

Investigating the Determinants of Appropriate Use of Microcredit by Poultry Farmers in Western Nigeria

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Abstract: We investigated the factors that influenced appropriate use of micro-credit (i.e. using the loan for the purpose intended for) by poultry farmers in Western part of Nigeria. Using logistic regression model, our results show that the probability that a poultry farmer utilizes his loan appropriately responds more to saving-loan ratio, access to other credit, source of borrowing, marital status and interest rate than to family size, education and loan size even though they are also significant. Our findings have monumental implications for all stakeholders in stemming the tide of loan default being witnessed in our society.

Key words: Poultry farmers • Micro credit • Logistic regression

INTRODUCTION

The limited availability of financial services for small firms and low-income consumers is a common feature of the economies of developing countries [1]. Access to financial services allows the rural households to more fully take advantage of their productive opportunities, facilitate consumption smoothly, and other tools for the management of risk thereby reducing the vulnerability associated with poverty. For production activities to complete all resources must form a system and be neutralized [2]. In recent times much concern have been expressed about the lack of loan assistance to farmers and the ensuing general low level of agricultural productivity in the country [3]. Better accessibility to these financial services is however been witnessed now in the agricultural sector of the economy particularly the poultry sub sector.

Credit is described as a process of obtaining control over the use of money, goods and services in exchange for a promise to repay at a future date [4]. While some consider micro finance as a panacea to the problem of productivity and poverty, others consider the mobilization of group as a tool for organizing the unorganized for social change.

With the success level recorded by Graham foundation in Bangladesh, many other less developed countries are now encouraging the operation of micro finance in their economy particularly in the agricultural sector. This is evidenced by the different micro finance

institutions licenced by the government through its agents in addition to informal and semiformal micro finance organisations. It should be noted that government direct involvement is only becoming pronounced now.

One major characteristic of micro credit is that it is usually designed to be a short term loan. This is very appropriate for poultry business which is the focus of this study. The economic returns of poultry business is realized within a short term of about 10 – 12 weeks. The important role played by poultry production makes imperative the need for assistance for livestock farmers particularly poultry farmers which accounts for about 58.75% of the total livestock production in Nigeria. Aside from proceeds from personal savings, other means of sourcing fund for the operation of agricultural business in Nigeria include informal source (gifts, local money lenders etc), semi formal (cooperatives, NGOs, etc) and formal (Micro finance banks, commercial banks, agricultural credit fund etc).

The general concern has always been on availability or access to credit. However, of equal importance is what the loan is used for. The purpose of the loan is to be utilised for a particular project with the intension of achieving better life for the borrower and broader horizon for the business. With this in mind we set out to model out a functional relationship explaining the factors that account for appropriate use of a loan i.e whether a loan is used for the purpose it was borrowed for or whether it was diverted to other personal use. This should be a serious area of interest for micro finance institutions.

MATERIALS AND METHODS

The study was conducted in the Western part of Nigeria. We settled for the use of Ogun State because it is centrally located in the Western part of Nigeria. It shared boundaries with commercial states like Lagos, Oyo and with a neighboring country. The research was conducted in four local governments of the states namely Abeokuta North, Ijebu-North, Ijebu-Ode and Ijebu North-East Local Government Areas. A total of 600 poultry farmers interviewed through well structured questionnaires.

The data collected were analysed through the use of logistic model. A logistic regression model was used to consider the likelihood that a poultry farmer who obtained a loan used it appropriately (i.e for the project intended) as a function of some specified explanatory variables.

$$P_r(y_i = 1/x_i\beta) = e^{x_i\beta} / (1 + e^{x_i\beta})$$

The above model was so chosen because it satisfied the boundary constraints associated with the probability function, it is mathematically traceable and can be related to theoretical choice models [5]. P_r is the probability that $Y = 1$ where Y is the dichotomous discrete dependent variable which equals one if borrower utilizes the loan appropriately, otherwise zero and x is a vector of independent variables that explain the behaviour of the poultry farmer.

RESULTS AND DISCUSSION

Table 1 reports the variables that are likely to influence the behaviour of poultry farmers in the appropriate use or otherwise of credit received for their businesses. This set is indicative of the vector of

determinants of appropriate use of micro credit by poultry farmers. The demographic characteristics of respondents show that the minimum age of the respondents is 20 years while the maximum age is 65 years meaning that the respondents cut across wide age range. The educational status is also reflective of this wide range as zero turns out to be the minimum number of years spent in school while 18 turns out to be the maximum. This implies that the respondents range from farmers with no formal education to farmers with masters degree and above. The average number of years spent in school of 10.46 indicates that majority of the respondents are educated. This shows that they are likely going to accept new innovation than illiterate farmers [6]. Also, 56% of the respondents are male while 44% are female. There is thus no gender bias in the representation of the respondents.

The estimates of the logistic regression reported in Table 2 shows an array of factors that influence the appropriate use of micro-credit by poultry farmers in Western Nigeria. The result of the model as presented in Table 2 shows that the model is well behaved with most of the variables coming out with the appropriate signs. The model predicted correctly about 90.83 behaviour of poultry farmers on the appropriate use of their credit. The Andrews and Hosmer – Leme Goodness-of-fit tests show an H-L statistic of 72.66 and Andrew statistic of 331.88. Both are highly significant at 1% level. The LR statistic which represents the F statistics in the OLS report a value of 368.49. This is also significant of 1% significant level as reported by its probability. This shows that the model as a whole is statistically significant and the joint effect of the explanatory variables is also statistically significant. The Mc Fadden R –square of 0.51 shows that the explanatory power of the model is very good i.e the model explains most of the factors that influence the appropriate use of credit by poultry farmers in Nigeria.

Table 1: Variable descriptions

Var	Description	Min	Max	Mean
AGE:	Age of respondent	20	65	36.80
AOC:	Access to other credit (access = 1; otherwise 0)	0	1	0.27
INT:	Interest on loan	0.015	0.2	0.06
CLAR:	Certainty of obtaining another loan after repayment (certain = 1, otherwise = 0)	0	1	0.68
EDU:	Number of years spent in school	0	18	10.46
EEA:	Income from extra economic activities (N)	0 99,000	49,522	
FSZ:	Family size i.e number of people living in the poultry farmer's household	4	23	7.56
LOAN:	The amount of loan contracted (N)	10,000 4M 1,690,933		
MRS:	Marital status (single = 0; married = 1)	0	1	0.49
NOB:	Number of birds	40 3000 1410.37		
SALR:	Ratio of saving to loan (saving / loan)	0.25	0.5	0.39
SEX:	Sex of farmer (Male = 1; Female = 0)	0	1	0.44
SOB:	Source of borrowing (Informal = 0; semi – formal = 1; formal = 2)	0	2	0.45

Source: Authors computations, 2008

Table 2: Logistic regression results

Variable	Coefficient	Z-statistic	Marginal Effects
C	-3.051312	-1.986672	
AGE	0.009288	0.622621	0.015
**FSZ	-0.227251	-2.467009	-0.38
NOB	-0.00041	-0.836957	-0.007
***EDU	0.146263	1.700723	0.24
*LOAN	-9.68E-07	-3871379	-0.0000016
EEA	9.97E-06	1.54001	0.000016
***INT	10.76675	1.843546	17.82
*MRS	-1.042685	4.050299	1.73
SEX	0.143537	0.359497	0.24
**SOB	-0.652151	-2.183032	-1.08
***AOC	-1.154107	-2.479253	-1.91
*SALR	11.32409	4.415374	18.74
CLAR	0.327582	0.54683	0.54
Akaike info criterion	0.630789	LR statistic (13 df)	368.4949
Avg. log likelihood	-0.292061	Mc Fadden R-squared	0.512533
H – L Statistic	72.66	Andrews statistic	331.88
Overall correct prediction 90.83			

Source: Authors computations, 2008

The results show that the amount of loan collected, marital status and savings loan ratio are statistically significant at 1% while family size, source of borrowing and access to other credit are statistically significant at 5% level of significance. It also demonstrated that educational status, proxied by the number of years spent in school and interest rate are statistically significant at 10% level of significance. Extra income proxied by extra economic activities is only significant at a poor rate of 20% level of significance. The other factors, age, number of birds, sex and certainty of another loan after repayment are not found to be statistically significant at any level of significance.

It is worth noting that all the estimates of the regression posted values with the appropriate signs. Age was seen to be positively related to the probability of using credit appropriately although it was not found to be significant. Family size which indicates the number of people living with the farmer is seen to be significant and negatively related to the probability of using credit appropriately. This implies that farmers with more dependant have the higher chances of utilizing the credit for domestic exigencies than those with fewer dependants. The level of education is also seen to be positively related to the probability of using loan appropriately. This conform with the findings of Ogunfiditimi [6] that literate farmers are likely going to

accept new innovations than illiterate farmers and as thus use their credit efficiently. The amount of loan obtained is found to be negatively related to P. The implication of this is that farmers who collect small loan are likely going to utilize it more efficiently. They know that they don't have the luxury of abundance of fund and hence the urge to use the little available efficiently.

Interest rate is another factor with positive sign implying that farmers with loan bearing high interest rate has higher probability of utilizing the loan appropriately. This may be out of fear of carrying higher burden of accumulated interest. Marital status also have positive sign. Thus farmers who are married are likely going to utilise their loan judiciously because they have responsibility to carry at home.

Source of borrowing posted a negative sign. The implication of this is that those that borrow from formal and semi formal sources are likely going to put the loan to more judicious use than those that borrower from the informal source. This is not unconnected with the fact that those that borrow from the formal or semi formal source must have done so with a collateral which they will not want to forfeit, hence the need to put the loan to appropriate use and return same in due time.

One other factor found to come out with negative sign is the access of farmer to other credit. Farmers with access to other credit at the same time are not likely to put

their loan to appropriate use. They may indulge themselves in the fact that they will source another loan for the same purpose.

Saving-loan ratio which represents the amount of saving a farmer has before being granted a loan divided by the loan obtained is found to be positively related to the probability of utilising a loan appropriately. This implies that farmers with high saving-loan ratio are likely going to utilize their loan appropriately. This may be due to the fact that they have cultivated saving culture ever before contracting a loan.

At this point, we are cautious of our interpretation of the results of our regression. This is because the estimated co-efficients from the binary model cannot be interpreted as the marginal effects on the dependent variable. The marginal effects which are the elasticities of the variable that summarise the effect on the likelihood of utilizing credit appropriately caused by changing the values of the explanatory variables.

The results of the marginal effects computed with E-view package as reported in the last column of Table 2 shows that the probability of utilizing loan appropriately is elastic with respect to saving-loan ratio, interest rate, access to other credit, marital status and source of borrowing respectively. It is however inelastic with respect to family size, educational status, and size of loan even though they are statistically significant.

The implication of the above is that the probability of utilizing a loan appropriately will respond more to changes in saving loan ratio, interest rate, access to other source of credit, marital status and source of borrowing than family size, educational status and size of loan.

CONCLUSIONS

Our goal is to establish the factors that influence poultry farmers in utilizing their loan appropriately (i.e for the purpose of which the loan is meant). The results of our logistic regression suggests that family size, education, loan size, interest rate, marital status, source of borrowing, access to other credit and saving-loan ratio are

the factors that significantly influence the behaviour of poultry farmer as regard the use of his loan. The result is also robust to the extent that we found out that the likelihood of a farmer utilizing his loan appropriately respond more to saving ratio, access to other credit, source of borrowing, marital status and interest rate than to family size, education and loan size.

The findings of this study has serious implication for all stakeholders. On one hand, those giving out loans should take time to access their would be borrower along the line of this findings. Those that offer extension services to poultry farmers should call their attention to these factors and be more careful to utilize their loans appropriately.

Finally, the results of the study have implication on loan repayment as a farmer who does not utilise his loan appropriately is not likely going to be able to repay such loans as at when due thereby giving rise to accumulation of bad debt and cases of loan default which inevitably leads to inaccessibility to credit.

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