Influence of Cooperative Credit on Cassava Production in Anambra State, Nigeria

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ABSTRACT

The study analyzed the influence of cooperative credit on cassava production. A multi stage sampling technique was used to select 120 respondents in the study area and structured questionnaire was administered for data collection. Descriptive statistics was used to analyze the socio-economic characteristics of the respondents while multiple regressions using exponential form was used to quantitatively determine the influence of credit obtained and utilized on cassava output. It showed that 36.7% of the respondents were above 60 years of age which can be grouped as aged this revealed that majority of the farmers there are within their prime age and can utilize credit obtained effectively and efficiently. 76.7% of these farmers were males while the remaining 23.3% were females, majority of the respondents were married and 84.2% of them had formal education. Average amount requested by the farmers was ₦212, 600,000 but ₦185, 725,000 was approved this shows that the farmers in that location are small scale farmers which they need to upgrade to large scale in order to produce in large quantity and have durable profit. Influence of credit on cassava output showed that 89.7% of the regression was explained by the regessors. The result revealed that the farming experience with credit use, interest rate charged, total expenditure on production, and loan repayment period were the major significant that influence cassava output. Also, the hypothesis results revealed that credit obtained and utilized had significance influence on cassava output. And concluded that cassava production in the study area is worthwhile embarking on and that credit enhances the farmer's production, which was reflected in their cassava output. Therefore recommended that credit institutions or lending agencies should lend money to the small scale farmers to improve their productivity, financial institutions in the country should see to the smooth spending of the credit received to avoid diversion of credit.

KEYWORDS: Cassava Production, Cooperative Credit, Cooperative

INTRODUCTION

The practice of subsistence agriculture on marginal lands and low resource utilization is no longer easible for sustaining farm families (Fan, Brzeska, Keyzer & Halsema, 2013). There has therefore arisen the need for the development of farming systems that stems from the need to integrate components and resources of farming families in order to minimize costs and maximize positive outcomes (Adeyemo & Okoruwa, 2018). Nigeria is an agrarian society with about 70% of her over 140 million population engaged in agricultural production (CBN 2006). Agriculture is the most assured engine of growth and development and or reliable key to industrialization. Nigeria is the largest producer of cassava in the world (Ogbe & Olojede 2003) Its production is currently put at about 33.8 million tons 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.

Cassava is a cynogenic plant of great important in the nutrition of over 800 million people in the tropical world. More than 100 million people obtain 500kca/per day from cassava. In central Africa, cassava is estimated to provide over 1000kca/per day

to 30 million people. Current trends indicate that the consumption of cassava is increasing and that the growing of cassava is expanding to semi-arid areas where cassava was not cultivated twenty years ago. Cooperative Thrift and Credit Societies are member-based organizations that help members to address economic problems. They are not banking institutions because of their goal. The ultimate goal is to encourage thrift among the members and to meet credit needs of people who might otherwise fall prey to loan sharks and other predatory lenders (The Ledger, 2004). 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 and Etukudo, 2000). Cassava can be grown on a wide range and can yield satisfactorily even in acidic soils where most other crops fails, 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. In Nigeria, Cassava is generally believed to be cultivated by small scaled farmers with low resources (Ezebuiro, Chukwo, Okoye & Oboagjs, 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 tons (FAO, 2004). Nweke, Spencer and Lyman (2002) maintained that cassava performs five main roles: famine reserve crop, rural food staple, cash crop for urban consumption, industrial raw materials and foreign exchange earner, also that Nigeria is the most advanced of African countries poised to diversify the use of cassava as a primary industrial raw material and livestock feed.

Statement of the Problem
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. In Nigeria, farmers face a lot of problem in the acquisition, management and repayment of

agricultural loans. According to Awoke (2004), the sustainability and resolvability of most public agricultural credit schemes in Nigeria have been threatened by high rate of underutilized credit obtained arising mainly from poor management procedures, poor acquisition and utilization (leading to credit diversion). FAO (2002) reported that in most part of Africa, the culture is basically subsistence where the family cultivates small plots for food needs. 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 needs 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 remains poorly understood in cassava production (Omonona, 2009; Ersado, Amacher, Alwang, 2004).

Another major constraints small-scale farmers is facing in Nigeria is that of inability to access credit facilities, poor repayment, high interest rate and low loan are given 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 therefore focused on cassava farmers who are involved also in cooperative activities and set to answer the following :is the socio-economic characteristics of cassava farmers in the study area has something to do with their productivity?; is there any benefits derived by respondents by being members of co-operative societies?; which factor(s) influencing loan repayment among the farmers?, which of the socio-economic characteristics affect cassava farmers' out? And what is the major problems militating against the farmers in having access to credit.

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 influence of credit obtained by the farmer on cassava production and determine the influence of farm utilization of credit on cassava production.

Emprical Review
Adeyemo and Okoruwa (2018), studied value addition and productivity differentials in the Nigerian cassava system. Using a retrospective panel data from 482 cassava farmers covering the years 2015–2017,

they analysed a non-parametric Data Envelopment Analysis to examine productivity across cassava production systems over the three year period. They also examined the impact of value addition on productivity using an endogenous switching regression to account for unobservables that determine the decision to add value and productivity of the farmers. They found that cost and revenue outlays increased with value addition and cassava farmers in general operated below the efficiency frontier, with total productivity declining over the 2015–2017 period. Alufohai, Ekunwe and Mogbolu (2018) studied effects of cooperative activities on cassava product prices in Orhionmwon LGA of Edo State, Nigeria. The socioeconomic characteristics of respondents, factors that affect cassava prices, effect of price fluctuation on farmers' attitude to production, activities carried out by cooperative societies and their effects, both subjective (farmers' perception) and objective (financial valuation) were examined. Primary data was utilized using structured questionnaire which was administered to 120 respondents who were selected using simple random sampling technique from 30 cooperatives obtained from a list collected from the Ministry of Commerce and Industry, Edo State. However, only 114 questionnaire retrieved were suitable for analysis. Value added approach was used to analyze the actual price changes caused by activities of cassava cooperative prices on market prices of cassava products. The data showed that seasonality, consumer demand, product quality, road network, cooperative activities, economic shocks, product nature, product form and consumer culture were the significant factors affecting cassava prices in the area. Farmers were seen to be affected by price changes, especially price increase which caused them to increase production. Activities of cooperatives were seen to include bulk sales, value addition, bulk purchase of inputs and buying off members. Value addition activities found to be significant include group processing, packaging, transport and storage. The effect of bulk sales on product prices was subjectively perceived to be significant while price change caused by bulk sales and group processing into garri, fufu, flour, starch and cassava chips were found to be significant with value added means of ₦ 112.4, ₦ 475.4, ₦ 1479.4, ₦ 1390.3, ₦ 263.2, ₦ 3277.1 respectively for 100 kg bags of cassava product.

Oni (2016) studied socio-economic determinants and profitability of cassava production in Nigeria. Regression and budgetary techniques were used in analyzing primary data collected through a survey of farmers. Results revealed that three significant determinants of net profit were land area planted to cassava, man-days of labour used and marketing cost incurred by the farmer. Effects of land area planted were positive, while those of man-days of labour and marketing cost were negative on net profit. Also, three significant determinants of cassava output were land area planted, marketing cost and age of the farmer. 10 per cent increase in area planted resulted into 4.8 percent increase in output. 10 percent increase in marketing cost brought about 5.5 percent decline in output, while 10 per cent increase in age of the farmer led to 3.8 per cent decline in output. Majority of the farmers sold their products on the farm due to high transportation cost and bad road. Policy efforts should include increasing use of yield-enhancing practices and improving rural infrastructure and marketing. Akerele (2016) studied effect of cooperative credit on cassava production in Yewa Division of Ogun State. Nigeria. 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 60 years 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. Danso-Abbeam, Cobbina and Antwi (2016) examined factors influencing the probability of farmers accessing agricultural credit as well as the amount of received credit allocated to farming operations in the Bole district of Northern region, Ghana. A sample size of 100 respondents were randomly selected and interviewed through a well-structured questionnaire. Paired sample t-test was used to test whether there exist a significant difference between the amount of credit received and the amount allocated to farm sectors. Probit model was employed to identify factors influencing the probability of farmer's access to agricultural credit while Tobit regression model was used to estimate the determinants of credit allocated to farm operations.

Evidence from the paired-sample t-test indicated a significance difference between amount of credit received and amount allocated to farm operations. The results from the Probit model indicated that gender, household size, farmers engaging in off-farm income and membership of farmer-based-organization exert significant influence on the probability of farmer's access to agricultural credit. Moreover, estimates from the Tobit regression model revealed that the amount of credit farmers allocate to farm sector is significantly influence by sex of the farmer, farmers level of education, the size of loan received, loan delay (number of days between loan application and receipt) as well as farmers receiving extension services. The study therefore recommends that loan applications should be approved on time to enable farmers used it for the intended purposes, and farmers should be advised through effective extension programs on the need to use loans for the purpose for which it was procured.

Ekwere (2016) studied effect of agricultural cooperatives on cassava production in Awka North L.G.A. of Anambra State, Nigeria.He examined the effect of agricultural cooperatives on cassava production in Awka North L.G.A of Anambra State, Nigeria. Specific objectives were to determine if cooperatives have been accessing farm inputs such as fertilizers, improved cassava stem and seedlings and to also determine the extent at which the credit obtained from cooperative influence cassava output in the study area. Two hypotheses were tested. Descriptive survey design was adopted for the study. Five (5) viable agricultural cooperative societies were randomly selected from ten (10) towns that made up the study area with a membership size of 160. Taro Yamani formula was used to determine the sample size of 114. Primary data was sourced through the administration of structured questionnaire while secondary data were obtained through extensive review of relevant textbooks, journals and seminar papers. Data collected during the field survey were descriptively analyzed using simple percentage and frequency distribution model for specific objectives 1 and 2 while the linear regression model of the ordinary least square (OLS) approach was used to test hypotheses 1 and 2. It was found that majority of the respondents in the study area were actually involved in the production and processing of cassava in the study area and as such were satisfied with the volume of cassava harvested. Only one variable among other variables, improved cassava stem and was the only significant determinant on the volume of cassava harvested by farmers in the study area. The availability of credit facility to farmers significantly influenced the volume of cassava harvested by farmers in the study area. Based on the major findings, it was instructive to conclude that improved cassava stem and credit facility to farmers no matter the amount are significant factors that influence the volume of cassava harvested.

Awotide, Abdoulaye, Alene and Manyong (2015) studied impact of access to credit on agricultural productivity in Nigeria, using the Endogenous Switching Regression Model (ESRM). The first stage of the ESRM revealed that total livestock unit and farm size are positive and statistically significant in determining the farmers' access to credit. The second stage revealed that total livestock unit and farm size are negative and statistically significant in explaining the variations in cassava productivity among the farmers that have access to credit, while household size, farm size, and access to information assets are negative and statistically significant in explaining the variation in cassava productivity among the farmers without access to credit. Access to credit has a significant positive impact on cassava productivity. Thus, credit institutions should consider boosting their credit services to rural farming households in order to guarantee that more households benefit from it.

Kuye (2015) studied comparative analysis of constraints to cassava production by cassava farmer loan beneficiaries and loan non-beneficiaries in South-South Nigeria. Multi-stage random sampling techniques were used to select a total of five hundred (500) respondents which comprised of two hundred and fifty (250) CFLB and another 250 CFLNB. Primary data were sourced through three sets of well-structured questionnaires to the two categories of farmers and the third to the banks officials. Both descriptive and inferential statistics were employed in data analysis. The result of data analysis showed that the mean age of CFLB was 43 years with 26% within 36 and 45 years active working population while the mean age of CFLNB was 41 years with about 31% within 36 and 45 years. Majority, about 60% of CFLB and about 74% of CFLNB were males while about 40% of CFLB and about 25% of CFLNB were females. The mean household size for both CFLB and CFLNB was 5 persons. However, the mean number of years spent in schools by CFLB was 12 years, while the CFLNB spent 10 years. The mean farming experience by CFLB was 5 years while the CFLNB was 6 years. The mean annual farm income of CFLB was N188,602.00 whereas the mean annual farm income of CFLNB was N100,000.00. The major constraints limiting cassava production among CFLB and CFLNB were scarcity and high cost of fertilizer (87.97%) and (77.46%), high cost of agrochemicals

(87.55%) and (77.05%), unavailability of research results to cassava farmers at the appropriate time (79.25%) and inadequate extension services (77.59%). The least problems were drought (43.98%), soil water pollution (36.93%) and stream/river pollution (35.68%). It was concluded that increasing cassava farmers' access to loan would enhance their productivity through improved well-being and living standard.

Ekunwe, Orewa, Abulu and Egware, (2015) studied effect of micro-credit on the profitability of crop production in Orhionmwon Local Government Area of Edo State, Nigeria. A sample size of 166 small-scale farmers was randomly selected from the farming communities in Orhionmwon Local Government Area. Ninety two (92) beneficiaries and 74 non-beneficiaries were randomly selected from the study area. A well-structured questionnaire and scheduled interviews were used to obtain data from the farmers. The data collected were subjected to descriptive statistics such as frequency counts, percentages and mean scores. The mean scores were compared using the t-test. Results showed that the respondents in the study area were almost uniformly distributed gender-wise. The females were however slightly more, both among the beneficiaries (58.7%) and non-beneficiaries (52.7%). The mean years of farming for both the credit beneficiaries and non-beneficiaries were 32 years and 34 years respectively. Most of the farmers had farm holdings less than 2.5 ha. The profit margin obtained from the beneficiaries was higher than that of the non-beneficiaries. For maize, it was ₦ 145,40.66/ha against ₦139,178.69/ha, for yam, ₦671,588.06/ha against ₦552,927.93/ha, for cassava ₦377,194.99/ha against ₦223,000.74/ha and for plantain ₦681,416.68/ha against ₦430,756.59/ha. Untimely delivery of loan was indicated as the greatest constraint to loan acquisition by the beneficiaries while the non-beneficiaries identified high interest rate charges by the microfinance bank and distance as the greatest reasons for not accessing loans.

From the empirical literature reviewed, varieties of factors have been identified to have affect cooperative credit regarding cassava productivity. All the studies reviewed were conducted in different socio-economic, cultural and geographical settings which arguably have effect on credit accessibility. Therefore, considering the environmental peculiarities across regions, it is thus necessary to carryout thorough exploration of the various aspects of cooperative credit on cassava production because

of its viability to cassava farmers, policy makers and credit institutions. Therefore, the major concern of this study in enhancing previous research and bridging the knowledge gap is to replicate the study in Anambra State, Nigeria in order to examine the effect of cooperative credit on cassava production in agricultural zones of the State and revealed that farming experience with credit use, interest rate charged, total expenditure on production, and loan repayment period were the major significant socio-economic characteristics determining loan repayment in the study area.

METHODOLOGY
Area of Study
Anambra State is in the south –east zone of the federal republic of Nigeria. it is located between latitude 5 42 E and 6 47 N and longitude 6 37 E and 7 23E with a land mass of 44.116sq km. Average rainfall is about 430cm with a population of 4,182.032 million people. Anambra has 127 communities of 21 local government Areas. The indigeneous ethnic group in Anambra is Igbo (98% of the population). Anambra is the eight most populated state in the Federal Republic of Nigeria and is rich in natural gas, crude oil, bauxite, ceramics and good arable soil. The main occupations in Anambra state are farming, trading and civil service (Anambra.ng.org).

Population of the Study
The population of the study is made up of all members of agricultural cooperatives in Anambra state. Anambra state has a total of two thousand seven hundred and eighty-seven (2787) registered agricultural cooperative societies with a membership strength of 1600 (one thousand six hundred) Cooperative Department Ministry of commerce and Industry, Awka Anambra State.

Sample Size and Sampling Procedure
The multistage random sampling technique was adopted for this study. Firstly, three agricultural zones were selected randomly. In the second stage, in each agricultural zone, two local government areas (LGAs) were randomly selected. In each selected LGA, 2 communities were randomly selected. Finally, 5 individual farmers and 5 cooperative farmers who relate with the cassava production were selected from each of the communities. In all, 3 agricult\ural zones, 6 Local Government areas, twelve communities and one hundred and twenty farmers (60 individual farmers and 60 cooperative farmers). Sample size was determined using the Taro Yamani Formular.

Table 1: selected cooperative societies from the agricultural zones in Anambra state.

Agric. Zone	No. of LGA	No of comm	Coop members	Non-Coop members	Total
Aguata	Orumba North L.G.A	2	10	10	20
	Aguata L.G.A	2	10	10	20
Anambra	Oyi L.G.A	2	10	10	20
	Ayamelum L.G.A	2	10	10	20
Awka	Awka North L.G.A	2	10	10	20
	Njikoka L.G.A	2	10	10	20
Total	6 LGA	12	60	60	120

Source: Field Survey 2020

Sources and Method of Data Collection

Survey data were collected from cassava farmers, who acquire 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. 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. The first stage involved random selection of three agricultural zones, from which two Local Government Areas was selected namely; Orumba North, Aguata, Oyi, Aghamelum, Awka North and Njikoka. The second stage involved random selection of the two (2) towns from each Local Government Area because of the large volume of cassava farms in these areas. The third stage involved random selection of ten (10) cassava farmers from each of the selected towns making a total of one hundred and twenty (120) respondents in all.

Method of Data Analysis

The tools used for data analysis included both the descriptive analytical tools and inferential statistical (multiple regression analysis) tools. This was achieved by using the descriptive statistics such as tables, percentages and all forms of indices 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 income.

Data Presentation and Analysis

Table 2: Socioeconomic characteristics of cassava farmers

Items	Frequency (120)	Percentage (100)	Mean value
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	
Family 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	7.3	
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 Ownership			
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	

Source: Field Survey 2020

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 2 revealed that 15% were between 40-49 years of age group, 20% were between age group of 50-59, while 14.2% were below 30 years of age and 30-39 years while majority of the respondents (36.7%) were above 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 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 majority 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 a useful guide in the use of inputs and in taking farm management decision.

Also, majority of the respondents 50% are having their farming experience falling 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 they would be in management because the acquired experience over the years would be brought to bear on their farming activities. Majority of the respondents are married having 76.7%, 16.7% are single, 1.7% are divorced while the remaining 5% are widowed. 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. Majority of the respondents engage in farming as major occupation, while 2.5% are artisan and trading, 34.2% are civil servants while the remaining 4.2% engage in other kinds of occupation. This implies that majority of the respondents are artisans whereby they have much time to cater for their cassava production.

Furthermore, education is an important factor in the recognition and utilization of investment opportunities. It revealed that majority of the respondents (32.5%) attained diploma education, while 16.7% possessed secondary education, 27.5% had primary education, 7.5% attained HND/BSC and 15.8% had no formal education. This implies that majority of the respondents attained a minimal level of educational standard to be able to get exposure on cooperative credit acquisition and utilization. Majority of the farmland used were rented, 11.7% are purchased, while 26.7% are given as gift and the remaining 30% are inherited. Thus, implies that most land are acquired through rent which will have effect on their cassava output. Majority had farm size of less than 5 Acres,

while 42.5% have size of farmland falling between 5-10 Acres and the remaining 10% has farm size falling between 11-15 Acres.

Credit Obtained and utilized

Table 3: Credit Obtained and utilized..

Sources of Credit	N	Sum	Mean	Std. Deviation
A. Total credit obtained (Naira)	120	22,155,000.00	184,625.00	54407.3353
B. Total credit utilized on cas sava production (Naira)	120	9,320,508.00	77,670.90	21210.3521
C. % of B on C (%)	120	42.07	42.07	
Valid N (listwise)	120			

Source: Field Survey 2020

An examination of table 3 shows that the respondents obtained a total credit credit of N22,155,000 from their cooperatives. This gives an average per member credit of 184,625. Out of the total credit obtained the members spent only a total of N9,320,508 on cassava production or average of N77,670.90 per member. Thus the members spent only 42% of credit they obtained on cassava production.

Influence of credit obtained on cassava output

The presentation of the influence of credit obtained on cassava output by farmers in the study area is in Table 4 below.

Table 4: Results of multiple regression analysis of influence of credit obtained on cassava output

Variables	Parameter	Linear	Semi-log	Exponential	Double-log
Constant	β_0	-60200.412 (-2.547)	-1339124 (-5.946)	10.373 (44.371)	1289.515 (7.545)
Marital status	X_1	-0.012 (-0.735)	-0.039 (1.010)	0.013 (0.393)	-0.011 (-0.516)
Total expenditure	X_2	0.035 (1.611)	0.082 (1.630)***	0.082)*** (1.925)	0.024 (-0.864)
Age	X_3	-0.004 (-0.171)	0.075 (1.358)	-0.089** (-1.882)	-0.015 (-0.512)
Farm size cultivated	X_4	-0.006 (-.0283)	0.048 (1.078)	-0.003 (-0.080)	0.025 (1.012)
Farming experience	X_5	0.036*** (1.828)	0.044 (0.974)	-0.088* (2.220)	0.025 (1.012)
Level of education	X_6	0.014 (0.782)	0.030 (0.785)	0.031 (0.901)	0.020 (0.950)
Income earned	X_7	-0.012 (0.782)	-0.143** (-2.356)	-0.058 (-1.592)	-0.161** (-4.822)
Credit size	X_8	0.875 (-0.645)	0.719* (10.690)	0.600* (11.853)	0.676* (18.341)
Type of loan	X_9	0.013* (34.252)	-0.002 (-0.054)	-0.002 (-0.053)	0.021 (1.051)
Interest rate	X_{10}	0.052 (0.795)	-0.098** (-1.816.)	0.242* (5.278)	0.117* (3.961)
Loan repayment period	X_{11}	0.084* (2.255)	0.186* (4.033)	0.088* (2.172)	0.093* (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		403.88*5	75.626*	95.629*	274.242*

Source: Field Survey, 2020 figures in parenthesis are t-ratios, * significant at 1%, ** significant at 5% and * significant at 10%.**

Based on statistical and 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 occur in the dependent variable

(cassava output). The T-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. It also indicates that other variables 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.

Test of Hypothesis One
H_0: Credit obtained by the farmer has no significant influence on cassava output
H_1: Credit obtained by the farmer has significant influence on cassava output

In testing the above hypothesis that says "credit obtained by the farmer has no significant influence on cassava output" was subjected to multiple regression analysis, the result of which was presented in table 3.

DECISION: The coefficient of the credit size variable was found to be significant and thus, had a significant influence on cassava output at the 5% level of significance. This then suggests that credit obtained by the farmer was an important determinant of cassava output. The null hypothesis is therefore rejected and the alternate, which states that "credit obtained by the farmer has significant influence on cassava output" is accepted.

Influence of credit utilization on cassava output
The presentation of farm utilization of credit by cassava farmers is presented in Table 4.

Table 5: Influence of credit utilized on cassava output

Variables	Parameter	Co-efficient	t-value
Constant	B	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
Credit utilized	X_9	1.768	0.723
Adjusted R^2		0.022	
F-value		1.333	

Source: Field Survey, 2020 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.**

The adjusted R^2 is 0.022 (2.2%) which explains the variability level of the regression result, this implies that the explanatory variables explain 2.2% of the variation that occur in the dependent variable (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 and credit utilized had positive relationship with farmers output. This implies that, increase in farming experience and credit utilized by 1year the farmers tends to increase output of cassava harvested by 11-24 months while output decreases due to increase in education by 1year income will reduce by 0.000.

Test of Hypothesis Two
H_0: Credit utilized on the farm has no significant influence on cassava output
H_1: Credit utilized on the farm has significant influence on cassava output

In testing the above hypothesis that says "credit obtained has no significant influence on cassava output" was subjected to multiple regression analysis, the result of which was presented in table 5.

DECISION: The t-statistic that was associated with credit utilization variable had a value of 1.768. This value though positive, was not significant at the conventional 5% level. This then suggests that credit utilized on the farm was not an important determinant

of cassava output. The null hypothesis is therefore accepted and we conclude that "credit utilized on the farm has no significant influence on cassava output".

Discussion of results

1. This research work was based on analyzing the influence of cooperative credit on cassava production in Anambra State. On the whole, the study revealed that 36.7% of the respondents were above 60 years of age which can be grouped as aged. Analysis also showed that 76.7% of these farmers were males while the remaining 23.3% were females, majority of the respondents were married and 84.2% of them had formal education. The result also showed that 47.5% of these farmers were operating with less than 5 acres of farmland which majority of it was inherited this invarialbley has implication on output. Average credit amount obtained by the cassava farmers was 184,625. Of this amount only N77,670.90 or 47.5% of the amount obtained were invested in cassava production. This then mean that much of the credit obtained by the farmers were used for other purposes other than cassava farming..

2. Regression analysis undertaken during the course of the study showed that credit had significant influence on cassava output. The coefficient of the credit size variable was found to be significant and thus, had a significant influence on cassava output at the 5% level of significance. This finding appears to be a corroboration of the report of Awotide, Abdoulaye, Alene and Manyong (2015) that their study found a significant impact of credit on cassava productivity. This then suggests that crdit utilized was not an important determinant of cassava output. Also the findings of this study also agreed the one by Fakayode, Babatunde and Ajao (2009), who after an analysis of cassava-based production systems in the guinea savannah, found that productivity and growth of cassava production was hindered by limited access to credit facilities.

3. Farm utilization of credit was not a significant variable in explaining variations in cassava output. It will be recalled that the t-statistic that was associated with farm utilized credit variable had a value of 1.768 (table 4). This value though positive, was not significant at the conventional 5% level. Hence the null hypothesis was rejected. The implication of this result is that farm utilization of credit variable is not a critical factor input in cassava production. This not surprising, though quite worrisome because only 41% of obtained credit was applied to cassava production by the farmers. Never the less the finding appears

to be in line with the findings of Danso-Abbeam, Cobbina and Antwi (2016) who in their study in Ghana through the paired-sample t-test found a significance difference between amount of credit received and amount allocated to farm operations.

Conclusion and Recommendations

Credit obtained by farmers has positive and significant influence on cassava output. Indeed, the credit size variable was found to be positive and a significant determinant of cassava output at the 1% level. This then suggests that availability of credit is a critical farm input in cassava production in the study area. Credit utilized on the farm does not have significant influence on cassava output of the farmer. The t-statistic that was associated with credit utilization variable had a value of 1.768 which, though [positive, was not significant at the conventional 5% level. Based on the results obtained in this study, it is recommended that: 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 Anambra State should involve those for making credit schemes appropriately positioned to meet the needs of the farmers. Cooperatives should encourage members to aim at proper utilization of credit they obtained from cooperative farmers through timelines in disbursement, effectiveness in credit supervision, reducing credit processing costs and bottlenecks and ensuring optimal interest rates in the rural economy.

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