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CREDIT UTILISATION AMONG RICE FARMERS IN OYO STATE, NIGERIA

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ABSTRACT

This paper examined the effect that access to credit facilities at reasonable costs has on rice production activities in three Local Government Areas of Oyo State. Probability to size sampling technique was adopted to select and collect data from one hundred and twenty (120) rice farmers with the aid of questionnaires. The analytical tools employed include descriptive statistics, normalised profit function and Spearman rho correlation. The result showed that 78.3% and 73.7% of credit users and non credit users respectively are between 30 and 59 years old. About half (50.5%) of credit users and all non credit users are male. Most (68.3%) of the credit users and all the non credit users can at least read or write. Majority (75.3%, 68.4% of credit users and non credit users respectively) have household sizes of between 4 and 9 persons. Sixty-four percent of credit users and all the non credit users have 2 to 3.99 hectares of farmland. The results of normalized profit function reveal that the coefficients of normalized fertilizer use have negative sign in the profit equation while the coefficients of land and the other variable inputs of production have positive signs, which occur at relatively low levels of output that are characteristic of small scale farming. The R^2 value is 0.594. Use of credit facilities and shortage of labour have negative correlation while insufficient agricultural inputs, shortage of land and lack of enough agricultural information have positive correlation. It was recommended that enlightenment program should be intensified by introducing illiterate farmers to modern techniques of farming and awareness of all fields of agriculture, while the bureaucracies for obtaining credit should be reviewed so that more farmers will benefit from the credit facilities.

Keywords: Farmers, Microcredit, Nigeria, Normalised Profit function, Rice production

INTRODUCTION

The food sub-sector of Nigerian agriculture parades a large array of staple crops, made possible by the diversity of agro-ecological production systems. The major food crops are cereals (sorghum, maize, millet, rice, and wheat), tubers (yam, cassava), legume (groundnut, cowpeas) and others (vegetables). These are the commodities that are of considerable importance for food security, expenditures and incomes of households. However of all the staple crops, rice has risen to a position of pre-eminence. Since the mid-1970s, rice consumption in Nigeria has risen tremendously, at about 10% per annum due to changing consumer preferences. Domestic production has never been able to meet the demand, leading to considerable imports which today stand at about 1,000,000 metric tons yearly. The imports are procured on the world market with Nigeria spending annually over US$300 million on rice imports alone.

Rice is cultivated in virtually all the agro-ecological zones in Nigeria. Despite this, the area cultivated to rice still appears small. In 2000, out of about 25 million hectares of land cultivated to various food crops, only about 6.37% was cultivated to rice. During this period, the average national yield was 1.47 tons per hectare. Significant improvement in rice production in Nigeria occurred in 1980 when output increased to 1 million tons while area cultivated and yield rose to 550 thousand hectares and 1.98 tons per hectare respectively. Throughout the 1980s, rice output and yield increased. But in the 1990s, while rice output increased, the yield of rice declined, suggesting extensive rice cultivation.

Presently Nigerian agricultural sector is characterized by small scale farming.

Experts have opined that the empowerment of small scale rural rice farmers should therefore be the focus of any intervention program that is aimed at improving local production. Specifically, these interventions should involve the provision of agricultural credit.

Agricultural credit is the sum total of the arrangement through which cash and kind inputs are made available to a farmer or producer who repays such inputs in the form stated in the repayment schedule with due interest.(Oshuntogun, 1992). Agric credit which has been identified in literature as a major catalyst to increase the productivity of farmers in most developing country (Okorie and Obeta, 1990; Jamal and Kulundu, 1992; Goetz and Gupta 1996; Lindvert 2006;etc) and also constitute a major platform for poverty alleviation (IFAD, 2001; Adongo and Stork et al 2005; Eswaran et al 1990 and Haddad et al 1997). Moreover there has been a consensus on the fact that, to increase the level of agricultural production and development in Nigeria, there is the need to strengthen the financial capacity of the (rural) agricultural producers, (Aihonsu, 2001). In the same vein, adequate flow of credits into agriculture has been identified as a critical factor in accelerating incremental food production in Nigeria. Dimithe (2001), states that the major barrier to the intensification of agriculture in sub-Sahara Africa is the difficulty that poorly capitalised farmers have (faced) in obtaining credit for inputs. The financial services usually available to the (rural) poor, according to Latifee (2003), are limited in terms of cost, risk and convenience.

PROBLEM STATEMENT

Nigeria has not been able to attain self-sufficiency in food crop production, despite increasing hectares being put into production annually. According to Amaza and Olayemi (2002), the constraint to rapid growth of food production is due to low crop yields and resource productivity. In 1993, the Minister of Agriculture stated that low agricultural productivity in Nigeria is revealed by the actual yields of major crops. The various Governments intervention targeted at boosting food Production in Nigeria, has not yielded the desired results, while existing medium/large scale farms have equally been ascertained as not being able to sustain the food requirement of the ever increasing population in Nigeria. However, the task of bulk food production, still lies with rural peasant farmers.

Peasant rice farmers have been acknowledged, as being averse to risk, and need credit for boosting their agricultural production as well as smoothening their family consumption. Despite the role of farmers as the backbone of food production in Nigeria, they are faced with many factors limiting their effective participation in achieving food security. Notable among these are limited access: to land and capital, credit, agricultural inputs, education and appropriate technology. The twin challenge is therefore, the need to develop appropriate credit advancement and utilization mechanism that can produce the desired result on the target farmers. It is obvious that any effective strategy or mechanism must be based on environmental, social, gender, cultural, economic and other factors characterizing the target farming community.

There is, therefore need to study what effect, access to credit facilities at reasonable cost will have on rice farmers production activities in Oyo state. The following questions need to be answered: What effects does such credit accessibility have on rural farmers' naira value of their output (i.e. revenue), gross margin and profit levels? And what possible constraints do rice farmers encounter?

LITERATURE REVIEW\CONCEPTUAL FRAMEWORK

Credit is essential in rural economies in a variety of ways. It is required to finance working capital and to invest in fixed capital partly among farmers too poor to accumulate much savings (Ghosh *et. al.*

2000). The importance of credit facilities to small land holders in less developed countries has been underlined by several authors (Adams and Graham, 1981). Sapovadia *et al* (2006) concluded that micro credit has wrought local revolutions in access to credit in poor communities around the world. Access to credit enhances the adoption of new, more risky technologies and enables the household to expand agricultural and non-agricultural micro enterprises that will improve the level of farm household income and therefore, alleviating their poverty. The expected increase in income will contribute to formation of human and physical capital (Feder *et. al.*, 1985; Zeller *et. al.* 1997). There have been several cases on how financial institutions in some selected developing countries in Asia have designed programmes to specifically target the poor in the society to enhance access to credit for productive activities and improvement in their economic well-being. Many of the poor, especially those living in the rural areas, have been left out of this scheme contributing to growing inequality, declined access to credit, and rapidly growing urban areas (Park *et. al.*, 2003).

According to Jama and Kulundu (1992), access to credit would enable small-scale farmers to use improved farm inputs such as fertilizer and seeds as well as to improve tillage and husbandry practices. This goes along with what Goetz and Gupta (1996) and Lindvert (2006) concluded on in their studies that; credit delivers a range of particular benefits when targeted to low income women. It seems as a critical input for increasing women's employment in small-scale enterprises and it is expected to encourage adoption of improved agricultural technologies that can enhance the productivity of farming households, income-generating and expenditure-saving work. An increase in household income can facilitate and improve the livelihood enhancing tasks farmers perform for their households such as health, nutrition, and education of the household members. It is argued that credit represents a form of economic empowerment that can enhance farmers' self-confidence and status within the family and their community.

Moreover, credit use will give farmers the opportunity to invest in the purchase of improved agricultural inputs such as seeds, fertilizers and pesticides and will have a multiplying effect that will help to increase crop and animal production. This will in turn enhance the household's capacity to send their children to school and to improve the family's welfare. In addition, no production, no matter how simple the technology, can take place without the use of capital. Therefore, provision of financial support through credit and savings for their acquisition of capital goods is crucial for their economic development, the aim of which is to increase their equity and sustainable well being. The expected increase in income will contribute to formation of human and physical capital (Feder *et. al.* 1985 and Zeller *et. al.* 1997).

MATERIALS, METHOD AND ANALYTICAL MODEL

The primary data was sourced through the administration of well structured questionnaires among one hundred and twenty (120) rural rice farmers Proportion to size sampling procedure was employed. Three Local Governments Areas were selected in Oyo state namely Akinyele, Ogo-Oluwa and Igbo-Ora. Thirty respondents were selected each from Akinyele and Ogo-Oluwa local governments while sixty respondents were selected from Igbo-Ora local government.

Analytical Tools and Models

This study will employ a number of analytical tools based on the objectives of the study. The tools include, descriptive statistics, Normalised profit function and Spearmen rho correlation.

Descriptive Statistics

The use of percentages was adopted to describe the socio economic characteristics

of rice farmers such as age, sex, marital status, etc.

1 Normalised profit function:

$\prod_i^* = G(rj....rm, zi....zn)$ ..... (3)

Implicit form

$\prod^* = A \sum r_j j^{u*j} \sum z_{ij}^{\beta*i}$..... (4)

Explicit Non–linearised Cobb-Douglas form of normalised profit function,

This will be linearised by taking natural logarithm of equation (4) above, thus becoming:

$\ln\prod_j = \ln A_j + aj \sum \ln r_{ij} + \beta \sum Z_{ij}$.....(5)

Explicit linearised form of normalised profit function.

Where:

$\prod^*$ =Normalised profit = variable (actual) profit ($\sum\prod$)

Average Output price ($\sum p$)

rij=Normalised price of variable inputs used = Total input price ($\sum pj$)

Total output price ($\sum py$)

Zij=Quantity of fixed input used

r_1=Normalised planting material price (Naira)

r_2=Normalised fertilizer price (Naira)

r_3=Normalised agro-chemical price (Naira)

r_4=Normalised hired labour wages (Naira)

z_1=Cultivated farm size this year (Ha)

z_2=Cost of fixed input used (Naira) (as a proxy for quantity of fixed input used)

$A^*_i a^*_j$ & β^*_j = parameters

j=1=4 i=1-2

Four functional forms will be considered and estimated, namely: Linear, Exponential, Semi-log and Double-log.

2 Spearman Rho Correlation.

This will be used to rank the problems facing rice farmers in the area. It is also called Spearman's rank correlation. The formula is as:

$$r_s = 1 - \frac{6 \sum D^2}{N(N^2-1)}$$

D – Denotes the differences between the ranks of corresponding X and Y

N- Number of pairs of values (X, Y) in the data.

RESULTS AND DISCUSSION

Table 1 shows the summary of characteristics of rice farmers in Oyo State. The summary shows that 82.2% of the farmers are young and middle aged with the potential to sustain rice production for many years. Majority of the farmers 50.5% are male. This is probably because majority of the women in the area are into the production of other food crops like maize and vegetables. Most of the farmers (89.1%) are married. This will help to boast their production as their wives and children will help on the farm. Thus less money will be used to hire Labour and more money will go to other aspects of production. 68.3% of farmers can at least read and write. This shows that there is a reasonable level of literacy among the farmers and hence they might be willing to take more productive risks and it may enhance the adoption of new technological innovations such as improved farming practices and the use of agrochemicals on the farm. Most of the farmers are well experienced in farming activities, as they fell within the range of 6 - >15 years of experience (96.1%). This is in line with Tijani (1993) and Olomola et al (1999) submission that, the number of years of farming (farming experience) a farmer serves as an indication of the practical knowledge he has acquired through trial and error would likely have positive impact on productions

This result also shows that (67.4%) have 2-3.99 hectares of land which implies that majority of them still practice subsistence farming. This has implication for the technology employed and the scale of production. Majority of the farmers access their credit from the formal sources, which is represented by 45% against 26.7% that accessed it from informal sources. This perfectly agrees with the submission of Diagne and Zeller (2001) that, informal loan sizes are significantly lower than the corresponding loans sizes from formal source. This according to Zeller et al (2001) is because informal sources, especially friends and relatives, are more constrained for funds and are not in position to risk

giving large sums of funds. They further submitted that, informal sector provides significantly short term loan than the formal sector.

Table 1. Some socio-economic characteristics of rice farmers (credit users and non credit users)

Variable/Category	Credit users n=101		Non-credit users n=19	
	Frequency	Percentage	Frequency	Percentage
Age group (years)				
Less than 30 – 59	83	82.20	14	73.7
Above 60	18	17.8	9	26.3
Gender				
Male	51	50.5	19	100.0
Female	50	49.5	0	0.0
Marital status				
Single	5	5.0	0	0.0
Married	90	89.1	19	100.0
Widowed	6	5.9	0	0.0
Household size (persons)				
Less than 4-6	24	23.7	8	42.1
7-9	55	54.5	7	36.8
Above 10	22	21.8	4	21.1
Educational status				
No formal education	32	31.7	0	0.0
Primary	52	51.5	7	36.8
Secondary	9	8.9	12	63.2
Tertiary	8	7.9	0	0.0
Years of experience in rice farming				
1-5	4	3.9	0	0.0
6-10	14	13.9	13	68.9
11-15	12	11.9	6	31.6
Above 15	71	70.3	0	0.0
Rice farm size (hectares)				
2.0-4.99	74	73.3	19	100.0
5.0-6.99	27	26.8	0	0.0

Normalized profit function

Double log was chosen as the lead equation for both credit users and non-credit users, from the four functional farms estimated. The selection was based on a prior expectation (sign of coefficients), statistics (no of significant variables, t value) econometric (coefficient of multiple determination) R square and adjusted R^2) and F – value. This concurs with Yotopolous and Lau (1979) that the lead equation for normalized profits study is Double log. Table 2 shows the normalized profit functions for rice production in the study Areas during the 2008/2009 cropping season.

All the coefficients of the variable and fixed inputs have the expected signs and those that are statistically significant at the 1 percent level are shown. In the profit function, fixed input, normalized planting material, normalized fertilizer and normalized storage chemical coefficients are not significant. The coefficients of normalized fertilizer have negative sign in the profit equation because they are part of the costs incurred in the production of rice while the coefficients of land and the other variable inputs have positive signs, implying that an increase in land and the other variable inputs in the production of rice would increase the profit level and vice versa.(Lau and Yotopolous, 1979).

Table 2: Normalized Profit Function for Credit Users

Variable	Linear	Exponential	Semi log	Double log
Constant	1.624	1.457	174.642	1.287
t-ratio	0.093	2.673	-3.229	0.765
P[ITI>t]	0.926	0.089	0.002	0.446
Fixed Input	0.119	-0.313	9.444	-0.404
t- ratio	2.486	-0.210	2.329	-0.321
P(ITI>t]	0.015	0.834	0.022	0.749
Farm size	17.289	0.279	61.549	1.080
t-ratio	7.357	3.820	9.736	5.491
P [ITI] > t]	0.000	0.000	0.000	0.000*
Normalized Planting material	-5.549	-0.593	-15.766	0.940
t- ratio	-2.986	-0.103	-3.3350	0.064
P[ITI > t]	0.004	0.918	0.00	0.949
Normalized Fertilizer	-484.564	-7.571	-23.535	-0.412
t-ratio	-1.528	-0.768	-1.909	-1.074
P [ITI >t]	-0.130	0.444	0.059	0.286
Normalised Herbicide	0.654	0.506	3.738	0.170
t-ratio	0.597	1.487	1.962	2.868
P[ITI>t]	0.552	0.140	0.053	0.0051*
Normalized Storage chemical	0.625	-0.493	0.334	0.111
t-ratio	0.009	-0.22	0.084	0.089
P [ITI>t)	0.993	0.825	0.934	0.929
Normalized wage	10.834	1.299	13.246	1.540
t- ratio	1.056	4.073	1.208	4.512
P [ITI>t]	0.294	0.00	0.230	0.000*
R^2	0.608	0.532	0.712	0.594
Adj R^2	0.642	0.497	0.690	0.563
F- value	26.72	15.14	32.85	19.43
N	101	101	101	101

* = 1% level of significance ** = 5% level of significance *** = 10% level of significance

Estimated Normalized profit function for credit users

In TTcu = $1.287 - 0.404_{z1} + 1.079_{z2} + 0.939_{x1} - 0.412_{x2} + 0.169_{x3} + 0.111\,x_4 + 1.539_{x5}$

(0.765) (-0.321) (5.491) (0.064)** (-1.074) (2.868) (0.089)*** (4.512)

n = 101

R^2 = 0.594

R^{-2} = 0.563

F value = 19.43

Since the normalized profit function was patterned after Cobb Douglas production function, the sum of α and β parameters, which represent return to scale was 3.025. This means increasing returns to scale. This case of increasing returns is not very common in agriculture, but when such cases are observed, they occur at relatively low levels of output that are characteristic of small scale (peasant) farming. Thus is given as

$\sum \alpha_1 + \beta_1 > 1$ = Increasing returns to scale (Olayide and Heady, 1982).

The R^2 value is high at 0.594 signifying an explanation of 59.4 percent of the variation in the profit by the explanatory variables. The F value is highly significant at 1 percent level

Problems affecting rice production

As shown in Table 3, credit facilities have a negative correlation coefficient of 0.367 at 1 percent level of significance. This means that as the problem of credit reduces the level of production will increase. It implies that credit has a great effect on farmers' level of production. Shortage of labour has a negative correlation of 0.290 at 1 percent level of significance. This implies that as the problem of labour reduces the level of production will increase.

Insufficient agricultural inputs have a positive correlation coefficient of 0.333 at 1percent level of significance this means that as the problem of agricultural inputs reduces production will decrease. Shortage of land has a positive correlation coefficient of 0.184 at 5 percent level of significance. This implies that as the problem of land reduces level of production will decrease. Lack of enough agricultural information has a positive correlation of 0.05 at 1 percent level of significance. Showing that as the problem of agricultural information reduces the level of production will decrease.

Table 3: Results of correlation analysis (Dependent variable- level of production)

Variable	Correlation Coefficient
Shortage of labour	-0.290*
Shortage of land	0.184**
Insufficient agricultural inputs	0.333*
Lack of credit facilities	-0.367*
Lack of enough agricultural information	0.05*

* = 1% level of significance ** = 5% level of significance *** = 10% level of significance

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