Global Journal of Science Frontier Research: D
Agriculture and Veterinary
Volume 20 Issue 4 Version 1.0 Year 2020
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4626 & Print ISSN: 0975-5896

The Effect of Government Agricultural Spending on Economic Growth in Nigeria (1970-2013)

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GJSFR-D Classification: *FOR Code: 070199*

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The Effect of Government Agricultural Spending on Economic Growth in Nigeria (1970-2013)

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Keywords: government spending; agriculture; GDP; growth rate.

I. Introduction

a) Background of the Study

Nigeria is regarded as an agro-based economy with abundant land and water resources to enhance agricultural development. Agriculture contributes immensely to the Nigerian economy in the provision of food for the increasing population, supply of raw materials to industries as a major source of employment and generation of foreign exchange earnings (Okunmadewa, 1997; World Bank, 1998; FAO, 2006 and Francis, 2013). The agricultural sector in the 1960s contributed up to 70% of the total GDP of Nigeria; this gradually declined to 48% in the 1970s during the oil boom (Ukeje, 2003). The agricultural sector in 2014 contributed up to 22.90% while in the first quarter of 2015 contributed up to 19.79% of the total GDP of Nigeria (NBS, 2015).

The first decade after independence was described as an agrarian economy because agriculture served as the engine of growth of the overall economy (Ogen, 2003). From the findings, agriculture was regarded as the leading sector in terms of occupational distribution and contribution to GDP (Itodo *et al.*; 2012) considering the fact that it accounted for about 70% the Gross Domestic Product (GDP) in the '60s; this was a period when the country was virtually self-sufficient in the production of food crops, provided raw materials for industries, and for export (Ekerete, 2000). Indeed, agriculture provided the stimulus to national economic growth despite the small farm holdings production systems.

Nigeria is said to have diverse agro-ecological conditions that can support a variety of farming systems. However, successive administrations over the years was said to have neglected agriculture and failed to diversify the economy away from over-dependence on the oil sector. Nigeria, which was regarded as the largest net exporter of agricultural produce in West Africa as depicted by the contribution of groundnuts (42%), palm oil (27%), soya beans (28%) and cocoa (18%) in the 1960s, now spends over ₦1.2 trillion importing palm oil, canned beans and other food items (Akintola, 2011). The country, however, has the potentials to return to its previous position if adequate attention is given to the agricultural sector through finance and the provision of rural infrastructure (Francis, 2013). It has been stressed that size and structure of public expenditure will determine the pattern and form of growth in output of the economy (Taiwo & Abayomi, 2011). For instance, a collaborative study was carried out by the International Food Policy and Research Institute (IFPRI) and the World Bank in 2008, revealed that Nigeria's public expenditure on agriculture is less than 2% of total federal annual budget expenditure which is significantly low compared to other developing countries like Kenya (6%), Brazil (18%) and the assumed 10% recommended by the African Leaders Forum, under the Comprehensive Africa Agricultural Development Programme (CAADP).

Despite inadequate investment, agriculture has on the average contributed 32% of the country's GDP from 1996 to 2000 and 42% between 2001 and 2009 (CBN, 2010). For many developing countries, agriculture is considered as the largest sector in terms of its share in the nation's total Gross Domestic Product (GDP) and employment (Fan *et al.*; 2008; Fan *et al.*; 2009). Against this background, this study investigated the effect of

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government agricultural spending on economic growth in Nigeria from 1970 to 2013.

b) Statement of the Problem

Despite Nigeria's agricultural resource endowment, it was said that there was a gradual decline in agriculture's contributions to the nation's economy (Manyong *et al.*; 2005; Ekpo and Umoh, 2012; Mohammad and Atte, 2006), as evident in the contribution of agriculture to the GDP of the nation as well as the rising value of food import (CBN, 2010). In the 1960s, agriculture accounted for 65-70% of total exports which later fell to about 40% in the 1970s, and crashed to less than 2% in the late 1990s. The decline in the agricultural sector was due to a rising in crude oil revenue in the early (1970s). Less than 50% of the Nigeria's land is under cultivation. Even then, smallholder farmers who use rudimentary production techniques, with resultant low yields, cultivate most of this land. The constrained faced by smallholder farmers including poor access to modern inputs and credit, poor infrastructure, inadequate access to markets, and environmental degradation, and research and extension services. The inability to capture the financial services requirements of farmers and agribusiness owners constituted about 70 percent of the population is equally inclusive (Lawal, 2011).

Despite all the policies and programs of government with an emphasis on food security and the recent Agricultural Transformation Agenda of the past administration, the performance of the Agricultural sector in Nigeria is still abysmal in terms of product, factor, market and foreign exchange contribution (Ehigiamusoe, 2012) coupled with the rising value of food import. Presently, in Nigeria, there has been a conflicting view about spending on agriculture; the performance of the agricultural sector had fared better than it was before independence.

Study revealed that, the share of government total agricultural spending in the total government spending in the Nigerian economy is dismally low (Ayoola and Oboh, 2000), asit lags behind countries like Burkina Faso, Ethiopia, Mali, Malawi, and Senegal. It is equally far from the Comprehensive Africa Agriculture Development Programme (CAADP, 2003) recommended allocation of 10% government total spending in the entire economy to the agricultural sector of the economy (Mogues *et al.*; 2008; Fan *et al.*; 2009). The share of government total agricultural spending in Nigeria was 1.67% of government total spending in the economy in 1978. It increased to 2.50% in 1983 and increased further to 4.59% in 1989. In 1995, it declined to 1.90% and dipped further to 0.59% in 1996. In 2001, it increased to 6.38% and slumped again to 1.31%. It increased again in 2005 to 3.99% and increased further to 5.28% in 2008. In the entire period of the study covered (1978-2008), the average share of government total agricultural spending in the total government spending in the economy was 3.11% (CBN, 2009).

The problem, therefore, is that, how can an extremely important sector like the agricultural sector of the Nigerian economy that contributes more than 30% of national output receive less than 5% of government total spending? Therefore, isolating and neglecting the effect of government agricultural spending on economic growth in Nigeria poses some problems because of the importance of the sector to the Nigerian economy.

c) Research Objectives

The objective is to examine the effect of agricultural government spending on economic growth in Nigeria.

Specifically, the study seeks to:

1. Evaluate the effect of fertilizer spending on agriculture on economic growth in Nigeria.
2. Examine the influence of government spending on human capital development on economic growth in Nigeria.
3. Examine if there is a significant relationship between government agricultural expenditure (spending) and economic growth in Nigeria.
4. Examine if there is a causal relationship between recurrent and capital agricultural expenditure on economic growth in Nigeria.

II. Research Methodology

a) Scope of study

Nigeria is one of the countries in West Africa. It shares a border with the Republic of Benin to the west, Chad and Cameroon to the east and Niger republic to the north. Its coast lies on the Gulf of Guinea. Nigeria has between latitudes 4°16' and 13°53' North and longitudes 2°40', and 14°41' East. It has a total land area of 923,768 square kilometers, Nigeria is the most populous nation in Africa, with a population of about 160million people (NPC, 2012).The research focused on federal government total agricultural spending and other variables such as transportation and communication expenditure, health expenditure, education expenditure, and fertilizer spending and Gross Domestic Product Growth rate (EG) in Nigeria from 1970-2013.

b) Nature and sources of data

This research used a secondary dataset of 44 years (1970-2013) which was obtained from the annual reports and statistical bulletins of various issues of the National Bureau of Statistics and the Central Bank of Nigeria (1985, 2009, 2012 and 2014) respectively as well as the FAO (2012) and the World Bank Development indicator (WDI, 2015). The dataset includes budgetary allocation to agriculture, gross domestic product growth rate, transportation and communication expenditure, health expenditure, education expenditure, and fertilizer spending of Nigeria.

c) *Method of Data Analysis*

- *Unit Root Test*

The study applied the Augmented Dickey-fuller (ADF) test to check whether each data series is integrated and has a unit root. *The ADF tests was used to examine the stationarity of the dataset to overcome the problem of spurious* regression that is common in the time-series analysis.

In this study, the ADF tests were conducted on the level and first differenced observations by estimating the following two models of (1) intercept no trend and (2) intercept and trend model;

$$\Delta Y_t = \beta_0 + \gamma Y_{t-1} + \sum_{t=1}^{n} \beta_t \Delta Y_{t-1} + \mu_t \quad \text{..... (1)}$$

$$\Delta Y_t = \beta_0 + \beta_{2t} + \gamma Y_{t-1} + \sum_{t=1}^{k} \beta_t \gamma \Delta Y_{t-1} + \mu_t \quad \text{.....(2)}$$

Where $=\Delta$ is the first difference of the series and $\beta's$ are parameters to be estimated and μ_t is stochastic disturbance term. The two equations differ in the inclusion or exclusion of the deterministic elements and β_{2t} .Having established the nonstationarity of the variables, the next step is to test for the presence or absence of a long-run equilibrium among the variables.

$$\Delta Y_t = \gamma Y_{t-1} + \mu_t \quad \text{..... (3)}$$

Where $\gamma = (\rho - 1)$ and Δ as usual, is the first-difference operator we estimate (3) and test the (null) hypothesis that $\delta = 0$. If $\gamma = 0$, then $\gamma = 1$, that is we have a unit root, meaning the time series under consideration is nonstationary. Before we proceed to estimate (3), it may be noted that if $\gamma = 0$.The null hypothesis ($_0$: $\gamma = 0$) implies that the series has a unit root (non-stationary or integrated of order zero) and the alternative hypothesis ($_1$: $\gamma < 0$) indicates that the series is stationary. The decision rule is to accept the null hypothesis assuming the calculated ADF statistics is less than the Mackinnon critical values. The null hypothesis is rejected otherwise.

Johansen Cointegration Test: The Johansen Cointegration test was employed to examine the long-term relationship between or among the variables under study after establishing the stationarity. A linear combination of two or more I(1) series may be stationary or I(0), in which case the series are cointegrated. The null hypothesis for the Johansen Cointegration test (H_0: = 0) implies that cointegration does not exist, while the alternative hypothesis (H_1: > 0) implies that it does. Since, the null hypothesis for non-cointegration was rejected, the lagged residual from the cointegrating regression is imposed as the error correction term in an error correction model (ECM) given below as:

$$\Delta Y_t = \Pi Y_{t-1} + \sum_{i=1}^{k-1} \Gamma_i \Delta Y_{t-1} + \mu_t \quad \text{..... (4)}$$

Where:

Δ_t= First Difference of A_n (n x 1) Vector of the n Variables of Interest; Π = (n x n) Coefficient Matrix; Y_{t-1}

= Lagged Values of t, Υ = (n x (k-1)) Matrix of Short-Term Coefficients; μ= (n x 1) Vector of Constant ; Σ_t = (n x 1) Vector of White Noise Residuals; Πy_{t-1} = Error Correction term

The loading coefficients (α multiplied by the error $\beta' Y_{t-1}$ so that the Y's move in the direction to bring the system back to equilibrium) indicate the cointegration relationships in the individual equations of the system and of the speed of adjustment to disequilibrium. This represents the causality in the system and the direction of the causality flows, while the cointegrating vectors ($\Delta Y=0$ or $\Delta Y^*=0$ which is equivalent to $\Pi Y^* = \alpha(\beta' Y^*) = 0$ represent the long-term equilibrium relationship.

- *Granger Causality Test*

Granger Causality test was conducted to identify the causal relationship between the variables Gross Domestic Product Growth rate (EG), Agriculture Expenditure (Recurrent and Capital), Transportation and Communication Expenditure (TRANS), Health Expenditure (HEA), Education Expenditure (EDU) and Fertilizer spending (FERT) to determine whether the current lagged values of one variable affect another. According to Granger (1969), a variable *Y* is caused by another variable *X* if *Y* can be predicted well from past values of *Y* and *X* than from past values of *Y* alone. Two regressions must be performed to test for causality between the two variables, Y and X. The statistical significance of the coefficients of past values of a variable was tested. The Granger test was explained with the following equations:

$$\Delta Y_t = \alpha + \sum_{i=1}^{m} \beta_i \Delta Y_{t-1} + \sum_{j=1}^{n} \beta\varphi \Delta X_{t-1} + \varepsilon_t \quad \text{.....................................} \quad (5)$$

$$\Delta X_t = X + \sum_{i=1}^{m} \phi_i \Delta X_{t-1} + \sum_{j=1}^{n} \mu_i \Delta Y_{t-1} + \nu_t \quad \text{......................................} \quad (6)$$

Where Y_t and X_t are two stationary series, and i and j stand for lag lengths. The unilateral causality existed when $Y_t$is said to be Granger caused by X_t which means that the coefficients on the lagged of X_t are statistically significant. On the other hand, a bilateral causality existed when both coefficients are statistically significant, and there is independence when both are statistically insignificant.

d) Engle and Granger Method of Cointegration Analysis

The procedure was carried out in two steps after determining the order of integration of the variables through the unit root test.

The first step consists of the long-run relationship that we wish to verify. Its existence is verified by estimating an equation using ordinary least squares with the entire variable in level.

The second step consists of extracting the error term or residuals resulting from this regression. The stationarity of the residuals at level form depicts a long-run relationship between the variables otherwise it does not exist. The absence of a long-run relationship between the variables led to an ordinary least squares regression with I(0) variables in level form and I(1) in first difference and so on, to get consistent results. In this study, the unit root results are presented first. They followed by the estimation of the long-run relationship. We then extracted the error term (denoted ECM) on which we carry out a unit root test at the level form I(0) to confirm the existence of cointegration. If cointegration exists, then we estimate the Error Correction Model (ECM) with the one-lag residuals as an explanatory variable. For the error correction model, we difference all the variables and include the error correction term lagged by one period ECM (-1) to capture the effects of year to year variations. Theoretically, it was expected that the coefficient of ECM (-1) to be significantly negative and less than one for the error correction mechanism to exist. The essence of using the Error Correction Model is to allow obtaining more reliable estimates than those we could have had if we had used the long-term relationship.

e) Model Specification

Abu & Abdullahi (2010) as well as Ditimi & Amassoma (2011) specified the model below except Fertilizer spending which was included to compliment the effect of agricultural spending on economic growth in Nigeria:

$$EG = f\ (AGR, HEA, EDU, TRANS\&FERT) \text{...} \quad (7)$$

In a simple linear equation form, model (7) becomes:

$$Y_t = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \mu_t \text{.................................} \quad (8)$$

Taking the natural log of equation (8), the model is as follow:-

$$LNY_t = \beta_0 + \beta_1 LNX_1 + \beta_2 LNX_2 + \beta_3 LNX_3 + \beta_4 LNX_4 + \beta_5 LNX_5 + \mu_t \text{................} \quad (9)$$

Semi-log function:

$$Y = \beta_0 + \beta_1 LNX_1 + \beta_2 LNX_2 + \beta_3 LNX_3 + \beta_4 LNX_4 + \beta_5 LNX_5 + \mu_t \text{..................} \quad (10)$$

Where;

LNY_t = the Natural Logarithm of Dependent Variable (EG); X = Independent Variables; LNX_1 = Natural logarithm of Agriculture Expenditure (Spending) (AGR); LNX_2 = Natural logarithm of Health Expenditure (Spending) (HEA); LNX_3 = Natural logarithm of Education Expenditure (EDU); LNX_4 = Natural logarithm of Transportation and Communication (TRANS); LNX_5 = Natural logarithm of Fertilizer Spending (FERT); t = Time-series (Annual) values; β_0 = Represents the constant term or intercept on y axis; $\beta_1 - \beta_5$ = Are the regression coefficient estimated; μ_t= error or stochastic term.

(Barro 1990; Kelly 1997) analyzed how government expenditures contribute to economic growth as well as Keynesian-macroeconomic view point explaining the relationship between government expenditure (spending) and economic growth ,therefore, economic growth (EG) based on constant 2011 US$ (US Dollar) was modeled to be a function of budgetary allocation to agriculture (AGR). However, to avoid the omission of relevant variables and the misspecification

of the model, Health Expenditure (HEA), Education Expenditure (EDU), Transportation and Communication (TRANS) and Fertilizer Spending (FERT) were included in the model as other components of government spending variables that influence economic growth. The model for the long-term relationship between the variables is given explicitly as:

$$LNEG_t = \beta_0 + \beta_1 LNAGR_t + \beta_2 LNHEA_t + \beta_3 LNEDU_t + \beta_4 LNTRANS_t + \beta_5 LNFERT_t + \mu_t \quad \ldots\ldots (11)$$

The general Error Correction Model adopted for the study is specified as follows:

$$\Delta LNEG_t = \beta_0 + \beta_1 \Delta LNAGR_t + \beta_2 \Delta LNHEA_t + \beta_3 \Delta LNEDU_t + \beta_4 \Delta LNTRANS_t + \beta_5 \Delta LNFERT_t + \psi ECM_{t-1} + \mu_t \quad \ldots\ldots (12)$$

Where: EG = GDP Growth Rate (Annual %); AGR = Agricultural Spending (₦ Million); HEA = Health Spending (₦ Million); EDU = Education Spending (₦Million); TRANS = Transportation and Communication Spending (₦ Million); FERT = Fertilizer Spending (₦ Million); = Error Correction Term; ECM_{t-1} = One period lagged error correction term estimated from;

ϵ_t = Error or random term at period t;
Δ = Difference Operator
LN = Natural logarithm

III. Results and Discussion

a) Augmented Dickey-Fuller (ADF) Unit Root Tests

The results of the unit root tests was presented in table 1.

The empirical result from table 1 indicated that the variables EG, AGR, HEA, EDU, FERT and TRANS were integrated of order one, meaning that the variables was integrated of the same order I(1).The unit root at level form showing non stationarity of the variables in ADF test for with intercept as well as with trend and intercept The absolute value for each variable, made us realized that three of the variables are less than their respective t-statistic values at various levels of significance of 1%, 5%, and 10%. This implies that five of the variables was non-stationary at I (0) expect the GDP growth rate.

It observed that the test statistics of ADF tests in the first difference for with intercept as well as with trend and intercept are more than the critical values of 5% and 10% respectively. Thus, the series is said to be stationary at first difference, as indicated below.

Table 1: Unit Root Test at Level and First Difference Showing Augmented Dick-Fuller Results

AUGMENTED DICK-FULLER TEST AT LEVEL I(0)				
Variables	With Intercept	With Trend and Intercept	Decision	Remark(s)
LnEG	-4.005291	-3.880237	I(0)	Stationary/Non Stationary
lnAGR	-1.433614	-2.996221	I(0)	Non Stationary
lnEDU	-0.636226	-3.760665	I(0)	Non Stationary
lnHEA	-0.321029	-4.191827	I(0)	Non Stationary
lnTRANS	-1.554095	-2.760592	I(0)	Non Stationary
lnFERT	-2.304214	-4.271606	I(0)	Non-Stationary/ Stationary
N.B (Intercept @ 1%, 5% & 10% are -3.596616, -2.933158 & -2.604867 respectively). (Trend & Intercept @ 1%, 5% & 10% are -4.192337, -3.520787& -3.191277 respectively).				
AT FIRST DIFFERENCE I(1)				
LnEG	-6.945506	-4.259499	I(1)	Stationary
LnAGR	-8.793682	-8.827642	I(1)	Stationary
LnEDU	-8.871546	-8.776039	I(1)	Stationary

LnHEA	-11.84318	-11.64724	I(1)	Stationary
lnTRANS	-2.760592	-8.111942	I(1)	Stationary
lnFERT	-11.02163	-10.94618	I(1)	Stationary

N.B (Intercept @ 1%, 5% & 10% are -3.596616, -2.933158& -2.604867 respectively).
(Trend & Intercept @ 1%, 5% & 10% are -4.192337, -3.520787& -3.191277 respectively).

Source: Computations by Author's using Eview 7

b) Johansen Cointegration Test

Having confirmed the stationarity, the presence or non-presence of cointegration among the variables is examined. When a cointegration relationship is present, it means that all the six (6) variables employed, share a common trend and long-run equilibrium, as suggested theoretically. Cointegration analysis is employedusing the Johansen cointegration test. Tables 2 and 3 below show the result of the cointegration test. In the table, both trace and maximum Eigenvalue statistics indicate that there is a presence of cointegration at 5 percent level significance, which rejects the null hypothesis of not having a cointegrating equation (r = 0). In other words, the series for all the variables in the model used were tested for cointegration using the trace tests and maximum eigenvalue tests as explained on the one cointegrating variables, and the maximum eigenvalue tests indicate that there are one cointegrating variable, in Tables2 and 3 indicate that the GDP growth rate and the explanatory variables were cointegrated at 95% level of confidence which shows that there is cointegration or long-run relations between the variables tested, that is, GDP growth rate (EG) and the explanatory variables AGR, HEA, EDU, FERT, and TRANS at 5% level of significance. Consequently, the existence of a long-run relationship also provides for the short term dynamics of the relationship. An attempt to absolve the fluctuations/dynamics, an Error Correction Model (ECM) was estimated.

Table 2: Johansen Cointegration Test

Trend assumption: Linear deterministic trend,
Series: EG HEA TRANS FERT EDU AGR, Lags interval (in first differences): 1 to 1,
Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.925060	136.5184	95.75366	0.0000
At most 1 *	0.893695	82.10590	69.81889	0.0038
At most 2	0.649161	35.03568	47.85613	0.4461
At most 3	0.298269	13.03967	29.79707	0.8898
At most 4	0.220477	5.601358	15.49471	0.7421
At most 5	0.017504	0.370831	3.841466	0.5426

***MacKinnon-Haug-Michelis (1999) p-values*
Source: Computations by Author's using Eview 7

Table 3: Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.925060	54.41248	40.07757	0.0007
At most 1 *	0.893695	47.07022	33.87687	0.0008
At most 2	0.649161	21.99600	27.58434	0.2206
At most 3	0.298269	7.438313	21.13162	0.9346
At most 4	0.220477	5.230528	14.26460	0.7125
At most 5	0.017504	0.370831	3.841466	0.5426

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
** denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values*
Source: Calculations by Author's using Eview 7

c) Error Correction Model (ECM)

The results of the vector error correction as shown in table 4 shows long-term estimates and diagnostic statistics. The R square value of 0.5817 implies that 58.17% of the variation in economic growth was due to the influence of explanatory variables (AGR, EDU, HEA, TRANS and FERT) that was included in the model. The F statistic value was significant at the 1% probability level, indicating the joint significance of the explanatory variables of the model (goodness of fit of the model).

The long-term estimates show that AGR is negatively related to EG in the long-run and is therefore inconsistent with a priori expectation, thus, AGR is not

significant in influencing economic growth. Findings, revealed that AGR which was said have been positive and significant, owing to the integral role of finance in agriculture, which is known to be the major contributor to gross domestic product in Nigeria. In addition, the long-term relationships between AGR and EG has been attributed to insufficient budgetary allocation to agriculture relative to other sectors of the economy; as well as the poor implementation of the 2007 and 2008 budget which is said to less than 25% (Ujah & Okoro 2009).

The Error Correction Model (ECM) test result indicates as expected shows a negative sign. The coefficient of the Error Correction Model (ECM) is (-0.008091), meaning that the system corrects to its previous disequilibrium at a speed of 0.81% approximately at 1% a year. Also, the sign of the Error Correction Model (ECM) is negative, further validating our long-run equilibrium relationship between the series. Furthermore, EG can say to be influenced by changes in AGR, EDU, TRANS, HEA and FERT. The study revealed that government spending on education, transportation, and communication as well as fertilizer spending had a positive effect on GDP growth and that health and agriculture were negatively related to economic growth. The findings of the study were in line with Kalio (2000), especially on education and transportation and communication spending while the spending on agriculture was on the opposing side to the finding of my study. The spending on education and that of health were also in line with Ranjan and Sharma (2008) on the long-run effect on economic growth. It concluded that the allocation of government resources towards the education sector is favored to enhance growth. Also, Saad and Kalakach (2009) found that the government spending on education has a positive effect on growth in the long-run while spending on health negatively influencing on economic growth in the long-run and spending on agriculture has been found to be insignificant in the long-run,this is very much in line with this study. Above all, these results supported the findings of Abu and Abdullahi (2010) and Loto (2011) which shows that amount of federal government spending on agriculture does not follow a prior expectation and the contribution to GDP is in direct relationship with government spending to the sector and Olopade and Olepede (2010) show that there is unsignificant relationship between most of the components of spending and economic growth in Nigeria. Again our Error Correction Model (ECM) is not a spurious regression or model as the computed values of 0.008091 are lower than 1.66 (Durbin Watson Statistics), which indicates that there is no evidence of first-order serial correlation. FERT conforms with a priori expectation in the long-run. This implies that an increase in the procurement and distribution of fertilizer to the farmer of the country the better over well it will be for the economy, which would likely increase economic growth. The findings on Transportation and communication, as well as education spending, were in line with the Keynesian model, which says an increase in government expenditure (on infrastructures) leads to higher economic growth. The result from our regression also shows that other variables are significant but has insignificant effect on economic growth in Nigeria.

Table 4: Error Correction Model (ECM) Test Results

Variable	Coefficient	Standard Error	t- Statistic	Probability
Constant	-0.026105	0.228330	-0.114328	0.9107
ΔlnEG(-1)	-0.561432	0.228820	-2.453592	0.0290**
ΔlnAGR(-1)	-0.668727	0.389390	-1.717371	0.1096
ΔlnEDU(-1)	0.920097	0.417687	2.202839	0.0463**
ΔlnHEA(-1)	-0.552534	0.487946	-1.132368	0.2779
ΔlnTRANS(-1)	0.335606	0.269258	1.246408	0.2346
ΔlnFERT(-1)	0.034027	0.267072	0.127409	0.9006
ECM(-1)	-0.008091	0.007568	-1.069128	0.3045
Diagnostic Statistics				
R-squared	0.581693	Mean dependent var		0.012361
Adjusted R-squared	0.356450	S.D. dependent var		1.040712
S.E. of regression	0.834875	Akaike info criterion		2.759263
Sum squared resid	9.061220	Schwarz criterion		3.157176
Log likelihood	-20.97226	Hannan-Quinn criter.		2.845621
F-statistic	2.582519	Durbin-Watson stat		2.217463
Prob(F-statistic)	0.066334			

*N.B: * denotes p < 0.1, ** denotes p < 0.05, *** denotes p < 0.01*
Source: Computations by Author's using Eview 7

Granger Causality Test between Real Gross Domestic Product and Agricultural (Recurrent and Capital) Expenditure

Table 5 and 6 shows that no feedback is observed between Agricultural recurrent expenditure (AGREXP) and EG, in other words causality do not runs in both directions while unidirectional causation is observed between Agricultural capital expenditure and EG, in the same both lag which is significant at 5% and 10% with causality running from EG to Agricultural capital expenditure (AGRCEXP), indicating that the size of the economy (EG) is a significant predictor of the size (amount) of Agricultural capital expenditure.

Table 5: Pair-wise Granger Causality of the Agricultural Recurrent Expenditure Results

Null Hypothesis:	Lag(s)	F-Statistics	Probability	Decision	Causality
AGREXP does not Granger Cause EG	2	0.30058	0.7445	Reject	No Feedback
EG does not Granger Cause AGREXP	2	0.36623	0.6990	Reject	
AGREXP does not Granger Cause EG	4	0.24250	0.9042	Reject	No Feedback
EG does not Granger Cause AGREXP	4	2.58640	0.1434	Reject	

*N.B: * denotes p < 0.1, ** denotes p < 0.05, *** denotes p < 0.01*
Source: Computations by Author's using Eview 7

Table 6: Pair-wise Granger Causality of the Agricultural Capital Expenditure Results

Null Hypothesis:	Lag(s)	F-Statistics	Probability	Decision	Causality
AGRCEXP does not Granger Cause EG	2	2.90585	0.0838*	Accept	Uni-directional
EG does not Granger Cause AGRCEXP	2	2.40572	0.1221	Reject	
AGRCEXP does not Granger Cause EG	4	5.31684	0.0356**	Accept	Uni-directional
EG does not Granger Cause AGRCEXP	4	0.23878	0.9065	Reject	

*N.B: * denotes p < 0.1, ** denotes p < 0.05, *** denotes p < 0.01*
Source: Computations by Author's using Eview 7

IV. Conclusion & Recommendations

This research examines the effect of government agricultural spending on economic growth in Nigeria using secondary data. Annual time-series data from 1970 to 2013 were used and tested for stationarity and Error Correction Model (ECM) was estimated. The long-run relationship results indicated that governments spending on fertilizer, transportation and communication as well as education have positive effects on economic growth. Government spending on agriculture and health was negatively related to economic growth which implies that spending on agriculture and health were not contributing to economic growth. In other words, government spending in these sectors concentrated more on unproductive activities than productive activities.

The negative association found between government spending on agriculture and economic growth could further affirm the call for the African States under the Maputo Declaration to allocate at least 10 percent of the budgetary resources to agriculture in support of accelerated implementation of national agricultural investments formulated in line with Comprehensive African Agriculture Development Programme (CAADP) has established by the World Bank in 2008, that Nigeria's public expenditure on agriculture is less than 2% of total federal annual expenditure which shows that the country lags behind countries like Burkina Faso, Ethiopia, Mali, Malawi, Kenya, and Senegal as well as Brazil.

Based on the findings, the study suggests that policies designed based on the current state of Nigeria's economy:

- The government should ensure that capital expenditure and recurrent expenditure are properly managed in a manner that will raise the nation's productive capacity and accelerate economic growth.
- Owing to the shortfall in agricultural output as a result of inadequate financing by government as revealed in the study, government should be more proactive in setting aside funds annually for agricultural financing to compliment government efforts.
- There is an urgent need for the Federal Government to implement the Maputo Declaration to allocate at least 10 percent of the budgetary allocations to agriculture in support of accelerated implementation

of national agricultural investments formulated along the lines of the Comprehensive African Agriculture Development Programme (CAADP) in order to boast agricultural production, which will subsequently lead to economic growth.

- Also, the government should encourage the education and health sectors through increased funding so has to enhance human capital development and ensuring that the resources are properly managed; the private sector should also be encouraged to complement the effort of government in financing education and health sectors to efficiently and effectively harness human resources;

Above all, the Federal Government needs to take a holistic appraisal of agricultural programs and schemes, with a view of streamlining them to meet the dynamics of times, for the benefits of the Nigerian citizenry.

The above recommendations if implemented will not only go a long way to making Nigeria to be food sufficiency but also discourage over reliance on oil which lead to economic growth.

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