EFFECT OF ACCESS TO COMMERCIAL AGRICULTURE CREDIT SCHEME (CACS) ON THE AGRICULTURAL OUTPUT OF BENEFICIARIES AND NON-BENEFICIARIES IN ANAMBRA STATE, NIGERIA

Azubugwu, Nonyelum M.[1*] & Osuafor, Ogonna O.[2]

[1*]Department of Agricultural Economics, Chukwuemeka Odumegwu Ojukwu University, Igbariam Campus, Nigeria.

[2]Department of Agricultural Economics and Extension, Nnamdi Azikiwe University, Awka, Nigeria.

ABSTRACT

The growth and productivity of the Agricultural sector has been hindered by limited access to credit facilities. Hence, there is need to provide credit to farmers to boost agricultural output in Nigeria. This paper set out to investigate the effect of Access to Commercial Agriculture Credit Scheme (CACS) on the Agricultural Output of beneficiaries and non-beneficiaries in Anambra State, Nigeria. The methodology employed in the study is a descriptive survey. Data was collected using a detailed and well-structured questionnaire. Simple random sampling was applied to select 250 farmers who are members of AFAN. Propensity score matching method was used for data analysis while T-test was adopted to test the hypothesis. The results show that access to commercial agriculture credit scheme increased the output of the farmers who accessed the credit from the scheme. The major problems encountered by the farmers in accessing the scheme were stringent measures by the participating banks and collateral requirement for the collection of loans. It is recommended that farmers should increase their saving abilities in banks participating in credit programmes in order to improve their chances of having access to credit scheme whenever the opportunity arises.

Keywords: Agricultural output, credit scheme, beneficiaries.

1. INTRODUCTION

The need to develop the rural areas and increase agricultural output calls for more investment in the farming sector. Given the requirement for production and financing in the agricultural sector, fewer farmers will have capital of their own to invest in agriculture. Access to credit may lead to an increase in agricultural output of the farmers. Hence, Obilor (2013) stated that banks and the agricultural sectors have their roles to play. The unpredictable and risky nature of agricultural production, the importance of agriculture to the national economy, the urge to provide additional incentives to further enhance the development of agriculture to solve the problem of food insecurity, and the increasing demand by lending institutions for appropriate risk aversion measures in agricultural lending (Nwosu et al., 2010) provided justification for the establishment of the Commercial Agriculture Credit Scheme. Obasi (2005) emphasized that the federal government moved by the desire to reduce import dependency, stepped up efforts to promote

agricultural development through the establishment of a number of agricultural credit schemes of which CACS is one of them. Limited access to credit facilities has been implicated as hindrance to the growth and productivity of the agricultural sector (Ammani, 2012). Thus, provision of appropriate financial policies and enabling institutional finance for commercial agriculture is capable of facilitating agricultural development with a view to enhancing the contribution of the sector in the generation of employment, income and foreign exchange (Olomola, 2002). Therefore, in order to promote commercial agriculture in Nigeria, the Central Bank of Nigeria (CBN) in collaboration with the Federal Ministry of Agriculture and Rural Development, established the Commercial Agricultural Credit Scheme (CACS) in 2009 (CBN, 2014). The CACS was established to finance large ticket projects along the agriculture value chain. State governments, including the FCT can access a maximum of 1billion naira each (about $2,700,000USD) for on lending to farmers' cooperatives or other areas of agricultural intervention. A breakdown of the amount showed that 30 state governments and the Federal Capital Territory accessed the sum of 39 billion naira from CACS fund from inception to March, 2014, while N1.304 billion was recorded as repayments by four banks in respect of five projects during the period under review, bringing the total fund repaid to N32.928 billion in respect of 68 expired projects.

Agricultural credit is any of the several credit vehicle used to finance agricultural transaction, including loans, notes, bills of exchange and bankers acceptances. These types of financing are adapted to the specific financial needs of farmers (Ijioma & Osondu, 2015). Credit has three basic component elements which are: the lender, the borrower and the facility. For a credit facility to be perfected, all the three components must suffice, and there must be an agreement as to the conditionality. Also, CACS was established by the CBN in collaboration with the Federal Ministry of Agriculture and is being funded through the issuance of FGN Bond worth N200 billion, by the Debt Management Office (DMO) in two tranches (CBN, 2010). Commercial Agricultural Credit Scheme (CACS) was established for promoting commercial agricultural enterprises in Nigeria, which is a sub-component of the Federal Government of Nigeria Commercial Agriculture Development Programme (CADP). The Central Bank of Nigeria (CBN) has put the total amount disbursed to beneficiaries under the Commercial Agriculture Credit Scheme (CACS) as at the end of the first quarter 2014 at N228.093 billion and utilized on 299 projects (CBN, 2014).

One of the main challenges facing the country today is the need to devise appropriate mechanisms for enhanced access to credit. The general purpose of credit is to empower the agricultural sector of the economy in order to increase food production, farmers' output and farmers' income so as to better the lives of people and contribute to development of the nation. The provision of credit is needed for the purchase of inputs such as farm machinery, fertilizer and seeds (Hussain & Thapa, 2012); and acquisition of modern technologies for their farm production (Etonihu, Rahman & Usman, 2013). Credit accessibility is crucial for enhancement of the quantity and quality of the country's agricultural products. Considering that CACS became effective from May 14, 2014 and that the CBN has disbursed N228.093 billion as at the end of the first quarter 2014, it is expedient to investigate the effect of the scheme on the agricultural output of beneficiaries and non-beneficiaries. This is because growing use of result-based

management by government, determining whether goals have been attained and convincingly linking changes to specific programs have become increasingly critical. It has been noted that non-adherence to CACS guidelines by banks, and poor monitoring of credit distribution by some participating banks is a major challenge of the scheme. As a result, there is the need therefore for research to examine the effect of access to CACS on the agricultural output of the beneficiaries and non-beneficiaries in Anambra State, Nigeria.

2. OBJECTIVES OF THE STUDY

The broad objective of this study was to examine the effect of access to Commercial Agriculture Credit Scheme (CACS) on the agricultural output of beneficiaries and non-beneficiaries in Anambra State, Nigeria. To achieve this, the specific objectives were to:

1. Determine the effect of Commercial Agriculture Credit Scheme (CACS) on the farmers' agricultural output; and

2. Identify the problems encountered by the farmers in accessing scheme and how they could be solved.

2.1 Hypothesis of the Study

Ho: CACS has no significant impact on beneficiaries' agricultural output.

2.2 Analytical Framework

The basic ideas of propensity score matching are:

$$f(X_t \mid D=1, p(X_t)=p) = f(X_t \mid D_i = 0, p(X_i)=p) = f(X_i \mid p) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

$$d(P_k, p_i) < \varepsilon \Rightarrow d'(f X_i \mid p_k), f(X_j \mid p_i) < \delta \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Equation 1 depicts that when matching is exact at the propensity score p, then the distribution of X will be the same for the treated sample and the comparison sample at p. While equation 2 shows that if exact matching on p is impossible and instead matching is on some neighborhood of p, then the distribution of X is still approximately the same for the treated sample (that is the farmers that accessed credit) within the neighborhood of p.

3. MATERIAL AND METHOD

The study adopted a descriptive survey design. Simple random sampling was applied in selection of respondents for the study. The sample was drawn from members of All Farmers Association of Nigeria (AFAN), Anambra State branch in order to get a sample of farmers who are genuinely involved in farming activities. AFAN has a total of 548 members. Out of this number, 200 of them have so far benefited from the scheme while 348 are yet to benefit although they are in the pipeline (they have applied, are qualified but are yet to receive the funds). Thus from the 200 beneficiaries, 100 farmers were randomly selected. Also, 150 farmers were also selected from

those that have not benefited but are on the pipeline. These farmers formed the counterfactual group. This gave a total of 250 farmers for the study.

Primary data were collected with the aid of detailed and well structured questionnaire administered to AFAN farmers. These farmers consist of beneficiaries of CACS and those who are yet to benefit. Information collected included the use of the loans by farmers and problems encountered by the farmers in the scheme. The questionnaires were administered with the help of well-trained research assistants who were conversant with the study location. The content of the questionnaire was validated by two experts in the department of Agricultural Economics. The instrument was subjected to a reliability test using cronbach's alpha method which gave a reliability coefficient of 0.72 which implies that the instrument for data collection is reliable.

Objective 1 and hypothesis testing was realized using propensity score matching method. Objective 2 was realized using 4-point likert-type scaled mean. Decision on the mean was based on the responses of the respondents. The decision here was such that Strongly Agree (SA) is coded as 4, Agree (A) as 3, Disagree (D) as 2 and Strongly Disagree (SD) as 1, such that when they are added, it will give 10 and the mean of the responses option becomes the cut-off mean (that is, 4+3+2+1=10/4=2.5). What this means is that for an item to be accepted to hold, the mean of the responses of the respondents must be 2.5 or above it.

4. MODEL SPECIFICATION

Propensity Score Matching Model

The propensity score matching model as this study opined in the analytical framework in the previous chapter has a two stage estimation process: this study assumes that the error term has a logistic distribution considering that the response variable is binary and therefore intends in the first phase to consists of a logit regression (though a probit regression could equally work) while the second is to estimate the average treatment effect (that is accessing the effect of the credit scheme) based on propensity score through matching or stratification. Some statistical analysis packages analyze this model step by step, and this study thus will follow that process to explain it for better comprehension. The first phase has a dummy variable as dependent variable that represents farmers' access to the credit scheme. That is, 1 if the farmer accesses credit and 0 if otherwise (the reason for assigning 1 to if the farmer access the credit and 0 if the farmer does not is based on the standards of probability regression which assigns 1 to the response that necessitated the study). This first stage will be estimated with a logit regression where the dependent variable is the dummy variable for farmers' access to the credit scheme and the X's are the socio economic determinants of farmers' access to this credit scheme. The determinants are age, sex, household size, educational attainment, marital status and other variables.

5. RESULTS AND DISCUSSIONS

Objective 1: Determine the effect of Commercial Agriculture Credit Scheme (CACS) on farmers' agricultural output

Table 1: Table of frequency and percentages of the sample (N=250)

Treatment	Frequency	Percentages
Untreated (farmers that did not benefit from the scheme (coded as 0))	150	60.0
Treated (farmers that benefitted from the scheme (coded as 1))	100	40.0
Total	250	100.0

Source: Field survey, 2015

Table 2: Propensity Score Matching summarized result of the effect of CACS on farmers Output

Estimated Method	Difference-indifferences using two period data of output
ATU	937.7
ATT	9503
ATE	4363.8

Source: Field survey, 2015

Propensity Score Matching method was adopted to analyze this objective. The study used 250 respondents, out of which 100 of the respondents were the ones that benefited from the scheme while 150 other respondents did not benefit from the scheme. The reason behind this was to ensure that the farmers that benefited from the scheme (treated group) would have those that did not benefit from the scheme (control group) to match them with.

Table also shows result of the average treatment effect on the treated and untreated as regards Commercial Agricultural Credit Scheme (CACS). The result for the Average Treatment effect on the Treated (ATT) nearest neighbor matching method depicts that farmers who accessed the scheme increased their output by 9503 units. This result shows that the programme increased the output of the farmers who accessed the credit from the scheme. Some of the reasons given by the farmers for increase in their output include increase in income available for purchase of fertilizer, other inputs and agrochemicals; and increase in income to support their household demands.

The result also shows that the Average Treatment effect on the Untreated (ATU) (that is, the impact of the scheme on those that did not receive the loan from the scheme) was 937.7. This shows that even though they did not participate in the programme the scheme still impacted on them positively. This finding was not expected as these farmers were expected to be impacted negatively by the problem. On the other hand, this impact could be as a result of increase in the output (when they supply raw materials to those that benefitted) as a result of increased demand

for their product(s). More so, they could still grow their output using credit from other sources, hence the slight increase in their output. The result of the Average Treatment Effect (ATE) of 4363.8 showed that when the treated group and control group were considered together, the scheme impacted positively on them. This is in line with the expectations of this study considering that the study expected the scheme to affect the farmers who accessed the scheme positively. Though, the large size was not expected considering that those who did not benefit from the scheme were more than the beneficiaries. Also, the ATT and ATE result depicts that the programme increased greatly the output of the farmers that accessed the scheme. Therefore, it could be concluded that the Commercial Agricultural Credit Scheme greatly increased the output of farmers who accessed the scheme. This result is consistent with Obasi (2015) who found that there was positive impact of the loan on the output of Nigerian farmers which accrued to increase in income through enhanced output and increased investment in agriculture.

Hypothesis Testing: Commercial Agriculture Credit Scheme has no significant effect on beneficiaries' agricultural output.

Table 3: T-Test result showing significant relationship between CACS and agricultural output of beneficiaries.

T^{-cal}	T^{-tab}	Decision Rule	Remark
2.19*	1.96	If T^{-cal} > T^{-tab}, then there is a significant relationship between CACS and agricultural output of beneficiaries	Reject the null hypothesis and conclude that there is a significant relationship between CACS and agricultural output of beneficiaries.

Source: Field survey, 2015

The result in table 2 shows that the calculated T-test score was 2.19. The analysis shows that T-cal score was greater than the tabulated T-test score of 1.96 at 5% significant level. Since the calculated T-test of the effect of the scheme on the output of beneficiaries in Anambra state was greater than the tabulated T-test score, the study therefore rejected the null hypothesis. Hence, Commercial Agricultural Credit Scheme (CACS) have a significant positive effect on agricultural output of beneficiaries in Anambra state, Nigeria. This result agrees with the study of Obilor (2013) who found that agricultural scheme loan has led to a significant positive growth in agricultural productivity in Nigeria. The result is also in line with the findings of Ammani (2012) who reported that formal credit is positively and significantly related to the output of the Nigerian agricultural sector**.**

Objective 2: Identify the problems encountered by the farmers in accessing scheme and how they could be solved.

Table 4: Likert-type scale analysis using mean for the problems encountered by the farmers in accessing the Scheme (N=250)

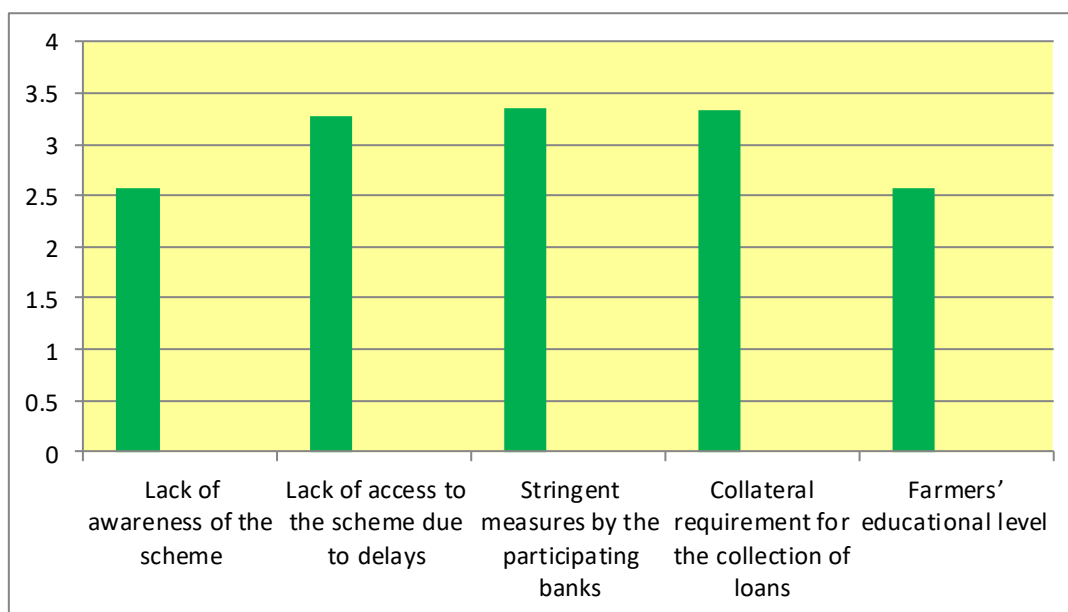| S/No	Problems Encountered in Accessing the Scheme	Mean	S.D.
1.	Lack of awareness of the scheme	2.58	0.05
2.	Lack of access to the scheme due to delays	3.27	0.04
3.	Stringent measures by the participating banks	3.36	0.03
4.	Collateral requirement for the collection of loans	3.34	0.03
5.	Farmers' educational level	2.84	0.05

Source: Field survey, 2015.

Figure 1: Problems encountered by the farmers in accessing the scheme showing Mean values

The results presented in table 2 and figure 1 show that the farmers accepted that lack of awareness of the scheme, lack of access to the scheme due to delays, stringent measures by the participating banks, collateral requirement and farmers' education levels were the major problems encountered in accessing the scheme. This submission was based on the cut-off mean of 2.5 which permits the study to accept any of the identified problems as a problem affecting

farmers' access to the scheme if the mean of the responses to that particular problem is 2.5 and above it. In all the problems identified here in this analysis, the respondents agreed strongest to stringent measures by the participating banks with mean score of 3.36 but agreed weakest to lack of awareness of the scheme with mean score of 2.58.

The weak mean score of 2.58 for lack of awareness of the scheme shows that to a reasonable extent, farmers in Anambra state are aware of the programme. Also, the weak mean score of 2.84 for level of education shows that to a reasonable extent, information about the programme gets to the farmers in the state due to their reasonably sound level of education. Since this variable weighted above 2.5 and is identified as a problem, it is possible that farmers are unable to communicate properly with the demands of the scheme due to language barriers. Notwithstanding, extension agents in the study area have been reasonably committed in disseminating information about CACS. Although, the extension agents need to guide the farmers closer in order to close the gap in dialect barriers.

Furthermore, stringent measures of the participating banks and collateral requirement for the collection of loans which had the highest mean of 3.36 and 3.34 were highly expected. It is possible that participating banks expects the farmers who may wish to access the scheme through them to own an account with them thereby constraining their choice of banks to open account with. Also, the collateral requirement of these banks before allowing the farmers to access the scheme is in most cases beyond the reach of a farmer which limits the ability to access the scheme. In addition, delays in accessing the scheme which deals with the time tag between when a farmer applies for the loan and when the farmer gets the loan is long. This limits the farmers' ability to apply for such scheme as the fund applied could be released when the farmer has no more need for such loan hence becoming a waste to the farmer.

The result on lack of awareness of the scheme is not consistent with Nwosu et al. (2010) who reported that Agricultural Credit Guarantee Scheme Fund (ACGSF) had the problem of publicity in Nigeria. The result on lack of access to the scheme due to delays is in line with the finding of Ijioma and Osondu (2015) who stated that 44.44% of the Anambra farmers in Anambra State, Nigeria were constrained in acquiring agricultural credit due to delays in loan approval/disbursement. Though, this result disagrees with the findings of Hussain & Thapa in Pakistan and Etonihu, Rahman & Usman in Nigeria who reported a lack of access to adequate formal credit and farmers' limited access to agricultural credit respectively. Also, the result on collateral requirement agrees with the findings of Obasi (2015) who noted that issues relating to collateral requirements by banks and lending rate to the agricultural sectors must be reviewed in Nigeria.

6. CONCLUSION

The paper set out to investigate the effect of Access to Commercial Agriculture Credit Scheme (CACS) on the Agricultural Output of beneficiaries and non-beneficiaries in Anambra State. The findings of the study show that CACS had a significant positive effect on the agricultural output of the beneficiaries and non-beneficiaries. The hypothesis testing showed that there is a

significant relationship between CACS and agricultural output of beneficiaries. The major problems encountered by the farmers in accessing the scheme were stringent measures by the participating banks and collateral requirement for the collection of loans. The findings of this study therefore reveal that CACS has made noteworthy efforts to support farmers in Anambra State.

7. RECOMMENDATIONS

Based on the findings, the study recommends that:

1.The scheme's lending decisions should be specific to the agricultural needs of potential beneficiaries in any particular state and not general so as to prevent loan diversion.

2.Farmers in the study area should possess legal proof of ownership to their lands such as Certificate of Occupancy (C of O) to meet up with the collateral requirement for loan.

3.Further disbursement of loans should be targeted at young and better educated farmers who are more likely to adopt new innovations in agricultural production than their older counterparts.

4.Federal Ministry of Agriculture and Rural Development together with CBN should ensure that participating banks comply fully with the CBN guidelines on lending to the agricultural sector.

REFERENCES

Ammani, A.A. (2012). An investigation into the relationship between agricultural production and formal credit supply in Nigeria. International Journal of Agriculture and Forestry, 2(1), 46-52. doi:10.5923/j.ijaf.20120201.08.

Central Bank of Nigeria (CBN, 2010). Central bank of Nigeria annual report and statement of account 2010, central bank of Nigeria, Abuja.

Central Bank of Nigeria (CBN, 2014). Guidelines for Commercial Agricultural Credit Scheme. Central Bank of Nigeria (CBN) and Federal Government of Nigeria. Available online at bn.gov.ng/out/2014/dfd/cacs guidelines new-14thmay2014.pdf.

Etonihu, K.I., Rahman, S.A. & Usman, S. (2013). Determinants of access to agricultural credit among crop farmers in a farming community of Nasarawa State, Nigeria. Journal of Development and Agricultural Economics, 5(5), 192-196.

Hussain, A. & Thapa, G.B. (2012). Smallholder's access to agricultural credit in Pakistan. Food Security, 4(1), 73-85.

Ijioma, J.C. & Osondu, C.K. (2015). Agricultural credit sources and determinants of credit acquisition by farmers in Idemili Local Government Area of Anambra State. Journal of Agricultural Science and Technology, 5, 34-43. doi: 10.17265/2161-6264/2015.01.004.

Nwosu, F.O., Oguoma, N.N.O., Ben-Chendo, N.G. & Henri-Ukoha, A. (2010). The agricultural credit guarantee scheme: Its roles, problems and prospects in Nigeria's quest for agricultural development. Agricultural Credit Guarantee Scheme, 2(2), 87-90.

Obasi, P.C. (2015). Evaluation of the performance of agricultural lending schemes in Nigeria. European Journal of Agriculture and Forestry Research, 3(2), 52-63.

Obilor, S.I. (2013). The impact of commercial banks' credit to agriculture on agricultural development in Nigeria: An econometric analysis. International Journal of Business, Humanities and Technology, 3(1), 85-94.

Olomola, A.S. (2002). Determinants of smallholder loan repayment performance: Evidence form Nigerian micro-finance system. Paper presented at conference on Opportunities in Africa-Micro-evidence on firms and households held in 9th-10th April, 2002 at St. Catherine's College Oxford.