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EFFECT OF CREDIT ON RICE PRODUCTION IN KOGI STATE, NIGERIA

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ABSTRACT
Rice production requires some level of capital outlay. Most of the Nigerian farmers have no take-off capital and access to credit are usually very limited. This study investigated the effect of credit on rice production in Lokoja and Koton Karfe Local Government areas of Kogi state, Nigeria.A total of 115 rice farmers were sampled from the study areas. Data collected were analyzed using descriptive and inferential statistics. Result showed that the mean age of the respondents was 41 years, with household size of four (4).Majority (62.7%) of farmers were literate and experienced with mean of fifteen years and an average farmsize of two (2) hectares. Most of the farmers obtained credit from non- institutional sources, such as family, friends, essusu, and Co-operative societies. Credit accessibility had a negative effect on rice output with a coefficient of -0.096 in the study areas. Low profitability from output, poor educational background and high interest rate were the major limitations against access to credit. It was therefore recommended that farmers should be encouraged to participate actively in farmers' social organizations and co-operatives societies in order to get farm inputs at cheaper rates. Rice farmers also need farm management education so that they can adopt best/global best practices.

Key words: *Credit, non-institutional, rice output*

Introduction

Credit availability could enhance the adoption of technological advances in farming, resulting in increased productivity vis-a-vis increased revenue. Credit plays an important role in increasing agricultural productivity at both the pre-planting and harvesting stages (Ojo *et al*., 2019). Hence, timely access and availability of credit as posited by Saboor *et al.* (2009) are critical to farmers' acquisition of the inputs and machinery required to carry out farm activities. Credit is needed not only for farming purposes but also for household consumption, especially during the off-season.

Agricultural credit is very important for sustainable agricultural development to be achieved in any country of the world (Ololade and Olagunju, 2013).Rural credit has proven to be a powerful instrument against poverty reduction and development in rural areas. Farmers are particularly in need of such instrument (i.e. credits), because of the seasonal pattern of their activities and the uncertainty they are facing. Agricultural credit enhances productivity and promotes standard of living by breaking vicious cycle of poverty of small scale farmers. Agricultural productivity and growth are hindered by access to credit facilities (Odoemenem and Obinne2010), only few farmers have access to rural credit. Limited availability of credit service has

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undermined rural income activities due to lack of capital for investment and has prevented farmers from adopting improved farming practices. Credit is a necessary input in the various aspects of farm operations in Nigeria as in most developing countries. The agricultural production system is dominated by small holder farmers. These farmers operate mainly within the limits of their highly insufficient resources which tend to constrain their capacity to employ most recommended technologies on the farms (Okereke*et al.*, 2012)

There are typically three types of credit available to individual (farmers) in most developing countries like Nigeria. These are the formal sources, which is also called institutional sources (commercial banks, micro-finance banks), the semi- formal sources (NGOs, cooperative societies) and the informal sources also referred to as non-institutional sources (money lenders, contributions, family and friends) (Badiru, 2010).

In Nigeria, many studies (Adebayo (2018), Ammani (2012), Ibrahim (2012) have been done on the effect of formal and semi-formal sources on farmers' productivity. However, only very few has been on the combination of the three sources. Therefore, this study combines the effect of these source of credit on rice production. It also identify problems associated with credit on rice production and suggest possible solutions in the study area.

Research Methodology

The Study Areas

Kogi State was created out of the old hitherto Kwara and Benue States along with eight other States on the 27th August 1991. The state is made up of the area known then as Kabba province of the former Northern region of Nigeria. The State currently has 21 Local Government Areas with Lokoja town as the State Capital. Kogi State is located in the middle-belt of Nigeria. It extends from latitude 6.3^0 to 8.44^0 and longitude 5.4^0 to 7.49^0. Kogi state shares common borders with Anambra and Edo States to the South; Niger, Nassarawa and Federal Capital Territory to the North; Benue and Enugu States to the East, while in the West, Kogi State has a common boundary with Ondo, Ekiti and Kwara States. The State covers a land area of about 75,000 square kilometres. Out of these, about 20 percent of the land is occupied by people (15,000 sq kilometers). Rivers and streams occupy 3,750 square kilometres. The two largest rivers in Nigeria (Niger and Benue) flow through the state. The Niger forms a confluence with the Benue at Lokoja the state capital. As a result of this, the state is fondly referred to as "The Confluence State". The total cultivable area is about 49,000 square kilometres or 4,900,000 hectares. Farming is the predominant occupation of the people of Kogi State (KADP, 2014).The state is made up of four agricultural zone (A, B, C, and D according to Kogi Agricultural Development Project (ADP) into fouragricultural zones).

Sampling procedure and sample Size

Multistage sampling technique was used to select sample for this study. Since the State is divided into four Agricultural zones (Zone A, Zone B,Zone C and Zone D). The first stage involved purposive selection of two (2) Local Government Areas from zones C, since it is part of agricultural zonethat cultivates rice. The second stage, involves random selection of villages from each of the selected LGAs (3 villages each). The third stage, involves the use of Yamane's formula to select sample size from the sample frame of each village as obtained from Kogi State Agricultural Development projects (KADP, 2014). Thus, a total of 126

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registered crop farmers were randomly selected as respondents for this study based on Yamane's equation (1967) for appropriate sample size determination as used by Eboh (2009).

Analytical Techniques

The data collected was analyzed using both descriptive and inferential statistics. The descriptive statistics such as mean, percentages, frequency distribution table were used, while the inferential statistics used was ordinary least regression model. The Ordinary Least Squares regression **(**OLS**)** is a common technique for estimating coefficients of linear regression equations which describe the relationship between one or more independent quantitative variables and a dependent variable (simple or multiple linear regression). OLS regression model using the Cobb-Douglas Production Function was estimated to predict the effects of credit on rice production in the study area. The use of (OLS) was informed by the fact that under normality assumption (i.e. the OLS estimator is normally distributed) is said to be best and unbiased linear estimator (Gujarati, 1995). The model is implicitly specified as follows;

$Y = f(X_1, X_2, X_3 \ldots\ldots. Xn + ei)$ …… (1)

The double log form of the model is specified thus:

$LnY_i = Lnb_o + b_1LnX_1 + b_2LnX_2 + b_3LnX_3 + b_4LnX_4 + b_5LnX_5 + b_6LnX_6 + b_7LnX_7 + b_8LnX_8 + b_9LnX_9 + b_{10}LnX_{10} + B_{11}LnX_{11} + b_{12}LnX_{12} + b_{13}LnX_{13} + b_{14}LnX_{14} + b_{15}LnX_{15} + e_i$…….
..... (2)

Where
Ln= Natural Logarithm
Y=Total Annual output (kg)
X_1 = gender (male or female)
X_2 =age of the farmer (years)
X_3 =level of education (number of years spent in school)
X_4 =household size (number of people)
X_5 =farm experience (years)
X_6 =farm income (₦)
$X_{7=}$ farm labour (man-day)
X_8=Primary occupation (farming or otherwise)
X_9 = goal of farming (family or otherwise)
X_{10} = annual farm income(₦)
$X_{11=}$ number of visits (in numbers)
$X_{12=}$ cooperative membership (yes or no)
X_{13}= credit access (₦)
X_{14}= size of the farm (ha)
X_{15}= improved seeds (kg)
b_o= slope
$b_{1+}b_{15}$= the estimated coefficient
e=error term

Results and Discussion

Socio-economic characteristics of rice farmers

The result in Table 1 shows that the mean age of the respondents was 41 years, this is an indication that most of the rice farmers were in their active and productive stage. This finding agrees with that of Nasiru (2018) who found out that rice farmers in Jigawa were young and within this age bracket.Household size is the number of people that eat from the same pot. The mean household size was 4 persons. This implies that majority of the respondents had small household size. Education is associated with adoption because it is believed to increase farmers' ability to obtain, and analyse information that helps them to make appropriate decision. Table 1 revealed that the mean educational level of the farmers was 8 years, with majority (62.7%) having formal education. This indicates that rice farmers in the study area are literate, and

could have sufficient knowledge of the workings credit institutions in the study area. This result is in congruent with the findings of Ayedun *et al*., (2019) who found that small holder farmers in Nigeria were literate. The result in Table 1 shows that the mean years of farming experience was 15 years for the rice farmers. The implication of this is that rice farmers might be able to apply their skills in credit management. This result agrees with that of Awotide (2010) that most rice farmers are highly experienced. Further results in Table 1 reveals that the mean farm size of the rice farmers was 2 hectares. This indicate that most of the respondents were small scale farmers. This implies that yield a measure of output per hectare will be low. The respondents being majorly small and medium scale farmers imply that large scale farmers are few and commercial agriculture is limited. Majority (71.7%) of rice farmers were member of a cooperative societies.

Table 1: Rice farmers' Socio-economic Characteristics

Characteristics	Frequency	Percentage	Mean
Age			
21-30	24	21.2	
31-40	40	35.4	
41-50	23	20.4	41
51-60	21	18.6	
61-70	5	4.4	
Household size			
1-3	19	15.8	
4-6	92	81.4	4
>6	2	1.8	
Educational level			
Non-formal	41	36.3	
Primary	3	2.7	
Secondary	48	42.5	
Tertiary	21	18.6	
Farming experience			
< 10	50	44.3	
10-20	54	47.7	15
>20	9	8.0	
Rice farm size (ha)			
1-2	56	49.6	
>2	57	50.4	2.5
Cooperative societies membership			
No	32	28.3	
Yes	81	71.7	

Sources of Credit

The results as presented in Table 2 revealed that majority (50.4%) have access to credit which is mostly through cooperative societies, money lenders, LAPO micro-finance rural development initiatives (NGO), friends and relatives. Majority (62.2%) could not source their credit from formal financial institutions. This might be due to the processing time, repeated travel from farmers' village to the bank, the paperwork, literacy requirements, the demanding (and sometimes impossible) loan conditions as to equity, collateral, and credit histories developed by bureaucrats in distant urban areas. Majority (50.4%) source their credit from non-institutional sources like money lenders with their unusual interest rate, farmers' associations, friends and relative. Since farmers cannot access credit from bank or government they opted for non-institutional sources which are usually exploitive to meet their demands. This result is in tandem with those of Odu *et al.* (2011) who found out that informal sources was the major credit support to farmers.

Table 2: Sources of credit

Non-institutional sources	**Frequency**	**Percentage**
No	**56**	**49.6**
Yes	**57**	**50.4**
Institutional sources		
No	**68**	**60.2**
Yes	**45**	**39.8**

Effects of credit accessibility on rice production

From the regression analysis result presented in Table 3, the double logarithm functional form was selected due to the number of significant variables. The coefficient of determination (R^2) value was 0.599 implying that approximately about 60% variation in rice output was explained by the independent variables included in the model. The remaining 40% unaccounted for could be due to error or other variables not captured in the model as well as other

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factors outside the control of the farmers. The F – ratio was statistically significant at 1% implying the perfect fit of the model and good at predicting the observed data. The result revealed that out of thirteen (13) variables included in the model, seven (7) variables were statistically significant at 1% and 5% probability levels. The coefficient for age (-0.1014) was negative and statistically significant at 5% probability level. This implies that a unit increase in age of rice farmers will decrease their output. This is not in line with the *a priori* expectation, under *ceteris paripus*, the older the farmers the higher the output. However, older farmers are usually conservative, risk averse and very skeptical of new innovation in rice production that can enhance their productivity. The coefficient of educational level of the rice farmers is positive at 1% level of significant. This implies that the more educated a farmer is the likelihood of better output. The coefficient for farm size (0.481) was positive and statistically significant at 5% probability level. This implies that a unit increase in farm size of rice farmers will increases their output. This is in conformity with the *a priori* expectations. The coefficient for farming experience (0.3139) was positive and statistically significant at 1% probability level. This implies that a unit increase in farming experience of rice farmers will increase rice output.This result is in tandem with the*a priori*, expectation. On the other hand,longer years of experience in the rice production will equip farmers with the required capacity to produce quality rice that will meets the market standards. This result is in congruent with that of Nasiru (2018), who found out that rice farmers are experienced. The extension contact coefficient (0.0871) was also positive and statistically significant at 5% probability level.

The coefficient for credit accessibility (-0.0960) was negative and statistically significant at 1% probability level. This implies that the more credit accessed by rice farmers, the lower its output.

This is against the *a priori* expectations. This might be due to the fact that rice farmers might not have used the accessed credit for rice production alone. Another reason might be that instead of using the credit for production it could have been used for consumption. The coefficient for annual income (0.0854) was positive but not significant at 1% probability level. This implies that a unit increase in annual income of rice farmers will increase their output.

Table 3: Regression on effects of credit on rice production

Variables	parameter	Co-efficient	Standard error
Sex	b_1	-.0117	(-0.18)
Age	b_2	-.1014	(-2.14)**
Education	b_3	.2119	(2.61)***
Household size	b_4	.0474	(1.69)
Farm size	b_5	.0481	(2.36)**
Farming experience	b_6	.3139	(12.74)***
Seeds	b_7	.1277	(1.34)
Quantity of fertilizer	b_8	-.0277	(-0.79)
Labour	b_9	.0047	(0.16)
Coop Membership o	b_{10}	-.0156	(-0.33)
Extension contact	b_{11}	.0871	(2.12)**
Credit accessed	b_{12}	-.0960	(-2.21)***
Annual income	b_{13}	.0854	(2.02)**
Constant	b_0	2.7328	(11.35)***
R-squared		0.5990	
Adj R-squared		0.5719	
F-value		22.17***	

Source: Field survey,

Problems associated with access to credit

The constraints associated with credit access by rice farmers as presented in Table 4 revealed that low profitability (2.51) ranked first as the major constraint faced. This is because majority of rice farmers in the study area are resource poor and operate at subsistence level, this reduces their profitability level. Poor educational background was ranked second (2.50) most severe constraints faced by rice farmers. Education is expected to enhance the respondent productivity, efficiency and access to loan. Poor educational background makes it difficult to access credit from formal institutions because of the formalities

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involved in filling forms and being rational enough to select the best financial institution that offers the best interest rate.

Low working capital, lack of collateral and interest (2.49) were ranked 3rd most severe constraint facing rice farmers. This agrees with the findings of Nwosu *et al.,* (2010) that found that high interest rate and reluctant by farmers to pay back loan are the major challenges faced by farmers in accessing credit. This is because most respondent seek their credit from non-institutional source with higher interest rate and some even pay as much as 100% interest rate from money lenders. Also, farmers' asset determines the volume of credit they will have access to, in the case of rice farmers in the study area with fragment land, operating at low level will deprived them access to credit. In addition, they lack the required asset like land to seek loan from financial institution due to land tenure system prevalent in the study area. The least constraint was fraud and identity theft with (1.43) weighted mean.

Table 4: Problems associated with credit access on rice production

Variable	Very serious	Serious	Not serious	Weighted sum	Weighted mean	Rank
Interest rate	56	57	0	282	2.49	3rd
Time rate	19	75	19	226	2.00	7th
Fraud and identity theft	17	17	77	162	1.43	10th
Collateral security	56	57	0	282	2.49	3rd
Poor education background	57	56	0	283	2.50	2nd
Low profitability	58	55	0	284	2.51	1st
Lack of working capital	56	57	0	282	2.49	3rd
Risk involved	71	22	20	277	2.15	6th
Lack of gov't participation	16	65	32	210	1.86	8th
Problem of accessibility	16	18	79	163	1.44	9th

Conclusion and Recommendations

Based on the findings of this research work, it can be concluded that rice farmers in Lokoja/Koton Karfe Local Government Area of Kogi State Nigeria, have access or obtained credit which is mostly through cooperative, money lenders, LAPO, micro-finance, friends and relatives. However, the credit accessed had a negative effect on rice output. Low profitability was the major constraint to credit access. The following recommendations were made:

i. Farmers should be encouraged to participate actively in farmers'/social organizations and co-operatives societies in order to strengthen their group action, since such organization act as effective channels for extension information delivery system to farmers. This will also ease the provision of adequate input to the farmers at the right time.

ii. Farm management education is needed to help rice farmers adopt best/global farming practices this could be by the government, development partners and associations.

iii. Formal financial institutions should encourage farmers (especially the illiterate farmers) to access credit from them by reviewing the procedure for securing loan and reducing the interest rate charged. Financial institutions should be encouraged to open branches in the rural areas and also minimize their demand for collateral securities. In addition, farmers should be enlightened on the importance of savings and reinvesting through savings mobilization programmes in the study area.

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