Analysis of Determinant Factors to Loan Repayment among Broiler Farmers in Enugu State, Nigeria

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Abstract— *Analysis of loan repayment among rice farmers in Enugu State, Nigeria was studied using one hundred and eighty respondents. These respondents were selected using multi stage sampling procedure and purposive selection procedure. The objectives of the study were to describe the socio-economic characteristics of the broiler farmers, identify the various broiler management practices the farmers put their credit into, assess the determinant factors influencin loan repayments among the farmers and identify the constraints to loan repayment by the farmers in the study area. Structured questionnaire was used to collect information for the study. Data collected were analyzed using descriptive such as frequency distribution table and percentage responses, inferential statistics such as Logit model and factor analysis. The results of the study indicated that the sampled farmers were youthful, females, married, and had large household size and farming experience of above 11 years. Also, microfinance and commercial banks were the major sources of credit to the farmers. In addition, the major uses the credit was put into by the farmers were in purchasing feeds and buying of drugs and vaccines. The determinant factors to rice farmers' loan repayment ability were household size, extension services, membership of organization, farming experience, educational level and off-farm income. The constraints to the farmers' ability to repay their loan were high interest rate, low productivity, high collateral, poor loan assessment and changes in bank policy changes. The need to enhance the farmers' access to training, off- farm income and the need to give rebate to farmers that repay their loans at appropriate time were recommended.*

Keywords— Analysis, Loan, Repayment, Broiler, Farmers, Enugu State, Nigeria.

I. INTRODUCTION

The repercussions of animal protein origin deficiency to the lives of the people particularly children under the ages of five years old and pregnant women in rural areas of sub- Saharan Africa is of major concern to policy makers, researchers and government (FAO, 2015). The high prices of animal protein particularly conventional animals like cattle, sheep and goat meats has made its' consumption to be more restricted to the rich, while the less privileged ones seldom has it in their menus (Kughur, *et al*.2012). This setting is capable of hampering the millennium development goal of meeting the average of 120kg animal protein intake per day as recommended by FAO as against freighting low (3.24g) that is often reported in the developing countries (Kusina and Mhlanga, 2000; Ume, *et al* 2016). Nevertheless, the low intake of protein is capable of predisposing mostly these vulnerable to weight loss, weakness, fatigue, poor appetite and anemia (FAO, 2015). Among the economy livestock that is capable of bridging the wide gap in dietary protein intake in most developing countries is broiler, a sector of poultry (Nwaru and Nwaeke, 2008; Ume, *et al;* 2013). The intrinsic features of broiler which endeared it as a veritable way of alleviating animal protein deficiency in Saharan Africa; include having fast growth rate, high feed conversion efficiency, ability to be marketed at different ages, low production cost per unit in relative to other types of livestock, has tender meat and commonly used in ceremonies compared to other birds and has short production circle (Kughur, *et al*. 2012; Ezeano, *et al*. 2017). Furthermore, it is palatable and generally acceptable across nearly all cultural and religion boundaries , early maturity compares to most breeds of livestock and make economic proceeds within comparatively short time of about 10-12 weeks (FAO, 2015).Studies inferred that broiler constitutes more than 18% of animal proteins consumed in urban areas of Nigeria with more than 28% also produced in same urban area (Kusina and Mhlanga, 2000, Nwaru and Nwaeke, 2008). Literature showed that broiler farmers are faced by myriads of problems, include lack of skills and equipment to produce, high cost of feed, high cost of day old chicks, fluctuation in market prices, poor breeds of day old chicks, high cost of building materials, high cost of labour and access to credit (Ume, *et al;* 2013; Ezeano, *et al;* 2017).

Credit as asserted by Oladeebo and Oladeebo, (2008) is the ability to acquire goods and services or money in swap for pledge for payment in future. The important of credit to agricultural development cannot be overemphasized. Agricultural credit is

capable of improving the growth of agriculture through use of new technologies, strengthen the position of the farmers in dispensing his/her livestock, cushioning the effects of seasonal price disparity and enhanced bargaining power, adopt improved agricultural practices and thus boost production ethics, improves output and advances standard of living of people by breaking vicious cycle of poverty(Duong and Izumida, 2002, Chaudhary and Ishfag, 2003), enhances access to improved inputs, improves consumption and expenditure especially during off-season period, boast access to basic social service, boast farmers' welfare through limitless access to vital social services and improves high production efficiency for output maximization (Chloupkova and Bjønskov, 2001; De-Graft, and Addo, 2011). Studies showed that the farmers apart from their personal savings, formal institution has been the major access to credit as their activities are monitored by government (Lawal, *et al*. 2009; Osuntogun, 2012) and to debunk shylock loan often associated with informal sector lending institution (De-Graft and Addo, 2011). The prominent among formal credit lending institutions available to the farmers were Agricultural Credit Guarantee Scheme (ACGS), the Nigeria Agricultural and Cooperative Bank (NACB), microfinance and commercial banks (Lawal, *et al*; 2009; Ibrahim and Aliero, 2012). In addition, the informal sources available to the farmers were money lenders, personal savings, friends and Rotating Savings and Credit Associations (ROSCAs) (Anozie *et al;* 014).The low repayment of formal institution among farmers have been problematic that most formal sector lending institution often decline in lending to such farming class through use of an uphill conditions for acquisition and use of the loan (Osuntogun, 2012). However, the default or delinquency in repayment of agricultural credit by the farmers could be linked to the inherent nature of agriculture as relates to risks and uncertainties in output production and prices, resulting in poor economic returns to farming households (Chloupkova and Bjønskov, 2001). Research show that the determinants of loan repayment defaults in rural banking and semi financing institutions among low income and individual-based lending schemes can be checkmated through direct monitoring, regular repayment schedules, and the uses of non-refinancing threats without requiring collateral and without using group lending contracts that feature joint liability (Chaudhary and Ishfag, 2003).

Nevertheless, the repayment of loans is very beneficial as it helps to ensure the recycling of money to other farmers, as poor repayment has the probable of lending agencies charging high interest rate and high processing charge to the borrowers in order to keep afloat in the business, thus repelling other possible beneficiaries (Chaudhary and Ishfag, 2003). It is paramount to state that the borrowers alone cannot be held accountable for loan defaults as it is imperative to scrutinize the level to which both borrowers and leaders abide by the loan agreement and the nature of the duties, responsibilities and duties of both parties as revealed in the plan of the Credit programme (Kashuliza, 1993; Afolabi, 2010). However, in order to empirically determine loan repayment among clients, a study of this nature becomes imperative as there is paucity of information to that effect in the study area. Specifically, the objectives of the study are to;

i. describe the socio-economic characteristics of the broiler farmers,
ii. identify the various loan sources used by the farmers,
iii. identify the various broiler management practices the farmers put their loan into,
iv. assess the determinant factors influencing loan repayments among the farmers,
v. identify the constraints to loan repayment by the farmers in the study area.

II. RESEARCH METHODOLOGY

Enugu State is in south east Nigeria and located between latitudes 6°30/ N and 7°10/N of Equator and longitudes 6°35/ E and 7°30/E of Greenwich Meridian. Enugu State has eighteen Local Government Areas with three agro- political zones, namely; Enugu west, East and South. The state has an estimated population of about 4, 1671 million people (NPC, 2006). The state has a land area of 16,727 square km^2. It is bounded in the west by Anambra State, in the West by Abia State, in the South by Imo State and in the North by Benue State. Enugu State is known to be characterized of wet climatic zone with a rainfall of about 1800mm to 2500mm per annum, temperature range of 29^0C to 35^0C and relative humidity of 68%. The state is agrarian and other non agricultural activities engaged by the people, include barbing, hair dressing salon, vulcanize and petty trading.

A multi-stage sampling procedure and purposive sampling were employed to select agricultural zones, communities', villages and respondents. In stage 1, the three agricultural zones of the state (Enugu North, Enugu South and Enugu East) were purposively selected. The purposive selection of the agricultural zones was based on abundant production of broiler because of nearness of broiler feed raw materials and high broiler markets because of presences of hotels, bars, restaurants and high institutions (Ume, et al 2013). In the second stage, four Local Government Areas (LGAs) were purposively selected from each of the zones on the basis of their levels of broiler production. The selected LGAs were; Nsukka, Uzouwani and Udenu were selected from Enugu North; Nkanu East, Nkanu West, and Enugu south from Enugu West, while Oji River, Awgu and Anniri from Enugu East. The third stage involved a random selection of four communities from each of the nine selected Local Government Areas. This gave a total of thirty six communities. In stage four, a market was selected from each of the thirty six communities. Finally five broiler farmers were randomly selected from each of the thirty six markets and a

total of one hundred and eighty respondents were selected for detailed study. Questionnaire was administered to the respondents in order to gather data needed for the study. The data were analyzed using descriptive such as frequency distribution table and percentage responses, inferential statistics such as Logit model and factor analysis.

III. MODEL SPECIFICATION

3.1 Logistic Regression

The study adopted the logistic regression to assess the factors that determine the broiler farmers' ability to repay loan. The use of logit model for this analysis is consistent with the literature on loan repayment (Kedir, 2007) which describes the process of loan repayment as taking on a logistic nature. The response variable was binary, taking values of one if the farmer repays the loan and zero otherwise. However, the independent variables were both continuous and discrete. The logistic distribution (logit) has advantage over the others in the analysis of dichotomous outcome variable in that it is extremely flexible and easily used from mathematical point of view with a meaningful interpretation. The parameter estimates of the model are asymptotically consistent and efficient. The binary logistic model does not make the assumption of linearity between dependent and independent variables and does not assume homoskedasticity. Another advantage of using the logit model is that it does not require normally distributed variables and above all, the logit model is relatively easy to compute and interpret. Hence, the logistic model is selected for this study. The probability that a farmer will adopt at least one improved cassava variety was postulated as a function of some socioeconomic and demographic characteristic factors given in Table 1. Following Kashuliza, (1993), the cumulative logistic probability model which is estimated is econometrically specified as:

$$Pi=F(Zi)=F(\gamma)+\sum i\lambda iXi=11+e-ZiPi=F(Zi)=F(\gamma)+\sum i\lambda iXi=11+e-Zi \quad (1)$$

Where P_i is the observed response for the i^{th} observation of the response variable P. It is the probability that a farmer will repay the loan or not given X_i; P_i =1 for farmers that repay loan and P_i = 0 for farmers that do not repay loan; e denotes the base of natural logarithms, which is approximately equal to 2.718; X_i represents the explanatory/ independent variables, associated with the i^{th} individual, which determine the probability of adoption (P); λ_i and γ are parameters to be estimated. The function, F may take the form of a normal, logistic or probability function. $\boldsymbol{Z_i}$ is the cumulative density function of $\boldsymbol{P_i}$ (probability that a farmer will adopt at least one improved cassava variety).

$$1-Pi=11+eZi1-Pi=11+eZi \quad (2)$$

Logit model could be written in terms of the odds and log of odds, which enables one to understand the interpretation of the coefficients. The odds ratio implies the ratio of the probability (P_i) that a farmer repays the loan, to the probability ($1-P_i$) that the farmer do not repay the loan.

If the disturbance term U_i is taken into account, the logit model becomes

$$Zi=Y+\sum i=1m\lambda iXi+UiZi=Y+\sum i=1m\lambda iXi+Ui \quad (3)$$

The empirical model is stated explicitly as:

$$Y_i = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \ldots + \beta_{11} x_{11} + \beta_{12} x_{12} + \beta_{13} x_{13} + \beta_{14} x_{14} + Ui \quad (4)$$

Where Yi =loan repayment ability (able to pay =1, 0 otherwise);, *x1* = Age (years); *x3* = Educational level (Years); *x4* = Marital status (Married = 1, 0 otherwise); x_5 = Year of Credit experience (years); *x6* = Farm size (Hectares); x_7= Household size (No), x_8 = Extension service (Yes = 1, 0 if otherwise),

3.2 Factor analysis Model

Factor analysis model was employed to identify the constraints experienced by broiler farmers in loan repayment. The principal component factor analysis with varimax –rotation and factor loading of 0.3 was used. The constraints observed by farmers were grouped into four factors using varimax rotation and factor loading of 0.30. The principal component factor analysis model is stated thus;

$$C_1 = a_{11} f_1 + a_{12} f_2 + \text{----------} a^1 n f_n \quad (5)$$

$$C_2 = a_{21} f_2 + a_{22} f_{2+} \text{----------} a^2 nfn \quad (6)$$

$$C_3 = a_{31} f_3 + a_{32} f_2 + \text{----------} a^3 n f_n \quad (7)$$

$$C_3 = a_{41} f_4 + a_{42} f_2 + \text{----------} a^4 n f_n \quad (8)$$

$$C_n = a_{n1} f_3 + a_{n2} f_2 + \text{----------} a^n n f_n \quad (9)$$

Where

$C_1 = c_n$= observed variable /constraints to farmers' repayment of loan pdts
$a_1 = a_n$ = factor loading or correlating coefficients
$f_1 = f_n$ =unobserved underlying challenging factors facing farmers' repayment of loan

TABLE 1
DESCRIPTION OF VARIABLES USED IN THE LOGISTIC MODEL

Variable	Measurement	*A priori* expectation
Age	Age of the household head (years)	-
Educational level	Years of school attendance (years)	+
Household size	Number of dependents (number of people)	-
Farming experience	Number of years of farming (years)	
Farm size	Size of the farm (Flock size)	
Extension service	Visit from extension workers (1 yes, if no)	-
Marital status	Married; 1, single; 0	
Membership of Organisation	Membership of organ.; 1; otherwise, 0	+
Off farm income	Income from outside the farm, 1; otherwise; 0	+

The Socio-economic Characteristics of the Respondents is shown in Table 2

TABLE 2
DESCRIBE THE SOCIO-ECONOMIC CHARACTERISTICS OF THE RESPONDENTS

Variable	Frequency	Percentage
Age		
31 – 40	110	61.1
41 – 50	40	22.2
51 – 60	18	10
Above 61	12	6.6
Marital Status		
Married	120	66.7
Single	50	27.8
Widow	10	5.5
Divorced	-	-
Educational Level		
No Formal Education	40	22.2
Primary	80	44.4
Secondary	40	22.2
Tertiary	20	11.1
Gender		
Male	60	33.3
Female	120	66.6
Household size		
1 – 10	140	77.7
11 – 21	30	16.6
22 – 32	10	5.5
Farming Experience		
1 – 10	88	48.9
11 – 21	72	40
22 – 32	15	8.3
33 – 42	5	2.8
Membership of Organization		
Access	80	44.5
Non access	100	55.5
Extension Contact		
Access	60	33.3
Non access	120	66.7
Off farm income		
Access	160	88.9
Non Access	20	11.1

Source; Field Survey; 2017

IV. RESULTS AND DISCUSSION

Table 1 showed the distribution of respondents according to socio-economic characteristics. The majority (61.1%) of the respondents were within the age range of 31 - 40 years, whereas 22.2% and **10%** were within the age brackets of 41 – 50 and 51 - 60 years respectively. The implication is that youths dominated the sampled farmers in the study and according to literature, this age class has common features of being motivational, risk averse and adoptive individual for enhanced production and less prone to loan defaulting (Ibrahim and Aliero, 2012). However, this finding contradicted the works of Njoku, (1997) who opined that aged people are more trust worthy to live up to their promises of loan repayment than younger ones .

Furthermore, 66.66% of the respondents were females, while males accounted for 33.34% of the total respondents . The high proportion of women in the business could be ascribed to the fact that women are better in animal husbandry management compare to male counterpart. Such good management attribute could help to curtail maximally mortality in the flock for higher production, thus improved chances of repaying such loan (Adam, 1998). The findings of Roslan and Karim, (2009) contradicted the above finding. They were of the view that males have more access to land (as security for loan acquisition) and other productive inputs than women, which could aid them in boasting their production and productivity for more likelihood of their loan repayment.

Table 2 revealed further that most of the respondents were married and accounted for about 66.7% of the total sampled farmers. This was followed by single (27.8%) and widowed (5.5%). Married people as asserted by Anozie, *et al.* (2014) are likely to incur extra expenditures for family livelihood from the loan, thereby threatening their loan repayment ability. Also, majority (77.7%) of the respondents had household sizes of 1- 10, while the least (5.5%) had 22 – 32 people. Large household size could be a source of cheap family labour especially during peak of farming activities when cost of hired labour is high. In this aforementioned scenario, such household head will have high propensity to save lots of money that could have been used for hired labour and use it offset his/her loan (Kedir, 2007). In contrary, Ibrahim and Aliero, (2012) opined that large family size that comprises more of dependent population, the household head have more probable of being loan defaulters as such loan are often diverted to family welfare upkeep (Adams, 1998).

In addition, majority (77.8%) of the respondents were educated, while only 22.2% were not educated. An educated farmer has the potentials of enhancing their farm productivity and economic status through the adoption of new technologies. The money accruing from the sales of hi/her outputs could be used to compensate for the loan (Osuntogun, 2012).

The Table moreover showed that 48% of the respondents had farming experience below 11 years, while 52% had above 11. Studies showed that the years of farming experience of farmer increases as age of the farmer increases and this correlates positively with productivity. This situation is capable of enhancing the farmers' loan repayment ability as lots of money will be realized through sales of farm outputs (Kashuliza, *et al* 1993). In addition, the number of years of farmer's farming experience according to Mupa, (2004) compares with his/her level of setting realistic goals geared towards high production, which could tantamount to higher prospect of loan repayment at right time as more funds become available to the farmer (Mpuga, 2004).

Besides, 55.5% of the respondents were not members of organization, while 45.5% were members. Membership of organization in form of cooperatives, young farmers' club and age grade helps to ensure members' access to credit and productive inputs. This could guarantee higher farm productivity and more odds of having fewer defaulters in loan repayment. Also, as reported by Oladeebo and Oladeebo, (2008) **c**ooperative societies possess some elements of social networks that are vital for enhancing group dynamics, financial support and farm productivity, hence could improve their loan repayment odds. The Table as well revealed that 66.7% of the respondents had no access to extension services and only 33.3% had access. Extension services help in dissemination of agricultural technologies to farmers and enhancing farmers' access to productive inputs (such as credit, fertilizer and agrochemicals) for higher outputs, hence curtailing their possibility of loan default (Aliou, and Zeller, 2011). As well, 88.9% of the respondents engaged in off -farm income, while very low proportions of sampled farmers (11.1%) did not participate. Off farm income is source of income for enhancing households' economies through greater access to food, thus giving room for savings aimed at repayment of the loan borrowed (Owuor, 2009).

Table 3 showed the distribution of various sources of credit options available to farmers.

TABLE 3
DISTRIBUTION OF RESPONDENTS ACCORDING TO VARIOUS CREDIT SOURCES

Variable	Frequency	Percentage
Microfinance	124	68.8
Commercial Bank	98	54.4
Money Lender	78	43.3
Personal saving	86	47.7
Friends and relations	62	3.4

Source; Field Survey; 2017

The credit acquired from microfinance was the highest (68.8%). The ease farmers borrow money from microfinance banks without collateral could be attributed to the high patronage (Afolabi, 2010). This was followed by commercial banks (54.4 5%). The benefaction of commercial banks by respondents could be linked to ability of the bank to meet up with clients' amount of money demanded as loan (Sharma, 2000). The informal sources of credits as shown in Table 3 were personal savings (47.7%), money lenders (43.3%) and friends and relations (3.4%).

Table 4 showed the uses the respondents put the loan into. Majority (77.7%) of the respondents put the loan into purchasing feeds for feeding the birds. Poultry feeds are very expensive and constitutes over 45% of total cost of broiler production. This could be because of high cost of grains and other materials use in broiler feed formulation (Ume, *et al*; 2013).

In addition, 72% of the sampled farmers used their loan for buying drugs and vaccines for treatment of diseases and pests in their broiler farms. Medication is very necessary in curtailing mortality in poultry management, especially for broiler production that is very fragile (Ume, *et al; 2017*).

Also, 37.7 % of the respondents employed their credit to purchase day old chicks. A good breed of day old chicks as asserted by Kughur, *et al;*(2012) is important for quick growth and to ensure that the birds meet up with the targeted markets in order to ensure high profitability.

TABLE 4
DISTRIBUTION OF RESPONDENTS ACCORDING USES RESPONDENTS PUT CREDIT INTO

Variable	Frequency	Percentage
Building of poultry house	54	30
Buying drugs and vaccines	130	72
Purchasing day old chicks	68	37.7
Purchasing of feed	140	77.7
Marketing of the bird	23	12.7
Hiring of Labour	67	37.2

Source; Field Survey, 2017
***Multiple Responses**

TABLE 5
DETERMINANT FACTORS INFLUENCING LOAN REPAYMENTS AMONG BROILER FARMERS.

Variable	Estimated coefficient	Standard Error	Z - ration	p>IZI
Constant	4.653	1.234	3.771***	0.540
Age	- 4.654	2.230	- 2.086*	0.108
Marital status	0.276	0.376	0.734	0.008
Gender	0.654	0.765	0.854	0.026
Off farm income	0.456	0.362	1.260*	0.005
Educational Level	4.074	1.045	3.897***	0.340
Farming Experience	3.006	1.027	2.927**	0.135
Membership of organization	2.546	0.538	4.750***	0.032
Extension Services	4.112	1.432	2.872**	0.430
Household size	3.132	1.112	2.817**	0.027

Log likelihood -118.4378
Wald chi2 (12) 36.02
Pseudo R2 0.1317
Cases predicted correctly (%) 73.6

Source: Field Survey, 2017, ***, **, * Significant at 1.0%, 5.0% and 10.0% levels respectively

The coefficient of age of the farmer was significant at 5.0% level of significance and the sign of the coefficient showed an indirect relationship with loan repayment by farmers. This implies that aged farmers have high probability of loan default. The reasons could be that aged farmers are risk verse, decline in manual strength and non receptive to new innovations/technology, consequently resulting in their being more prone to loan defaults as they experience low farm production and productivity (Adeyemo, *et al*; 2007; Ezeano, *et al.* 2017). The findings of Foltz, (2004) disagreed with the above contention; they were of the view that age has direct relationship with technology adoption, which is stem from accrued information and knowledge obtained from years of observations and experimentations with various technologies in order to enhance their output. In addition, membership of organization coefficient was statistically significant and positive in determining loan repayment .Studies showed that cooperative helps to educate and training of her members, promote productive utilization of loans lent, investment in sound and profitable business ventures, leadership development, business and strategic plan development and financial management. This could enhance loan repayments ability of the members (Sharma, 2000, Foltz, 2004, Shah, *et al* 2008). This result is at variance with Olotomola, (2002) who obtained a negative relationship between membership of farmers association and loan defaults. The negative sign of the coefficient could be linked to very poor membership of organization by people. This condition is capable of making farmers to have less probability of loan repayment as they often lack the necessary inputs to boost their production frontier.

Expectedly, the coefficient of extension services was statistically significant and had positive effect on farmers' loan repayment ability. Extension services as asserted by Shah, *et al;* (2008) assist farmers in improving their farming methods and techniques through educational procedures. This facilitates in increasing farmers' production efficiency and income, and so improving their odds of loan repayment. This finding did not concur with Brehanu and Fufa, (2008), who reported negative relationship between extension services and loan repayment. The sign identity could be connected to among others inadequate motivation of extension agents/workers, inadequate subject matter specialist, non attendance to fortnightly meeting (FNT) block meeting by change agents, non-provision of adequate transportation and communication facilities; lacking of extension personnel and poor monitoring of extension agents (Ume, *et al;* 2016).These factors are capable of affecting the innovations dissemination to the farmers, resulting in low productivity, hence low repayment of loan could ensue (Pricisillia, 2011). Furthermore, the coefficient of Off-farm income was positive and significant at 10% level of probability. Off farm income as asserted by Oladeebo and Oladeebo, (2008) provides farmers with cash to invest in productivity-enhancing inputs and increasing the profitability of farming by increasing the availability of inputs and improving access to market outlets. It is general consensus among literature that farmers that have multiple streams of income have higher potential of loan repayment (Brehau and Fufa, 2000).

The coefficient of level of formal education attained also was significant at 1% level and the sign of the coefficient shows a direct relationship with loan repayment by farmers. Formal education and training enhance farmers' capabilities to comprehend and acknowledge technological innovations in economic activities which lead to increased and sustainable

agricultural production (Anozie, *et al*;2014). Studies revealed that people with good educational status are usually the choice of lending agencies as they have testimonial of being less defaulters (Olotomola, 2002). Contrary, Anozie, *et al* (2014) reported that the preference of educated people to "white collar job" as against farming, could result in low repayment as substantial amount of the credit is diverted into nonagricultural activities that may not be viable enough to produce the necessary dividends to repay the loan promptly. Also, the coefficient of household size had negative relationship with loan repayment and significant at 5% alpha level. Household size that are dominated with dependent population such as elderly, handicapped and children are likely to default in loan repayment as there is increase in per-capita consumption expenditure of farm households, leaving meager credit to be invested into the broiler business (Mpuga, 2004).

The varimax-rotated factors against loan repayment in the Study Area are shown in Table 6.

TABLE 6
VARIMAX-ROTATED FACTORS AGAINST LOAN REPAYMENT IN THE STUDY AREA

Variable	Factor 1	Factor 2	Factor 3	Factor 4
Lower productivity	0.250	0.341*	0.218	0.108
Character of the borrower	- 0.242	0.362*	0.122	0.231
Collateral	0.029	0.108	0.304*	0.226
credit scoring	0.321*	0.220	0.204	- 0.256
Changes in bank policy	0.312*	0.129	0.248	0.269
Poor loan assessment	0.326*	- 0.265	0.261	0.223
High interest rate	0.107	0.236	0.340*	0.144
Lack of supervision of projects	0.540*	0.204	0.255	0.109
Loan and income ratio	0.223	- 0.125	0.374*	0.154
Off Farm income	0.280	0.392*	0.216	0.208
Access to other source of credit	0.270	0.150	0.207	0.116
Method of repayment	0.003.	0.031	0.314	- 0.431
Human capital	-0.175	0.371*	0.0248	0.270
Market selling activities	0.263	0.007	0.0226	0.372*
Business Location	0.002	0.136	0.0104	0.391*
Size of the business	0.422	0.007	0.0233	0.053*

Source: computed from SAS 2017

Four factors were extracted based on the response of the respondents, Factor 1= lenders' characteristics factor, Factor 2 = borrowers‟ characteristics factor, Factor 3 = loan characteristics factor and factor 4 = business characteristics factor. Only variable with factor loading of 0.30 and above at 10% overlapping variance were used in naming the factors.This is line with the finding (Enete and Amusa, 2010) who are of the opinion that varibles with factor loading of less than 0.30 and variables that loaded more than one factor were discarded. Variables that loaded more than one factor like Access to other source of credit and method of loan repayment were discovered..In naming the factors Grosvenior, (2006) stated that each factor is given a denomination based on the set of variables or characteristics it is composed of. Constraints under the lender characteristics factor include lack of supervision of projects (0.0540), changes in bank lending policies (0.0340),and poor loan assessment (0.0326). The lack of supervision of projects could be as result of when update of customer information and borrowers circumstances is not done frequently as a result of the lending institution employees' inability to be close to their customers (Foltz, 2004, Kedir, 2007). Furthermore, this could arise through moral hazard by senior management, credit officers and borrowers, in form of lack of subjection of loan to normal objective credit assessment before disbursement. This may include extending credit to the personal business, personal friends and relatives among others. On the part of borrowers, moral hazard could occur when the borrowed funds are not put to the use for which they are meant for but rather the funds are diverted to other personal uses (Roslan and Karim, 2009). Besides, poor loan assessment of borrowers business by bank management according to Akwaa-Sakyi, (2013) has been responsible in the liquidating of many banks in early 2000 in Nigeria. To avert this problem, Oke et al. (2007) opined that when evaluating a small business for a loan, lenders must have in mind of seeing the two-year operating history, a stable management group, a desirable niche in the industry, a growth in market share, a strong cash flow, and an ability to obtain short-term financing from other sources as a supplement to the loan.

Also, the change in bank policies which could be in form of changes in bank lending policies in the form of changes in repayment schedule, nominal interest rate, grace period and moratorium as reported by Sharma, (2000) is capable of affecting loan repayment ability. On business credit scoring systems, Hananu, *et al*, (2015) opined that this system is used to envisage

from an applicant's characteristics whether the borrower is good (credit worthy) or bad (not creditworthy) risk, through among others looking at its past earnings or income projection of the business.

Variables that loaded under factor 2 (borrower characteristics) include; character of the borrower (0.0362), access to other credit sources (0.017) and off - farm income (0.0392). Bank management should screen the borrower's character and select the "good" borrowers from the "bad" borrowers and monitor the borrowers to avoid loan divertion from what they are main for(Von - Pischbe and Adam, 1980). Furthermore, there is need as affirmed by Adeyemo, et al (2007) to look at a borrower's past record and economic prospects to determine whether the borrower is likely to repay or not. Furthermore, off farm income, as opined by Haggblade, Hazell and Brown, (2009) could be farmers' diversification of their income sources, is capable of ensuring allowing them to spread risk and smoothen consumption over the year, thus could repay their credit promptly after offsetting vital family expenses . Also, borrower with health problems, have more odds of tampering with loan money to offset medical bill to the detriment of its repayment (Ume, *et al*.2013).

Variables that loaded under factor 3 (loan characteristics) include; interest rate of the loan (0.0340), collaterals associated with the loan (0.0304), loan and income ratio (0.374) and method of loan repayment (- 0.0431). Bank lending interest rate for the loan as observed by Wongnaa and Awunyo, (2013) is capable of swaying both intended borrowers' access to loan as well as their repayment capacity. This because when the high interest rate is add to sum of the principal amount, the borrower may default, as his or her business cash flow may not be able to foot the bill (Olotomola, 2002)

Furthermore, collateral is what borrowers provide in order to make credit lending less risky, as it gives loan security in case of defaults, which could be in form of social collateral used under group loans in the absence of physical collateral (Chaudhary and Ishfay, 2003; Ibrahim and Aliero2012; Anozie, et al, 2014) and use of proxy/ hidden collateral by MFIs offering individual loans (Duong and Izumida, 2003). Proxy collateral can help to evaluate the creditworthiness of a borrower as it is an indicator of income generating capability and ability to pay by the borrower (Odu, 2000). Thus, marketability, life, and riskiness according to Wongnaa and Awunyo, (2013) determine the attractiveness of various types of collateral to a lender and, hence, the amount of finances available to borrower. In addition, studies show that loan and income ratio affect loan repayment, as when the income of client is higher the loan he or she borrowed, the lower the defaulting rate and vice versa

The limiting factors under the business\farm characteristics factor 4 were low productivity (0.341), size of the business (0.3321), location of the business (0.0391) and market selling activities (0.371), Low productivity as affirmed by Duong, *et al;* (2010) could be as result of management not having sufficient experience and competence to run the business effectively, thus courting very high likelihood of loan default. Furthermore, low productivity could arisen because of risks associated with weather related problem (such as temperature, rainfall and relative humidity fluctuation), variability in soil quality, (Foltz, 2004) and natural hazard in form of flooding, fire disaster, pest and disease infestations, thunder lighting and among others (Osuntogun, 2012) which lead to low income and continually trapping them in a vicious cycle of poverty. More so, big business (0.055) if well managed with inputs well utilized will result in high production and productivity, consequently high income to offset their loans (Aliou, and Zeller, 2011). The findings of Shah, Khan, Jehanzeb and Khan, (2008) concurred to this assertion.

Moreover, on market selling activities, Duong and Izumida, (2003)remarked that when there is negative fluctuation in market prices of the clients' produce, the higher the probable of clients to default as profit volume will decline and vice versa.

Additionally, the business location items of access to production inputs, infrastructural facilities (such as electricity, pipe borne water and good road network) and customers' proximity could affect business performance positively and loan repayment ability (Njoku, 1997; Owuor, 2009). This means that any factor with variable loading of 0.3 and above are the important factor to be considered as serious factor militating against loan repayment in the study area.

V. CONCLUSION AND RECOMMENDATION

The sampled farmers were youthful, females, married, had large household size educated , membership of organization and farming experience of above 11 years. Also, microfinance and commercial banks were the major sources of credit to the farmers. In addition, the major uses the credit was put into by the farmers were in purchasing feeds and buying of drugs and vaccines. The determinant factors to rice farmers' loan repayment ability were household size, extension services, membership of organization, farming experience educational level and off farm income. The constraints to the farmers'

ability to repay their loan were high interest rate, lower productivity, lower productivity, collateral, poor loan assessment and changes in bank policy.

Based on the study, the following recommendations were proffered

1) There is need to improve on farmers' income and total farm sales, hence impelling loan repayment performance of borrowers.
2) Enhancing the borrowers' products marketability, financial management and accounting course through training in order to boast their business performances for reasonable profit to accrue for settlement of the loan they borrowed.
3) There is need to boost borrowers' repayment capacity by giving rebate to good borrowers.
4) Screening of potential borrowers by initially selecting those of their neighbors, friend and relative whom they believe to be capable of repaying the loan will help to minimize the loan defaulter's problem addressed in this study area.
5) Farmers can be made to improve on their repayment of credit by engaging in off- farm income support measures, which could serve as a panacea.

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