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Effects of Cooperative Credit on Cassava Production in Yewa Division, Ogun State

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Abstract
The study analyzed the effect of cooperative credit on cassava production in Yewa Division of Ogun State. Nigeria. It specifically identified socio-economic characteristics of the respondents and quantitatively determined some socio-economic characteristics of these farmers that influence their level of loan repayments. A multi stage sampling technique was used to select 120 respondents in the study area and structured questionnaires were administered on them to collect relevant data. Descriptive statistics was used to analyze the socio-economic characteristics of the respondents while multiple regressions (exponential form) was used to quantitatively determine the factors influencing the level of loan repayment among small scale farmers in the study area. The result showed that 63.3%% of the respondents were more than 60years old and 76.7% of them were males. Findings also revealed that average number of these farmers had farming experience falling between 5-10 years being married, operating with less than 5 hectares. The result of the repayment function postulated for the respondents in the study area showed that 89.7% of the regression was explained by the regressors. The result obtained in this study also revealed that the farming experience, credit use, interest rate charged, total expenditure on production, and loan repayment period were the major significant farm socio-economic variables determining loan repayment in the study area. Based on the results obtained in this study, it is recommended that credit institutions or lending agencies should look out for socio-economic characteristics and other factors that significantly influence loan repayment before granting loans and advances to small scale farmers to reduce the incidence of loan delinquencies and defaults and increase cassava production output in the study area.
Keywords: Cassava, Cooperative, Credit, Production, Loan

Introduction

Cassava is grown throughout the tropic and could be regarded as the most important root crop in terms of area cultivated and total production (Ano, 2003). It is a very important staple food consumed in different forms by millions of Nigerians. Cassava roots are rich in energy, containing mainly starch and soluble carbohydrates, but are poor in protein. Cassava is a crop of the poor people and occupies mainly agriculturally mineral environments. These and other features endowed it with a special capacity to bridge the gap in food security, poverty alleviation and environmental protection (Clair *et al*, 2000).

Cassava can be grown on a wide range and can yield satisfactorily even in acidic soils where most other crops fails (Hahn, 1984), the crop has continually played very vital roles, which include income for farmers, low cost food source for both the rural and urban dwellers as well as household food security (Nweke 1996). In Nigeria, Cassava is generally believed to be cultivated by small scaled farmers with low resources (Ezebuiro *et al*, 2008). It also plays a major role in the effort to alleviate the food crisis in Africa, the food and agricultural organization of the United Nation estimated cassava production in Nigeria as at 2002 to be 34 million tonnes (FAO, 2004).

Nigeria is the largest producer of cassava in the world. Its production is currently put at about 33.8 million tonnes a year (FAO 2002). Total area harvested of the crop in 2001 was 3.1 million hectare with an average yield of about 11 t/ha. Cassava plays a vital role in the food security of the rural economy because of its capacity to yield under marginal soil conditions and its tolerance to drought. It is the most widely cultivated crop in the country; it is predominantly grown by smallholder farmers and dependent on seasonal rainfall. Rural and urban communities use cassava mainly as food in both fresh and processed forms. The meals most frequently eaten in the rural areas are cassava-based food.

Data from the Collaborative Study of Cassava in Africa (COSCA) showed that 80% of Nigerians in the rural areas eat a cassava meal at least once weekly (Nweke *et al.* 2002). Per capita consumption of cassava of 88 kg/person/year between 1961 and 1965 increased to 120 kg/person/year between 1994 and 1998. Nweke *et. al.* (2002) maintained that cassava performs five main roles: famine reserve crop, rural food staple, cash crop for urban consumption, industrial raw material, and foreign exchange earner, also that Nigeria is the most advanced of the African countries poised to diversify the use of cassava as a primary industrial raw material and livestock feed.

Cooperative Credit and cassava production

Credit or loanable fund is regarded as more than just another resource such as land, labor and equipment,

because it determines access to most of the farm resources required by farmers. The explanation is that farmers' adoption of new technologies necessarily requires the use of some improved inputs which may be purchased. Credit also acts as a catalyst for rural development by motivating latent potential or making under used capacities functional (Oladeebo and Oladeebo, 2008). In response to this need, the government of Nigeria established amongst others, the Nigerian Agricultural and Cooperative Bank (NACB) in 1973 (now Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB) to cater for the financial needs of the agricultural sector.

The usefulness of any agricultural loan programme does not only depend on its availability, accessibility and affordability, but also on its efficient allocation and utilization for intended purposes by beneficiaries (Oboh, 2008). In Nigeria, farmers face a lot of problem in the acquisition, management and repayment of agricultural loans. According to Akerele (2003) and Awoke (2004), the sustainability and resolvability of most public agricultural credit schemes in Nigeria have been threatened by high rate of default arising mainly from poor management procedures, poor loan acquisition and utilization (leading to loan diversion) and reluctance to repay loans.

Several studies that analyzed the use of credit among resource - poor rural dwellers concluded that credit was allocated mainly for agricultural and non-agricultural productive activities as well as for consumption purposes, though at varying allocative proportions (Oyatoye, 1983; Zeller *et al.,* 1996; Berger, 1989; Schreider, 1995; Heidhues, 1992).

Fakayode, *et. al.,* (2009) reported that in most part of Africa, the culture is basically subsistence where the family cultivates small plots for food needs. Cassava productivity in Nigeria is low due to the fact that farming activities is usually done among poor and low income farmers, cultivating small and fragmented farm land to sustain livelihood. These farmers are often constrained due to their economic status and lack of accessibility to capital and other relevant inputs which would have facilitated the increase in food crop production in the area.

However, cassava farms just like the other crop farms in Nigeria are the small-scale types which are characterized by very low productivity. The crucial issue in the Nigerian agriculture is that of low productivity and this need to be dealt with. Despite all human and material resources devoted to agriculture, the productive efficiency for most crops still fall under 60 percent. Yet the influence of credit in adoption of modern agricultural innovations remain poorly understood in cassava production (Omonona, 2009; Adesina and Forson, 1995; Ersado *et al*, 2004).

One of the major constraints small-scale farmers are facing in Nigeria is that of inability to access credit facilities for agricultural production. It is envisaged that when these conditions are improved upon that the value of farmers' income will meet their expectations that will bring about improvement in their standard of living. Having recognized that credit is prominent for expansion of business. This study will be focused on cassava farmers who are involved also in cooperative activities.

Objectives of the Study

The main objective of this study is to analyze the effect of cooperative credit on cassava production in the study area. The specific objectives of the study are to examine the factors influencing loan repayment among the farmers and determine the effect of socio-economic characteristics on farmers output

Research Hypothesis

In pursuit of the research objectives, the following hypotheses were stated in null form for the study. The t-test was used to achieve these hypotheses.

H_{O1}: There is no significant relationship between the socio-economic characteristics of the farmers and their production level

H_{O2}: There is no significant relationship between the factors determining loan repayment and production level

RESEARCH METHODOLOGY

Study Area

The study area is Yewa division of Ogun State. Ogun State is located in the south Western part of Nigeria with Latitude 6^0N and 8^0N and Longitude $2½^0$E and 5^0E. It is bordered by the Republic of Benin on the West, Ondo State on the East, Oyo and Osun State in the North, while Lagos state and Atlantic Ocean are to the south. Ogun State covers about 16,762 square meters that's approximately 1.82% of Nigeria land mass and with actual population figure of 2,358,570 in 2005 and it accounts for about 2.46% of Nigeria total population being the 19th largest State. (Census, 2006). The area is endowed in terms of natural resources located in the ecological zone of Nigeria. They are predominantly Yewa, Awori and Egun speaking Yoruba and they are predominantly farmers, while the communities are noted for production of arable crops like cassava, maize, cocoyam, yam, melon, tomatoes and many others.

Sources and Methods of Data Collection

Survey data were collected from cassava farmers, who acquired credit or loan from the cooperative society. The study made use of both primary and secondary data. Primary data were collected using well structured questionnaires to obtain information from the respondents in the study area and through oral interview. While, secondary data were sourced from journals, statistical publications, textbooks, articles, past projects, and the internet.

Sampling Techniques

Multistage random sampling technique was used in selecting the sample size. In the first stage, two (2) Local Government Areas were randomly selected from five (5) LGAs in Yewa Division, namely: Yewa North, Yewa South, Ipokia, Imeko-Afon and Ado-Odo/Ota. The second stage involved random selection of six (6) towns from each Local Government Area because of the large volume of cassava farms in these areas. While in the third stage, ten (10) cassava farmers were randomly selected from each selected towns making a total of one and hundred and twenty (120) respondents in all.

Methods of Data Analysis

The tools to be used for data analysis include both the descriptive analytical tools and inferential statistical tools. Descriptive statistics such as tables, percentages and all forms of indices were used to characterize the socio-economic factors and variables of the farmers. It involves their age, gender, household size, marital status, educational level, farming experience and so on; while inferential statistics was used to examine the factors influencing loan repayment among the farmers.

Multiple regression technique of analysis would be employed.

$Q = A + b_i X_i + U_i$…….....……..(3.1)

Where; Y= Amount of loan repaid (Naira)

A = Intercept (constant variable)

b_i = Coefficient of X_i

X_i = Independent or explanatory variable

U= error term

X_i = independent variables are specified as follows;

X_1 = Marital status (1= single, 0 if otherwise)

X_2 = Total expenditure incurred on production (Naira)

X_3 = Farmer's age (years)

X_4 = Farm size cultivated (hectares)

X_5 = Farming experience with credit use (years)

X_6 = Level of education (years spent in formal educational institution)

X_7 = Total income received apart from credit available to the farmer (Naira)

X_8 = Credit size (Naira)

X_9 = Type of loan (1= short term, 0, if otherwise)

X_{10} = Interest rate (%)

X_{11} = Loan repayment period (months)

Four functional forms of the specified model will be tried and their a priori expectations are explicitly stated as:

In the explicit linear form, the lead equation becomes:

$Q = b_o + b_1X_1+b_2X_2 +b_3X_3 +b_4X_4 + b_5X_5 + b_6X_6+ b_7X_7+ \ldots\ldots\ldots\ldots b_{11}X_{11}+U$ …(3.2)

Semi – logarithmic Form

$Q = lnb_o + b_1lnX_1+b_2lnX_2 +b_3lnX_3 +b_4lnX_4 + b_7lnX_7+\ldots\ldots b_{11}lnX_{11}+U$....(3.3)

Exponential Form

$LnQ = b_o + b_1X_1+b_2X_2 +b_3X_3 +b_4X_4 + b_5X_5 + b_6X_6+ b_7X_7+ \ldots\ldots\ldots\ldots b_{11}X_{11}+U$.....…….(3.4)

Double – logarithmic Form

$LnQ = lnb_o + b_1lnX_1+b_2lnX_2 +b_3lnX_3 +b_4lnX_4 + b_7lnX_7+\ldots\ldots b_{11}lnX_{11}+U$...…....(3.5)

Where Ln = natural logarithms bo, b_1……. b_8 = estimated coefficients

Effect of socio-economic characteristics on farmers output

Ordinary Least Square (OLS) method of analysis were employed to capture this objective

Explicitly the model is specified as follows

$Y= f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, U_i)$…….……...……(3.6)

Where;

Y= farmers output (kg)

X_1= Age (years)

X_2 = Gender (1= male, 0 if otherwise)
X_3 = Education (years)
X_4 = Farming experience (years)
X_5 = Household size (number)
X_6 = Marital status (1= single, 0 if otherwise)
X_7 = Income (Naira)
X_8 = Occupation (1= farming, 0 if otherwise)
U_i = error term

RESULTS AND DISCUSSIONS

The age of the farmers is an important factor that affects their level of productivity and overall coping ability in farming business. Age is also believed to influence the level of physical work and the willingness to take risk. Table 1 revealed that 63.3% of the respondents were below 60 years of age. This implies that farming activities is majorly centralized into the hand of people having expected strength and energy.This confirms the commonly reported aging rural farm population in Nigeria (DFID, 2004; Okali, *et al*. 2001). Sex distribution of respondents showed that 76.7% of the respondents were male, 23.3% were female. This means that cassava production in the study area was dominated by male farmers. This implies that there is gender inequality among the farmers.

Household size comprises of the head, wives and their children. Distribution of respondents revealed that majorities of the respondents (69.2%) are having household size of below 5 members while the remaining 30.8 % are having household size between 5-10 members. This implies that the farmers adopted family planning and never take child bearing as advantage of undertaking farming activities.

The farming experience of a farmer can be useful guide in the use of inputs and in taking farm management decision Findings revealed that majority of the respondents 50% are having farming experience between 5-10 years, while 7.5% are above 10 years and 42.5% are below 5 years of experience in farming. Thus, experience is expected to have a significant positive impact on the managerial ability of the respondents. This implies that, the more experienced they are, ceteris paribus, the more efficient he would be in management because the acquired experience over the years would be brought to bear on their activities.

Marital status distributions revealed that majority (76.7%) of the respondents are married. This implies that majority of the respondents are married and have family responsibility which will make them to opt for financial assistance to enhance the level of cassava production. The distribution of respondents according to their occupation revealed that majority of the respondents engaged in farming as major occupation.

Education is an important factor in the recognition and utilization of investment opportunities. The study revealed that most of the respondents interviewed are found to have some form of formal education. Majority of the respondents (84.2%) have formal education while only 15.8% had no formal education. This implies that the respondents attain a minimal level educational standard to be able to get exposure on cooperative credit acquisition

The distribution of respondents according to farms size shows that majority had farm size of less than 5 hectares. Majority of the respondents that were interviewed belong to farmer's cooperative society, while some were members of a multi-purpose society and few were for thrift and credit cooperative society. This implies that most of the farmers derive benefits from farmer's cooperative societies.

It was reported that meetings are held at different intervals. Majority reported that it normally hold on weekly basis, some choose monthly while very few reported that meetings were held yearly. Most respondents attend annual general meetings (AGM) which is held once in a year while some always attend monthly meeting the remaining attend special meeting held to fashion out some important issues which cannot be postpone. Majority of the respondents have easy access to loan, few reported that being a member of cooperative they are assisted in marketing of their products while some said the cooperative provide input for production purpose and the remaining portion of the respondents joined the society to gain high social status. 68% of the respondents that were interviewed reported that they were excellently satisfied with the services rendered by the society while 3.3% were averagely satisfied and the remaining 40% were not satisfied.

Table 1: Socio-Economic Characteristics of the Respondents

Items	Frequency	Percentage
Age (years)		
Below 30	17	14.2
30-39	17	14.2
40 – 49	18	15.0
50 – 59	24	20.0
60 years and above	44	36.7
Sex		
Male	92	76.7
Female	28	23.3
Household Size		
Below 5 members	83	69.2
5-10 members	37	30.8
Farming Experience		
Below 5 years	51	42.5
5 – 10 years	60	50.0
Above 10 years	9	7.5
Marital Status		
Married	92	76.7
Single	20	16.7
Divorced	2	1.7
Widowed	6	5.0
Occupation		
Farming	68	56.7
Civil servant	41	34.2
Artisan	3	2.5
Trading	3	2.5
Others	5	4.2
Educational Level		
No formal education	19	15.8
Primary Education	33	27.5
Secondary education	20	16.7
Diploma	39	32.5
HND/BSc	9	7.5
Mode of Land Acquisition		
Inherited	36	30.0
Purchase	14	11.7
Gift	32	26.7
Rented	38	31.7
Farm Size		
Less than 5 Acres	57	47.5
5-10 Acres	51	42.5
11-15 Acres	12	10.0
Types of Coop. Society		
Farmers	99	82.5
Thrift and Credit	8	6.7
Multipurpose	13	10.8
Years of joining association		
Below 5 years	95	79.2
5-10 years	22	18.3
Above 10 years	3	2.5
Benefits Derived from Soc.		
Accessibility to loan	85	70.8
Provision of input for production	20	16.7
Marketing of products	6	5.0
Gaining higher social status	9	7.5
Society Performance		
Non Satisfactory	48	40.0
Average	4	3.3
Excellently	68	56.7
Interest Rate		
5 percent	16	13.3
7.5 percent	21	17.5
10 percent	7	5.8
15 percent	76	63.3
Payback Period		
Less than 6 months	76	63.3
6-12 months	44	36.7
Constraints		
High interest rate	26	21.7
Protocols in obtaining loan	12	10.0
Untimely disbursement of loan	67	55.8
Lender harsh measure of loan recovery	15	12.5
Total	120	100

Source: Field Survey, 2014

Factors influencing loan repayment among the farmers.

Based on statistical an economic consideration, the exponential functional form has been chosen as the lead function. The adjusted R^2 is 0.897 (89.7%) which explains the variability level of the regression result, this

implies that the explanatory variables explain 89.7% of the variation that occurred in the dependent variable (amount of loan repaid). While, other 0.30% variation are unexplained independent variables. The F-value of the regression result is 95.629 and it is significant at 1% level of significance. This implies that the data are good fit for the model.

The study revealed that age, farming experience with credit use, credit size, interest rate charge on loan, total expenditure on production and loan repayment period were statistically significant at 1% and 10% respectively. It also indicates that other variable such as; education, income received apart from credit, marital status farm size and type of loan were not statistically significant. Thus, age was significant but has a negative relationship with loan repayment, this implies that increase in age of the farmers decrease amount of loan repaid while other significant variables such as farming experience with credit use, credit size, interest rate charge on loan, total expenditure on production and loan repayment period has a positive relationship with loan repayment. This implies that increase in these variables tends to increase the amount to be repaid by the farmers.

Table 3: Results of multiple regression analysis on factors influencing loan repayment among the farmers

Variables	**Parameter**	**Linear**	**Semi-log**	**Exponential**	**Double-log**
Constant	β_0	-60200.412	-1339124	10.373	1289.515
		(-2.547)	(-5.946)	(44.371)	(7.545)
Marital status	X_1	-0.012	-0.039	0.013	-0.011
		(-0.735)	(1.010)	(0.393)	(-0.516)
Total expenditure	X_2	0.035	0.082	0.082)***	0.024
		(1.611)	(1.630)***	(1.925)	(-0.864)
Age	X_3	-0.004	0.075	-0.089**	-0.015
		(-0.171)	(1.358)	(-1.882)	(-0.512)
Farm size cultivated	X_4	-0.006	0.048	-0.003	0.025
		(-.0283)	(1.078)	(-0.080)	(1.012)
Farming experience	X_5	0.036***	0.044	-0.088*	0.025
		(1.828)	(0.974)	(2.220)	(1.012)
Level of education	X_6	0.014	0.030	0.031	0.020
		(0.782)	(0.785)	(0.901)	(0.950)
Income earned	X_7	-0.012	-0.143**	-0.058	-0.161**
		(0.782)	(-2.356)	(-1.592)	(-4.822)
Credit size	X_8	0.875	0.719*	0.600*	0.676*
		(-0.645)	(10.690)	(11.853)	(18.341)
Type of loan	X_9	0.013* (34.252)	-0.002	-0.002	0.021
			(-0.054)	(-0.053)	(1.051)
Interest rate	X_{10}	0.052	-0.098**	0.242*	0.117*
		(0.795)	(-1.816.)	(5.278)	(3.961)
Loan repayment period	X_{11}	0.084*	0.186*	0.088*	0.093*
		(2.255)	(4.033)	(2.172)	(3.669)
R^2		0.976	0.887	0.907	0.966
Adjusted R^2		0.974	0.875	0.897	0.963
f-value		403.885	75.626	95.629	274.242

*Source: Field Survey, 2014. figures in parenthesis are t-ratios, * significant at 1%, ** significant at 5% and *** significant at 10% .*

Effect of Socio-Economic Characteristics on Farmer's Output

The adjusted R^2 is 0.622 (62.2%) which explains the variability level of the regression result, this implies that the explanatory variables explained 62.2% of the variation that occurred in the dependent variables (farms output) with F-value of 1.333 and 11 as degree of freedom.

The Ordinary Least Square (OLS) result shows that income and education were significant at 5% while only experience in farming had a positive relationship with farmers output. This implies that, increase in experience in farming by the farmers tends to increase output of cassava harvested while output decreases due to increase in income and education.

Table 4: Ordinary Least Square (OLS) result

Variables	Parameter	Co-efficient	T-value
Constant	β	1289.515*	4.787
Age	X_1	0.637	0.204
Sex	X_2	-20.104	-0.208
Marital status	X_3	-56.111	-0.881
Household size	X_4	-9.353	-0.369
Educational qualification	X_5	61.819**	1.899
Major occupation	X_6	29.586	0.888
Monthly income	X_7	-0.000164**	-2.615
Year of farming experience	X_8	11.237*	2.154
Adjusted R^2		0.622	
F-value		1.333	

*Source: Field Survey, 2014. figures in parenthesis are t-ratios, * significant at 1%, ** significant at 5% and *** significant at 10%.*
Adjusted R square is 0.022, F-test 1.333.

Problems Militating Against Farmers Access to Credit

From the Table 5, it is being reported that majority of the respondents (55.8%) were faced with constraint of untimely disbursement of loan, while others are faced with problem of high interest rate, protocols in obtaining loan and lender harsh measure of loan recovery. This implies that loan requested for by the farmers are not approved that time needed and the constraints faced with was basically due to inability of the farmers.

Table 5: Constraints to credit use among farmers

Constraints	**Frequency**	**Percentage**
High interest rate	26	21.7
Protocols in obtaining loan	12	10.0
Untimely disbursement of loan	67	55.8
Lender harsh measure of loan recovery	15	12.5
Total	**120**	**100**

Source: Field Survey, 2014

Conclusion and Recommendations

The study examined the effect of co-operative credit on cassava production in Yewa Division. From the result, it was found that the cassava production in the study area is worthwhile embarking on. The result of the analysis showed that credit enhances the farmer's production, which was reflected in their high patronage. Also farmer's socio-economic characteristics positively influenced their loan repayment. Despite the farmer's constraints to loan acquisition, the loan provided appears sufficient for their production but not sufficient to meet their consumption and other needs which is evidence of their loan default.

Based on the results obtained in this study, it is recommended that credit institutions or lending agencies should look out for the socio-economic characteristics that significantly influence loan repayment before granting loans and advances to small-scale farmers to reduce the incidence of loan delinquencies and defaults. The impact of micro-finance banks is yet to be felt in the study area, financial regulators in the country should see to their problems and government should provide a way of enhancing cassava production with enough credit and infrastructural; facilities provided to the farmers both at small and large scale. Economic policies and programmes for enhancing resource productivity and incomes of the smallholder food crop farmers in Ogun State should involve making credit schemes appropriately positioned to meet the needs of the farmers.

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