

Impact of Agricultural Financing on Cassava Production in Nigeria

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Abstract

In this study, the impact of agricultural financing on cassava production in Nigeria during 1985-2015 was examined. The objectives were to determine the contributions of government capital expenditure on agriculture, recurrent expenditure on agriculture, agricultural credit guarantee scheme fund and deposit money banks' credits to agriculture on cassava production. The data required for the empirical analysis were extracted from the Food and Agricultural Organization Statistics (FAOSTAT) and CBN Statistical Bulletin. The estimation techniques relied on the error correction mechanism. The parsimonious ECM reveals that cassava output in previous periods is positively related to output in current period. Similarly, public capital spending in agriculture has a positive and significant impact on cassava production. 1 percent increase in contemporaneous and first lag of capital spending increased cassava output by 0.061 percent and 0.075 percent respectively. On the contrary, recurrent spending in agriculture significantly reduced cassava production. The result also shows that agricultural credit guarantee scheme fund at lag 3 exerts significant positive impact on cassava production, but the impact of its second lag cassava output is negative. Again, the contemporaneous value of bank credits is positively related to cassava output, but lagged values significantly contracted cassava production. Drawing supports from the results, it is recommended that public capital expenditure on agriculture should prioritize mechanization of cassava production to increase its attractiveness for the youths and boost output and its associated value chain.

Keywords: *Agricultural Financing, Cassava Production,*

Introduction

The role of finance in agriculture, like in the industrial and service sectors, cannot be over-emphasized, given that it drives investments and output. Agricultural financing is perceived to encompass a development strategy geared towards making financing resources available to farmers to promote investment and boost output in the medium and long term. Funding agricultural activities contributes significantly to national output (Agbada, 2015). Again, Nzotta and Okereke (2009) are of the view that finance affects growth positively and lack of it causes stagnation or even depression in any economic system. Governments across the globe is increasingly recognizing that finance is an essential tool for increasing productivity in the agricultural sector, especially in driving the process of agricultural value chain. Agricultural financing serves to stimulate agricultural activities and provides supports for farmers and other stakeholders in the sector, thus transforming economy wide aggregate.

The Food and Agriculture Organization (FAO, 2012) remarked that agriculture contributes immensely to the economy of countries in many ways through the provision of food, supply of adequate raw materials and provision of market for the products of a growing industrial sector.

This makes agricultural financing imperative for sustained and rapid growth in developing poor countries. Consequently, countries have strived to develop the agricultural sector through adequate financing in order to maximize the benefits associated with its value chain. In Nigeria and other developing countries, agricultural financing is integrated into rural development with the core objectives of promoting food security and engendering sustainable development in the agricultural sector. This has focused policy intervention and funding activities into produce such as cassava and rice amongst others based on their perceived high value addition.

As a major staple food in Nigeria, cassava has remained a major source of food security due to its ability to grow in low-quality soil, its resistance to drought and disease, and its flexible cultivation cycle (Meridian Institute 2013; Sanni et al. 2009). According to FAO (2013), Nigeria is the world's leading cassava producer, with about 21 percent share in the global market. More than 200 million of the populaces in the tropics rely on Cassava for staple food (Nnadozie, et al., 2015). This has made financing of cassava production occupy important position in agricultural development policies of Nigeria at national and sub-national levels. Notably, successive governments in Nigeria have evolved policies geared towards making available adequate financial resources for cassava famers to boost output, generate employment for the teeming population, ensure the availability of raw materials for the industries and boost the capacity of the country to earn foreign exchange through the cassava exports.

Furthermore, in view of the increasing role cassava plays in food security, the Federal government launched the Presidential Initiative on cassava production and exports in 2002 with the target of generating US\$5 billion by 2007. This requires huge commitments to cassava production to boost output by at least 150 metric tonnes by 2006 (IFAD, 2007). It is important to note that Nigeria's agricultural policy provides, among others, for adequate financing of agriculture through adequate public expenditure and credit allocations by financial institutions including the Central Bank, Bank of Agriculture and Deposit Money Banks (DMBs). Public expenditure on agriculture has, however, been shown not to be substantial enough to meet the objective of the government agricultural policies (Ekine and Nwaokedibe, 2018).

The inherent problems of financing agriculture due dwindling public revenue, poor adherence to sectoral credit allocations guidelines by DMBs and lopsided attitude of government to agricultural development continued to impair sustainable investment in agriculture. The objective of agricultural financing policies in Nigeria is to establish an effective system of sustainable agricultural financing schemes, programmes and institutions that could provide micro and macro credit facilities for the micro, small, medium and large scale producers, processors and marketers. Unfortunately, macroeconomic policies that tend to promote growth of the sector, such as credit-channelling financial policies, price stabilizing monetary and exchange rate policies, and farm incentive laden fiscal policies are poorly designed and implemented, thus, generating sub-optimal outcomes. More so, the scale of cassava processing in Nigeria is limited by the inconsistent supply of raw tubers. Eighty percent of the country's cassava is grown by smallholders who sell only their small surpluses (Oyebanji, Oboh, and Omueti 2010). Medium- and large-scale processors can only operate seasonally, and struggle to be efficient because of the low supply (Knipscheer et al. 2007).

Despite numerous commendable public investments on the agricultural sector such as the Agricultural Credit Support Scheme of 2006, FADAMA Development Programmes, the Agricultural Credit Guarantee Scheme Fund, the Agricultural Development Programmes (ADP), Operation Feed the Nation (OFN) and the Presidential Initiative on Cassava (PIC) among others, there is still difficulties in increasing the productivity of the agricultural sector

due to bad governance, corruption, regulatory failure, inadequacies in labour market, land tenure system, inadequate technology and infrastructural facilities as well as high cost of cassava production. The current reality in the Nigerian economy shows the effect of the neglect of the agricultural sector.

Objectives of the Study

The overall aim of this study is to examine the relationship between agricultural financing and cassava production in Nigeria. Specifically, this study seeks to:

- i. Analyzed the sources and trends of agricultural financing and the dynamics of cassava production in Nigeria;
- ii. Determine the line effect of public agricultural expenditure on cassava production in Nigeria;
- iii. Examine the effect of deposit money banks; loans and advances to agriculture on cassava output in Nigeria and
- iv. Assess the effect of Agricultural Credit Guarantee Scheme Fund on cassava production in Nigeria.

Methodology

Research Design

This study employed quasi-experimental research design based on the fact that the data used are secondary in nature.

Data Collection Method and Sources

The data collection process for this study is from documentary sources. Specifically, data were collected from Food and Agricultural Organization statistics (FAOSTAT) and Central Bank of Nigeria (CBN) Statistical Bulletin.

Data Analysis Techniques

The study used ECM methods. The purpose of the ECM was to indicate the speed of adjustment from the short-run equilibrium to the long-run equilibrium state. The greater the co-efficient of the parameter, the higher the speed of adjustment of the model from the short-run to the long-run.

Model Specification

In the regression equation, measures of agricultural financing such as public expenditure on agriculture, deposit money banks' loans and advances; and agricultural credit guarantee scheme fund are the explanatory variables while cassava production measured in metric tons is the explanatory variable. The functional specification of the model is provided as:

$$CASA = f(PCXA, PRXA, DBLA, ACGSF) \quad (1)$$

The static form of the model is expressed below:

$$CASA_t = \beta_0 + \beta_1 PCXA_t + \beta_2 PRXA_t + \beta_3 DBLA_t + \beta_4 ACGSF_t + U_t \quad (2)$$

Where: CASA = cassava production, PCXA = public capital expenditure on agriculture, PRCA = public recurrent expenditure on agriculture, DBLA = deposit money banks' loans and advances to agriculture, ACGSF = agricultural credit guarantee scheme fund, β_0 = constant term, $\beta_1 - \beta_4$ = slope parameters and U_t = disturbance term.

Additionally, the dynamic regression model is specified as:

$$\Delta \ln CASA_t = \alpha_0 + \sum_{i=1}^n \alpha_1 \Delta \ln CASA_{t-1} + \sum_{i=1}^n \alpha_2 \Delta \ln PCXA_{t-1} + \sum_{i=1}^n \alpha_3 \Delta \ln PRXA_{t-1} + \sum_{i=1}^n \alpha_4 \Delta \ln DBLA_{t-1}$$

$$\sum_{i=1}^n \alpha_i \Delta \ln ACGSF_{t-1} + \theta ECM_{t-1} + e_t \quad (3)$$

Where: $\alpha_1 - \alpha_5$ denote dynamic estimates of the explanatory variables, n = optimal lag order, \ln = natural log configuration and θ = error correction coefficient.

III. Results and Discussions

The plots of the series depicting their trends over the period 1985-2015 are showed in Figures 1-4.

The trends of cassava output displayed in Figure 1 shows that it increased from 12090000 metric tonnes to 45721000 metric tonnes in 2006. It however, declined to 36822250 metric tonnes in 2008 before increasing to a maximum value of 55214709 metric tonnes in 2015

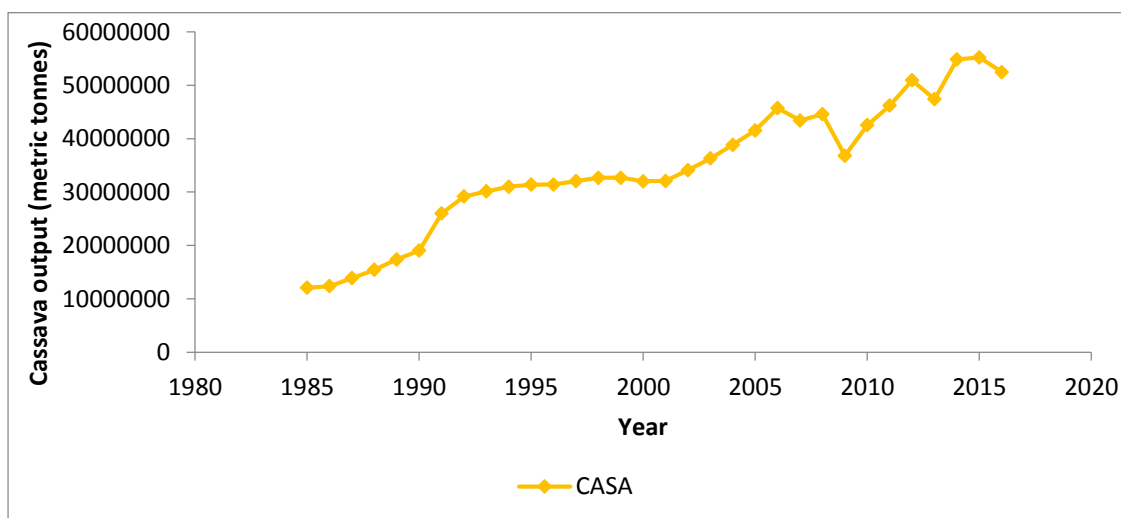


Figure 1: Cassava production, 1985-2015

Source: FAO Statistics

Public expenditures on agriculture illustrated in Figure 2 varied during 1985-2015. Between 1985 and 1994, recurrent expenditure surpassed capital expenditure. Starting from 1995, public capital expenditure on agriculture assumed substantial increase peaking at N'86025.8 million in 2014. The maximum value of N'65,415.20 million was observed for recurrent expenditure in 2008.

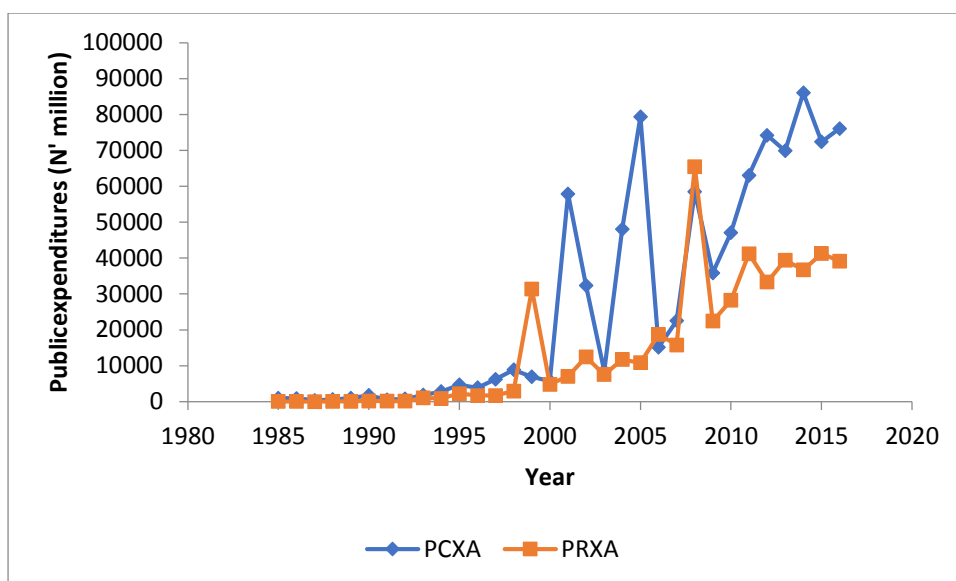


Figure 2: Public capital and recurrent expenditures on agriculture, 1985-2015
Source: CBN Statistical Bulletin

The deposit money banks' loans and advances to agriculture also fluctuated over the study period and attained a maximum value of N'401.9 million in 2014.

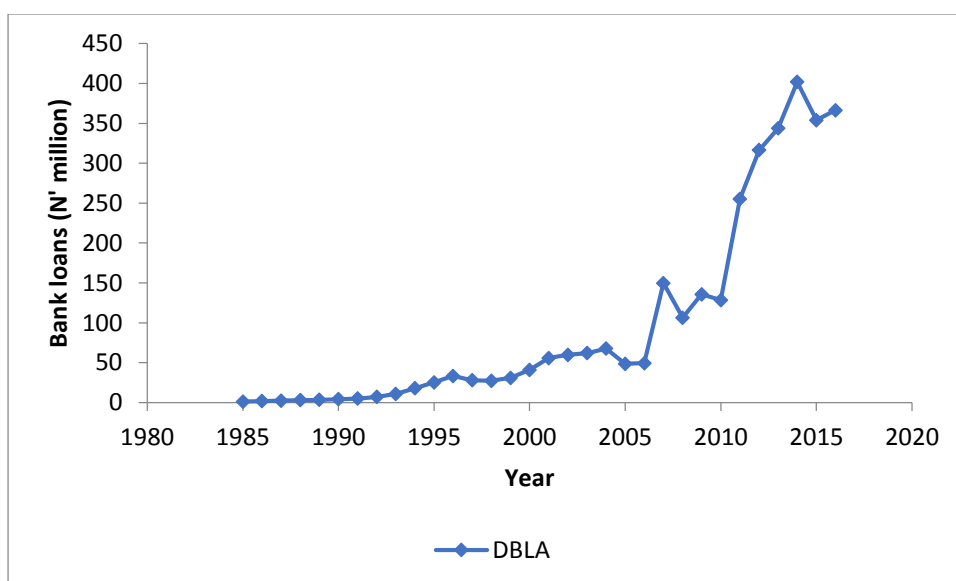


Figure 3: Bank loans and advances to agriculture, 1985-2015
Source: CBN Statistical Bulletin

In a like manner, ACGSF varied over between 1985 and 2015 peaking at N'12,432,129.62 thousand in 2014.

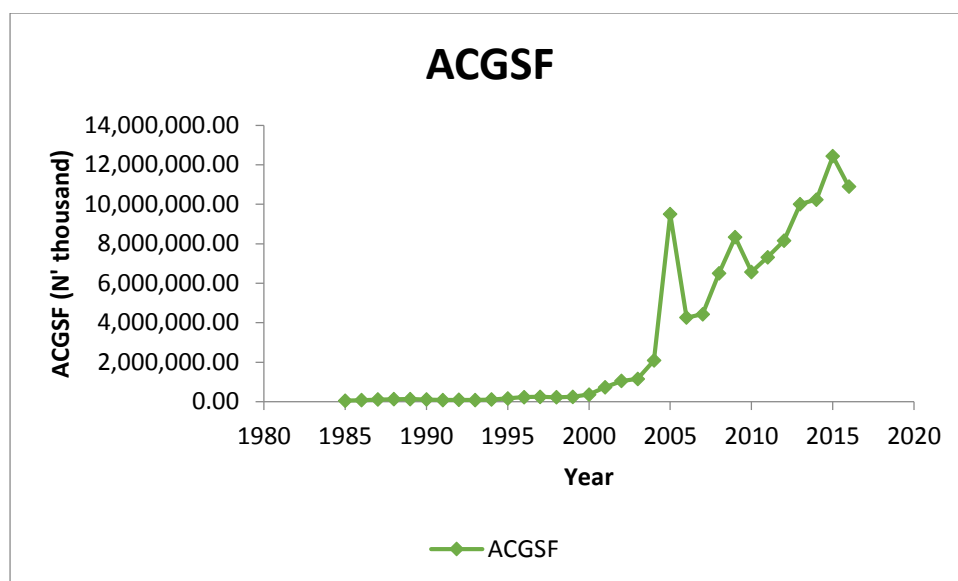


Figure 4: ACGSF, 1985-2015

Source: CBN Statistical Bulletin

Estimated Dynamic Regression model

The ECM formed basis for the dynamic regression model. The result is expressed as parsimonious ECM in Table 1.

Table 1: Parsimonious ECM

Dependent Variable: DLOG(CASA)				
Method: Least Squares				
DLOG(CASA(-1))	0.502295	0.164497	3.053527	0.0092
DLOG(CASA(-2))	0.373819	0.169991	2.199049	0.0466
DLOG(CASA(-3))	0.439167	0.166427	2.638794	0.0204
DLOG(PCXA)	0.061311	0.019515	-3.141718	0.0078
DLOG(PCXA(-1))	0.075019	0.021321	3.518614	0.0038
DLOG(PRXA)	-0.043588	0.022228	-1.961002	0.0717
DLOG(PRXA(-1))	-0.079458	0.022829	-3.480491	0.0041
DLOG(ACGSF(-2))	-0.113201	0.046001	-2.460831	0.0286
DLOG(ACGSF(-3))	0.157773	0.051534	3.061543	0.0091
DLOG(DBLA)	0.190967	0.067033	2.848835	0.0137
DLOG(DBLA(-1))	-0.094077	0.057776	-1.628301	0.1274
DLOG(DBLA(-2))	-0.140146	0.052906	-2.648940	0.0201
DLOG(DBLA(-3))	0.203110	0.056254	3.610590	0.0032
ECM(-1)	-0.410692	0.161183	-2.547980	0.0243
C	-0.027837	0.030132	-0.923807	0.3724
R-squared	0.810942	F-statistic		3.983008
Adjusted R-squared	0.607342	Prob(F-statistic)		0.008709
F-statistic	3.983008	Durbin-Watson stat		2.064740

Source: Researcher's computation

The parsimonious ECM in Table 1 reveals that cassava output in previous periods is positively related to output in current period. Similarly, public capital spending in agriculture has a positive and significant impact on cassava production in the short run. 1 percent increase in contemporaneous and first lag of capital spending increased cassava output by 0.061 percent

and 0.075 percent respectively. On the contrary, recurrent spending in agriculture significantly reduced cassava production. The result also shows that agricultural credit guarantee scheme fund at lag 3 exerts significant positive impact on cassava production, but the impact of its second lag cassava output is negative. Again, the contemporaneous value of bank credits is positively related to cassava output, but lagged values significantly contracted cassava production. This could be attributed to the increasing obligations of loan repayment. The F-statistic (3.983) with probability value (0.008) suggests that regressors are collectively significant in influencing changes in cassava output. The error correction parameter shows that disequilibrium in the short run is reconciled to long run equilibrium position at a speed of 41 percent. The R-squared (0.811) also indicates that 81.1 percent variations in cassava output are due to changes in the explanatory variables.

IV. Conclusion

The result shows evidence of positive impacts of public capital expenditure and agricultural credit guarantee scheme fund on cassava output while recurrent spending on agriculture and bank credits to agriculture are negatively related to cassava production. The conclusions drawn from the findings include: Public capital spending on agriculture is effective in stimulating cassava production as cassava farmers tend to leverage on it to expand their productivity. Agricultural credit guarantee scheme fund is an important source of fund for agricultural sector as it offers opportunity for the growth of cassava production. Recurrent agricultural spending and deposit money banks' credit to agriculture seems not to foster sustained increase in cassava production.

Based on the findings of this study, the following recommendations were made: Government capital expenditure on agriculture should prioritize mechanization of cassava production to increase its attractiveness for the youths and boost output and its associated value chain. Policy makers and other stakeholders in the agricultural sector should ensure that recurrent expenditures are channelled to the provision of extension service to ensure that new cassava steps, farming methods and other innovations are communicated to the farmers to boost output and reduce inefficiencies in the production process.

The Central Bank of Nigeria should ensure that cassava farmers have adequate access to the agricultural credit guarantee scheme fund in order to optimize the benefits it offers.

Deposit money banks should ensure that cassava farmers are given adequate attention in their credit allocations in order to boost their output.

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