural credit in Nigeria, but are hampered by their small subsistent holdings found scattered over wide remote areas which makes supervision by credit officers difficult (Berger, 1989). To reap the benefits of agricultural credit, information relating to credit is required by farmers. Such information may include names of lenders, location and types of existing credit. They also need information on the terms of credit such as interest rate, credit amount and mode of repayment (Eze, 1997).

Nigeria agricultural practitioners as well as their counterparts in many developing countries display peculiar socio-economic characteristics: their farm size is between 0.1 and 5.99 hectares, Olayide (1990) named this farm sized farmers small-scaled. He further showed that because over 90 percent of the farming populations in Nigeria are holders of less than six hectares of land, as in many other developing countries, Nigeria farmers are small–scaled. Their features includes: small equity and simple crude tools to run their farms, lacks tangible assets and clear title of land holding. Low level technology is common to these farmers and the most important input used in food crops production is land followed by labour (Olayemi, 1992). The disposable income of small-scale farmers is usually low and cannot keep pace with the share inflation in the country. Hence agricultural credit becomes vital in ensuring the availability of household food in rural areas, where the farmers are predominately found (Tank, 1995).

A small- scale farmer depends on his efficiency in the utilization of basic production resources available to him. Hence always records low production but makes significant contribution to national product-97 percent of total food consumed in Nigeria (Olayemi, 1991).

Subsistence production is also a major characteristic of farmers in Nigeria. Olayide (1990) noted that subsistence farmers produce enough for themselves and immediate families, with little or nothing for commercial purpose. He attributed this to their socio-economic attributes and absence or low-level agricultural credit to these farmers, which makes them unable to expand production for commercial agriculture.

Rice is the seed of the grass species (*Oryza sativa)*. As a cereal grain, it is the most widely consumed staple food for a large part of the people of Nigeria. Since a large portion of maize crops are grown for purposes other than human consumption, rice is the most important grain with regard to human nutrition and caloric intake, providing more than one-fifth of the calories (IITA, 2011).

Rice production in Nigeria grew from 4.5 million metric tons (MMT) in 2013 to 7.89 MMT in 2014, peaking at 10.7 MMT in 2015 (CBN, 2016). The capacity of the country producing even better production figures cannot be overemphasized, considering that only about 40% of the available land area for rice production is currently being cultivated (CBN, 2016). The Federal Government of Nigeria this year (2016) through the Anchor Borrowers Programme (ABP) has set aside #20 billion loans to rice farmers at a single digit interest rate (9.0%). This is in recognition of the fact that rice is one of the crops in which the country has comparative advantage to easily become self sufficient, given the huge potentials that exist (IITA, 2011). It is hoped that this intervention would further boost it production.

The study therefore seeks to achieve the following objectives:

1) Identify socio-economic characteristics affecting agricultural credit acquisition by the farmers;
2) Determine the factors that affect the output of agricultural credit beneficiaries;
3) Make policy recommendations based on findings of this study.

2. Materials and Methods

2.1 Study Area

Yakurr local government area is the study area. Yakurr is one of the six local government areas in the central senatorial district of Cross River State, Nigeria. Others are Abi, Obubra, Ikom, Boki and Etung local government areas (Cross River State Tourism Guide, 2013). It was created in 1991 and covers about 67,044 square kilometre (NPC, 2011). Yakurr is divided into 13 political wards for effective political administration, they include Assiga, Nyima, Afrekpe/Epenti, Ajere, Ntan, Mkpani/Agoi, Abanakpai, Nkpolo/Ukpawen, Bikobiko, Ikpakapit, Ijman, Ijom and Idomi (Ikpi, 2015). The study area has a population of about 78,402 and located between latitudes 5^0 10'N and $6^0$51' of the equator and longitude 4^0 40' E and 8^0 32' E of Greenwich meridian (NPC, 2011). The area has an annual rainfall distribution which ranges from 1,200mm to1, 324mm with an annual temperature of 25^0-31^0 C.

The main crops grown are cassava, rice, yam, maize, groundnut, melon, okra and cash crops of oil palm, orange plantain banana and cocoa.

2.2 Sampling Procedure

Samples for this study were drawn through a three-stage random sampling technique. This was achieved through the use of "select - and - no replacement method" to ensure equitable and good spread of respondents as follows:

Selection of wards: From the three divisions (north, central and south) representing the 13 council wards the local government area is divided into, six wards were selected randomly, that is two out of each division.

Selection of farming communities: In stage two, three farming communities were randomly selected from each of these six wards earlier selected. A total of eighteen farming communities made the sample.

Selection of farmers: In stage three, 6 farmers were randomly selected in each community of the sample. This gave a total of one hundred and eight farmers, who formed the respondents.

2.3 Data collection and Analysis

Data were drawn from 108 respondents randomly selected with the use of a detailed structured questionnaire. This instrument was earlier subjected to a reliability test and a coefficient of 0.79 obtained, through the use of Cronbach Alpha technique. The specific objectives were analyzed using both descriptive and inferential statistics. objective (i) which stated "identify socio-economic characteristics affecting agricultural credit acquisition by the farmers" was analyzed with descriptive tools of percentages, frequency, tables and mean. Multiple regression analysis was employed to realize objectives (ii) which stated thus "determine the factors that affect the output of agricultural credit beneficiaries".

2.4 Model Specification

The multiple regression model measured the output of rice farmers as a function of various variables factors ($X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8$……$X_n$).

Implicitly, the function is represented thus:
$Y=f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8,)$
Where:
Y = Output (in kg)
X_1= Farming experience (in years)
X_2 = Age of farmers (in years)
X_3 = Household size (number of persons)
X_4 = Education (No. of years in school)
X_5 = Occupation
X_6 = Farm size (in hectares)
X_7 = Income (#)
X_8 = Fund size (#)

Functional Form of the Model
The explicit representation of the model was in three functional forms: the linear, semi-log and double- logarithm functions.

a) linear form:
$y= a^{+}b_1X_1+b_2X_2+b_3X_3+b_4X_4+b_5X_5+b_6X_6+b_7X_7b_8X_8+u$
b) semi-log form:
$Y=a^{+}b_1\log X_1+b_2\log X_2+b_3\log X_3+b_4\log X_4+b_5\log X_5+b_6+b_7 \log X_7+b_8\log X_8 +u$
c) Double- log form:
$\text{Log}Y=\log a+b_1\log X_1+b_2\log X_2+b_3\log X_3+b_4\log X_5+b_6\log X_6+b_7\log_7+b_8\log X_8+u$

The three functional forms of the equations were tested and the choice of the lead equation was based on the one with highest R^2, highest number of significant variables (t-statistics), F-statistics and consistency with *apriori* expectations (Koutsoyanis, 1979).

3. Results and Discussions

3.1 Socio-Economic Characteristics of Respondents

The following socio-economic characteristics of farmers were considered were; age of farmers, sex, marital status, educational qualification, farming experiences, household size, farm size, training, membership of association and income.

According to table 1, majority (50 percent) of rice farmers belong to the productive age bracket. This is because a higher percentage of the farmers are within the age bracket of 21-60years. Olayide (1990) terms this age bracket productive age, where farmers are at their best physically and mentally for any agricultural task including engagement of loans to agriculture. This age bracket agrees with *apriori* expectation which recommended an age bracket of between 20-60 years for productive agriculture. Entries in table 1 for sex of the farmers shows that the male dominated rice farming in the study area with a percentage of about 70, this could be because male farmers in the area have title to land. The result on marital status showed that 81.48% of the respondents were married. This high proportion of the respondents who are married is an indication that family labour could be available for rice production. This could explain why farmers in the area most often do not seek for agricultural credit or diverts same to non-agricultural activities.

In addition, the level of educational attainment by the respondents showed that, majority (57.4%) had primary education. The mean years of educational attainment was 6years.This implies that majority of the farmers attempted primary education, therefore could hardly read and write. Kuye and Ettah (2016) documented the relevance of the literacy level of a farmer to farm productivity and production efficiency. They are of the view that education facilitates farmers understanding, information on credit, use of credit and improved crop technologies.

Findings on farming experience showed that majority (35.18%) of the respondents had farming experience of 21-30years. The mean farming experience was 8years. This implies that most farmers had the necessary experience to engage in meaningful rice production especially when aided with agricultural credit.

The result in table 1 further shows that most farmers (38.3%) had household size of 1- 5. The average household size was 8persons. This implies that family labour will be readily available for rice production and hence often times reluctant to seek for credit.

The analysis on farm size shows that 28.8% of farmers had farm size of ≤ 1 hectare; 26.7% had farm size of 1.1 – 2 hectares; 18.8% had farm size of 2.1-3 hectares; 25.8% had farm size of 4 hectare and above. The average farm size was 2.62 hectares. This result implies that majority of the farmers were small scale farmers and rice production in the study area is on a small scale level and credit acquisition is hampered by their small holdings. This result agrees with the findings of Abayomi (1992).

The result in table 1 further shows that majority (88.8%) of the respondents never received any training on rice production. This result depicts low level of information about production of the crop and credit, which might likely result to inefficiency in production and hence low output.

Findings on membership of farmers association show that majority (85.8%) did not belong to any farmers' association; this is why they lack knowledge about the availability of credit opportunities. Also this result shows why majority did not receive any training on rice production, since associations are platforms for training, learning, information dissemination, and credit acquisition.

In addition, analysis of off-farm income shows that majority (57.9%) earned less than or equal to ₦50, 000 per annum. The mean off-farm income was ₦101, 669.38. This result agrees with the findings of Kuye (2016) who found an average farm income of ₦100, 00.86. Non-farm work reduces financial constraints, especially for resource poor farmers and thus enables them to purchase input that will enhance effective production; however, the situation may have negative implication on proper supervision of farm activities.

Table 1: Socio-economic characteristics of rice farmers

Variable	Frequency	Percentage (%)	Mean
Age			
≤ 20	10	9.26	35.34(13.047)
21-40	64	59.25	
41-60	28	25 92	
61above	6	5.55	
Total	**108**	**100**	
Sex			
Male	72	69.44	
Female	36	33.33	
Total	**108**	**100**	
Marital status			
Single	20	18.51	
Married	88	81.48	
Total	**108**	**100**	
Education			
			6.69(4.713)
Primary	62	57.40	
Secondary	31	28.70	
Tertiary	15	13.8	
Total	**108**	**100**	
Farming experience			
≤ 10	20	18.51	8.67(6.557)
11-20	32	29.62	
21-30	38	35.18	
31& above	18	16.66	
Total	**108**	**100**	
Household size			
≤ 5	11	10.18	8.65(6.989)
6-10	39	36.11	
11-15	48	44.44	
16 above	10	9.2	
Total	**108**	**100**	
Farm size			
≤ 1	18	16.66	2.62(2.166)
1.1-2	48	44.44	
2.1-3	32	29.62	
4above	10	9.2	
Total	108	100	
Training			
No	101	93.51	
Yes	7	6.49	
Total	**108**	**100**	
Member of association			
No	97	89.10	
Yes	11	10.10	
Total	**108**	**100**	

3.2. Regression Result of The Relationship between the Output of Rice and Independent Variables of Credit Beneficiaries is shown in Table 2.

The equation used is the linear model because it provided the best fit. The R^2 of the equation is 80.3 percent showing that the independent variables explained 80.3 percent of the variability of the output of rice in the area. Farm size and fund size are significant at 1 percent level of probability and positively related to output, showing that both variables positively affect the output of rice production in the area, this is in agreement of the study conducted by Ettah (2010). Age is negatively related to output while income is positively related to output. This shows that while output decrease with increased age of the farmers, it increases with increase in the income of the farmers. Household size is significant at 10 percent level of probability and positively related to output, the results agreed with that of Arene (1992). F cal is 21.745, while prob> F is 0.000, this depicts the goodness of fit of the entire regression line.

Table 2: The regression result of the relationship between the output of Rice and independent variables of the beneficiaries

Variables	Linear	Semi log	Double log
Constant	178.534	1870.390	2.226
	(0.138)	(0.508)	(1.857)
Experience	983.99	-88.99	-105.66
	(55.01)	(-0.55)	(10.98)
Age	-6.276	-498.620	0-031
	(-0.513)**	(0.291)*	(0.540)
Household size	104.604	1600.712	0.521
	(1.968)	(1.888)	(1.884)*
Education	0.994	41.374	0.113
	(0.024)	(0.057)	(0.475)*
Occupation	-0.023	-23.00	-05.33
	-(23.00)	-(270.01)	-(555.00)
Farm size	1502.692	3799.806	1.140
	(9.125)***	(7.190)***	(6.619)***
Income	309.871	549.687	0.180
	(0.638)**	(1.171)*	(1.174)*
Fund size	248.781	390.423	0.103
	(0.183)***	(1.179)***	(0.956)*
R square (R^2) 80.3 73.5 70.8			

F-cal = 21. 745, prob> F = 0.000

Note asterisk

(***), (**) and (*) indicate statistical significance at 1 percent, 5 percent and 10 percent level of probabilities respectively.

4. Conclusion and Recommendations

The study has observed that farmers are in their productive age (35 years), male dominated rice production (69.44%) and 81% of the farmers are married. Results of socio-

economic characteristics further shows that majority of the farmers only have primary education (57%) and only 8 years of farming experience respectively. The average household size was observed to be 8 persons, 2.6 hectares of farm land are mostly cultivated by the farmers and 88% and 85% had no training and are not members of association respectively and only ₦100,086 realized as their farm income.

Result of the regression analysis shows that farm size, income and household size positively affected output of farmers at various levels of probability, while only age negatively affected the output of farmers.

Based on the findings of this study, the following recommendations are made:

Farmers should be encouraged to belong to farmers' association to enable them take advantage of such associations- training, information on innovations, access to credit and so on. Extension services and training programmes should be organized for farmers by government and relevant NGO's where information on agricultural credit and its use can be received and policies that would make farmland available to farmers should be made.

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