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# Government Expenditure on Agriculture and Economic Growth in Nigeria

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***Abstract***
*The impact of agriculture being the principal source of employment for substantial sectors of the population in most emerging countries, as well as the key to the countries' long-term economic growth has been an issue of discussion. Thus, this article looked at Nigeria's agricultural expenditure proxy by agricultural credit guarantee scheme fund and government expenditure on agriculture; and economic growth proxy by real GDP using secondary data from CBN Statistical Bulletin from 1981 to 2021, as well as Ordinary Least Square regression method to analyze the data. Various literatures were reviewed with conflicting results. However, the findings from the empirical analysis of the current study from the long run normalize equation showed that the variables government expenditure on agriculture and agricultural credit guarantee scheme fund have positive and significance impact on economic growth in Nigeria) for the period of study. Using the adjusted R square, the explanatory variables accounted for 71.3 per cent contribution to economic growth in Nigeria. Again, based on the conflicting results of the previous findings on the relationship between government expenditure and economic growth, this study empirically affirmed the findings of Asmau (2020), Akanbi and Onuk (2018) Cletus and Sunday (2018), and Dahun and Utpal (2018) that government expenditure on agriculture has positive and significant impact on economic growth in Nigeria. Thus, the study therefore recommended that government should evolve policies toward diversifying the economy and encourage the campaign for improvements in the non-oil sectors of the economy especially agricultural sector. More so, government should be more proactive in insisting on the private sector, especially, the financial sector to set aside funds annually for agricultural financing to compliment government efforts, as well as making efforts through its agencies to enlighten farmers of the availability of such credit facilities.*
***Keywords****: Government Expenditure, Economic Growth, Agricultural Productivity,*

## 1.1 Introduction

Agriculture is the practice of cultivating crops and rearing of animals for the purpose of producing food for man, animals, as well as the provision of raw materials for industries. Comprehensively, agriculture consists of crops and livestock, as well as marketing of agricultural products for the benefit of man. Agriculture is the largest economic activity in the rural area in Nigeria where almost 50% of the population lives (Cletus and Sunday, 2018).

Government's expenditure on agriculture is the allocation of funds by the government to the agricultural sector to boost her productivity and output, thereby inciting economic growth. Furthermore, government's spending on agriculture consists of all the expenses made by the government to the sector which include; expenses on policies and programmes, provision of grants and subsidies to farmers, pest control services, inspection services, irrigation and drainage system, crops inspection services, agriculture extension service, etc. Investing in agriculture by the government via increasing her expenditure is one of the most effective ways of promoting

agricultural productivity thereby raising incomes, reducing poverty and food insecurity, as well as environment sustainability (FAO,2020).

Economic growth on the other hand, is the expansion of the productive capacity of a nation which brings about a better standard of living of the people through provision of better infrastructures, health, housing, education service, job creation, food security via improvement in agricultural productivity knowing that it is the base economic activity and the major foreign earnings of most countries, especially Nigeria in the 1960s (Cletus and Sunday,2018).

Agriculture is the catalyst or base through which the growth and development of any economy like Nigeria must rely on. Nigeria being an agrarian economy is naturally blessed with various resources such as good atmospheric conditions, adequate rainfall, sufficient sunlight, a fertile and large land area of 910,770km$^2$ and a population of 206,139,589. Over 50% the population lives in the rural areas that form the population responsible for these agricultural activities (Worldometer, 2020). For more emphasis, agricultural sector in Nigeria was the mainstay of the economy before the advent of the crude oil. Even now it is still the base through which the country's food security and source of raw materials depend on. In 2016, NBS also estimated that 25% of the GDP of Nigeria was comprises the agricultural sector; and 70% of the Nigerian labour force was employed in agriculture (NBS, 2016). Thus, agricultural sector was the major employer of labour of about 70%, as well as the major source of foreign earnings. Some of the major exports were cocoa, groundnut, soya beans and palm oil.

However, in the mid-1970s Nigeria's agricultural sector started experiencing problems of low production, as such agricultural exports and food supply began to decline. From 1975, as oil revenue began to increase the governments' attention on agriculture in the form of agricultural expenditure as well as credit scheme on agriculture became to decline with very low follow up. As a result, there was a sharp decline in export crops' production and domestic food supply. Thus, domestic supply had to be augmented with large imports. Between 2010 and 2018 Nigeria had imported products worth N231, 550,000 (CBN, 2018). This is due to the dependency of oil export together with the population increase as well as the diverted attention of the government from agriculture. Irrespective of the huge oil revenue, hunger, malnutrition, mass poverty, unemployment, inflation and low economic growth have continued to ravage the economy of Nigeria. This is because the mainstay of the economy that is capable of employing about 70% of the population has been given less attention such as inadequate supply of farm inputs, shortage of working capital, lack of credit facilities, lack of investment, lack of basic infrastructure, poor funding, etc., and by extension its contribution to the economy of the country becomes very low.

Several researchers have investigated on the impact of government expenditure on agricultural productivity, but with conflicting results or findings, and the problem still persists so severely. Thus, there is the need to conduct further investigation on the impact of government agricultural expenditure proxy by agricultural expenditure and agricultural credit guarantee scheme on the Nigeria's economy proxy by real GDP from 1981 to 2021.

### 1.2 **Research objectives**

This study was therefore designed primarily to assess the Agricultural expenditure and economic growth in Nigeria; we will be looking at the performance and the effects of these government agricultural expenditure and strategies on the agricultural sector and economic growth.

Specifically, the study sought to:

1. Examine the impact of government expenditure on agriculture on economic growth in Nigeria.
2. Determine the effects of agricultural credit guarantee scheme fund on economic growth in Nigeria.

## LITERATURE REVIEW

### 2.1 Conceptual Review

#### 2.1.1 Agriculture

Various people have defined Agriculture in different ways but common among these definitions is the fact that it is the production of food, feed, fiber and as well systematic growing and harvesting of plants and animals. Akinboyo (2008) defines Agriculture as the science of making use of the land to raise plants and animals. It is the simplification of nature's food webs and the rechanneling of energy for human planting and animal consumption. Until the exploitation of oil reserves began in the 1980s, Nigeria's economy was largely dependent on agriculture.

#### 2.1.2 Government Expenditure

Government expenditure on agriculture is the allocation of fund to the agricultural sector in order to boost agricultural production and output thereby promoting economic growth. Government expenditure on agriculture comprises expenses on sector policies and programmes, constructions of flood control, irrigation and drainage system, operation or support of extension services, pest control services, crop inspection services, provision of grant and subsidies to farmers. The objectives and strategies of the federal agricultural expenditure include: creating enabling environment for agricultural activities, government intervention in agricultural sector, increase budgetary allocation on agriculture, etc. Manyong et al. (2003) noted that some of the agricultural policies and programmes from pre-independence to early 2000 included:

#### 2.1.3 Economic Growth

Economic growth is a long term rise in the capacity to supply increasingly diverse economic goods to its population. It entails sustainable rise in national output which is a manifestation of economic growth (Peng and Almas 2010). A growth in the economy implies that, if laws remain unchanged existing tax revenues also increase, if the employment rate increases due to economic growth, then the impact is much stronger. Additional public revenue, if well invested can further foster growth in an economy (Olajide, 2010). Classical theorists that were led by Arthur Levis' in 1950s viewed economic development as a growth process of transferring factors of production, especially labour from an agricultural sector characterized by low productivity and the use of traditional technology to a modern industrial sector with higher productivity. Economic growth is the leading goal of policy makers worldwide (Hernandez, 2011). Countries can experience economic growth with exports of goods through returns of scale, increase efficiency by increased competitiveness at international level and specialization, (Atrkar & Roshan, 2007). Also, Ayeomoni and Aladejana (2016) defined economic growth as an annual increase in productivity which is often measured over a given period of time.

Whereas, Schumpeter (2005), defined economic growth as a gradual and steady change in the long run which comes by a gradual increase in the rate of savings and population. Economic growth is synonymous with a sustained rise in national output, provision of wide range of economic goods, presence of improved technology and institutional, attitudinal and ideological adjustments. The gross domestic product is monetary value of goods and services which serve as a major growth indicator. This presumes that all sectors of an economy make their inputs to the economic growth of the economy. Agriculture is one of such sectors (Yakubu, 2006). A large body of literatures can be found on the role of exports in economic growth that is known to "export led growth" hypothesis, by scholars, such as, (Amit, 2010, Saad, 2012, Mangir, 2012, Love & Chandra, 2005). A growth in the economy simply implies that, if laws remain unchanged existing tax revenues also increase, if the employment rate increases due to economic growth, then the impact is much stronger. Additional public revenue, if well invested can further foster growth in an economy (Olajide, 2010). Investing in agriculture is one of the most effective ways of promoting agricultural productivity, raising real incomes, reducing poverty and food insecurity,

and enhancing environmental sustainability (Asmau,2020)

**2.2 Theoretical Framework**

This study was anchored on the classical Harrod- Domar Growth model/theory.

**2.2.1 Classical Harrod-Domar Growth Model**

The Harrod-Domar theory stressed that the national income sufficient to provide full employment at any given wage in one period would be insufficient in the next period since the additional production capacity created in the first period would be available in the second the additional spending required for full employment in the second period could be calculated using the relationship between the capital stock and its output that is, by the capital output ratio (Kindeberger and Their 1911). Hence, since investment in period determined all the equilibrium level of national income by the marginal propensity to save economic growth can be viewed as a function of the marginal propensity to save and the capital output ratio. They clearly demonstrated the savings/investment gaps that are low due to low output. Hence, agricultural output that explains the principal strategies for development necessary for any take- off is the mobilization of domestic and foreign savings. This economic mechanism by which more investment led to more economic growth can be describe in terms of the Harrod-Domar is directly proportional to national net savings ratio and inversely proportional to national capital output ratio. The model implies that economic growth depends on increase in investment through acquisition of more labour and capital which boost accumulation which in turn may generate economic growth.

Thus,

g = f(L,K) ……..1

g= S/ C……2

where;

g= growth rate of GDP

S= net saving ratio

C= capital output

S= sY……..3

Net investment is defined as the change in the capital stock (K), and can be presented by
K.

I = K.

But total capital stock (K) bears a direct relationship to total national income or output (Y)as expressed by capital -output ratio I.

C =k/Y or C= K/ Y. So that K =C Y……..4

And net national saving equals net investment, S=I.

Finally, I= K = C Y = sY=S

Sy= C Y. Dividing both sides by Y; S=C Y/Y

Y/Y = S/C……5

The above equation is the famous equation in the Harrod – Domar growth model, which states that rate of growth of GDP, is determined by net national savings ratio which is put into investment expenditure and capital output ratio.

The more the economy is able to save and put into investment expenditure; output of a given GDP would also grow. Thus, government expenditure on agriculture as investment expenditure would lead to economic growth in Nigeria.

## 2.3 Empirical Literature

Several writers have found a nexus between economic growth and agricultural expenditure, whose results had both positive and negative relationships between agriculture and economic growth. Asmau (2020) investigated the impact of government expenditure proxy by agricultural output and agricultural expenditure, on economic growth. Data were obtained from CBN statistical bulletin from 1981 to 2019. The study employed Augumented Dickey Fuller unit root test, Johansen co-integration test, Ordinary Least Square method and Granger causality test for the data analysis at 5% levels of significance. The result from the study revealed that agricultural output and agricultural credit have positive impact on economic growth whereas government expenditure on agriculture had a negative and significant impact on economic growth. The study therefore, recommended that budget allocations on agricultural sector should be closely monitored and ensure that they are channeled into the right targets. The government should also put forth policies that will promote good lending environment for agriculture related investments.

Akanbi and Onuk (2018) examined the effect of Government Agricultural Expenditure on Nigerian economy. Time series data were obtained from the Central Bank of Nigeria from 1981 to 2015. Ordinary Least Square method was employed to analyze the data. The findings from the study showed that government agricultural expenditure was positively and significantly related to gross domestic product. The study further recommended that government should review upward agricultural expenditure to stimulate economic growth in Nigeria so as to trigger employment, increase per capita income and reduce poverty.

Cletus and Sunday (2018) examined the relationship between government expenditure on agriculture and economic growth in Nigeria from 1985 to 2015. Data were obtained from the Central bank of Nigeria. The study employed ADF unit root test, Johansen Co-integration test and Ordinary Least Square method for the data analysis at 0.05 levels of significance. The findings of the study revealed that there exists a positive relationship between government expenditure on agriculture and economic growth in Nigeria for the period under study. Based on then findings, the study therefore recommended that government should formulate policies to increase government's expenditure on agriculture to promote economic growth.

Dahun and Utpal (2018) assess the impact of public expenditure on agriculture on economic growth in India. Secondary data were obtained from Reserve Bank of India Publications and Directorate of Economics and Statistics from the period of 1985 to 2013. The public expenditure on agriculture was proxy by crop husbandry, soil and water conservation, forestry and wild life, agricultural research and education, irrigation and food control while economic growth was proxy by GDP. Ordinary least square method was employed to analyze the data. The findings from the study revealed that, agricultural expenditure on crop husbandry has positive impact on economic growth while agricultural expenditure on forestry, dairy and irrigation had negative impact on economic growth.

Kenechukwu and Udoka (2021). Investigated the effect of government expenditure on economic growth in Nigeria within a period of 33 years spanning (1987 – 2019). Data were collected from the Central bank of Nigeria Statistical Bulletin. Multivariate model and Ordinary Least Square regression methods were employed for the data analysis. The findings of the study revealed that government expenditure on agriculture had positive and significant impact on the Nigerian economy. The study therefore, recommended that Central of Nigeria should do more to encourage borrowing by bringing the lending rate single digit to boost agricultural production in the rural settings.

Megbowon (2019) studied the impact of government's expenditure on agricultural production South Africa, using annual time series data from 1983 to 2016. The bound co-integration test and ARDL model were used for the analysis of the data provided. The result revealed that, the relationship between government's expenditure on agricultural productivity was positive and significant.

Weolebo (2018) also examined the impact of agricultural expenditure on economic

growth of countries in Subsaharan Africa region. The study employed panel data from the World Bank development Index and IMF publications for the period between 1990- 2015. OLS regression and Fixed Effect Model were employed. The findings of the study revealed that expenditure on agriculture had positive and significant effect on GDP per capital of the region.

Uremadu (2018) studied the effect of government agricultural expenditure on agricultural output using time series data from 1981 to 2014. Johansen Co-integration and Vector Error Correction Model were employed to analyze the data. The result revealed that government expenditure and agricultural output were significant and positively related.

Kenny (2019) also investigated the role of agricultural sector performance on economic growth in Nigeria. The study adopted ADF unit root test, Johansen Co-integration test and Vector Error Correction Model. The study revealed that agricultural public spending on agriculture had positive and significant impact on GDP, while agricultural credit guarantee scheme fund had positive but statistically insignificant impact on GDP.

Okpara (2017) examined government expenditure on agriculture and agricultural output on Nigeria's economic growth for the period of 1980 -2014. The study adopted time series econometric analysis to analyze the data. Model was specified using GDP as dependent variable and government expenditure and agricultural output as independent variables. The result revealed that government expenditure on agriculture and agricultural output were integrated of I(0) which while GDP I(1). Again, the study further revealed that there existed a long run relationship among the variables. Government expenditure on agriculture and agricultural output had positive and significant impact on GDP. The study went further to recommends that government should increase the allocation on agriculture and invest on it to keep the economy growing at an increasing rate.

James and Uduak (2022) examined the effect of government spending on agricultural output in Nigeria from 1980 – 2018. The study obtained data from CBN statistical bulletin from 1980 to 2018. The study employed ARDL bound testing approach. The findings of the study revealed that government expenditure on agriculture – both capital and recurrent had positive and significant relationship with agricultural output for the period under study. Aina and Omojola (2017) examined the effect of government expenditure on agricultural sector performance in Nigeria between 1980 and 2013, using econometrics methods of OLS and ECM. The result showed that a positive and significant relationship between government expenditure on agriculture and agricultural production output.

Matthew and Modecai (2016) investigated the impact of public agricultural expenditure on agricultural output in Nigeria for the period of 1981 to 2014. The study adopted ADF unit root test, Johansen Co-integration test, ECM and Granger causality test. The results of the parsimonious ECM model showed that public agricultural expenditure has a negative and significant impact on agricultural output. The study concluded that the negative impact may be resulted due to the discrepancies that existed between the amounts allocated to the agricultural sector and the amounts actually spent on the sector in the economy.

Oladipo, Oyefabi and Abdul (2020) investigated the impact of fiscal policy on agricultural output in Nigeria from 1980 – 2017. Data for the study were obtained from the CBN statistical bulletin for the period specified above. The study employed ADF unit root test, Johansen Co-integration and VECM. The result showed that both government capital and recurrent expenditures on agriculture had positive and significant impact on agricultural output.

After reviewing various literatures on the subject matter, it was discovered that there are conflicting results of the previous studies of government expenditure on agriculture and economic growth. Though, most of them confirmed that public expenditure had positive and significant impact on GDP in Nigeria. Thus, there is need for the current study to address the issue of the conflicting results of the previous studies of the relationship between government expenditure on agriculture and economic growth in Nigeria.

## RESEARCH METHODOLOGY

This study adopted an ex-post facto research design. The study obtained Secondary data from Central Bank of Nigerian statistical bulletin for period of 1981-2021 from. The data for this study was analyzed with Econometric software (E view 10) statistical software in analyzing both descriptive and inferential statistics. Co-integration and error correction estimation techniques was also employed on annual time series data covering 1981-2021, to capture both short run and long run dynamics.

### 3.1 Model Specification

The relationship between economic growth measured in terms of real gross domestic product and government expenditure on agriculture proxy by government expenditure on agriculture and agricultural credit guarantee scheme is expressed implicitly as:

$RGDP_t = f(GXA_{t,}ACGF_{t,})$ …….. (3.1)

The econometric model of the research is given as:

$RGDP_t = \beta_0 + \beta_1 GXA + \beta_2 ACGF_t + \mu_t$ …… ……...(3.2)

Where;

RGDP = Real Gross Domestic Product
ACGF = Agricultural Credit Guarantee Scheme Fund
GXA = Government Expenditure on Agriculture
$\mu_t$ = Error Terms or Stochastic Variables
$\beta_0$ = Constant Term
$\beta_{1-}\beta_2$ = Parameters Estimates

### 3.2 A priori expectation

It is expected that government expenditure on agriculture and agricultural credit guarantee scheme fund will have positive impact on real gross domestic product in Nigeria. Theoretically, investing on agriculture by increasing government expenditure on agriculture and agricultural credit scheme so as to make fund available for farmers to buy more inputs and implements to improve agricultural productivity. Thus, in summary, it is expected that $\beta_{1\text{-}2} > 0$.

### Data Presentation and Analysis

Data collected were analyzed using such using econometric model of ordinary least square (OLS) techniques of multiple regression analysis. The analytical tools employed in this research include unit test, co-integration test, and regression analysis (ECM).

### 4.1 Descriptive Statistics

Descriptive statistics describes the basic statistical features of the data employed for the estimation of the series such as: real gross domestic product (RGDP) government expenditure on agriculture (GXA) and agricultural credit guarantee fund (ACGF).

**Table1: Summary Statistics**

| | LOGACGF | LOGGXA | LOGRGDP |
|---|---|---|---|
| Mean | 13.42259 | 6.227863 | 10.38345 |
| Median | 13.14834 | 6.889810 | 10.16213 |
| Maximum | 16.33773 | 9.406248 | 11.18987 |
| Minimum | 10.11273 | 2.265558 | 9.683359 |
| Std. Dev. | 2.117405 | 2.338855 | 0.532529 |
| Skewness | -0.008541 | -0.405164 | 0.325054 |
| Kurtosis | 1.404162 | 1.779760 | 1.544723 |
| Jarque-Bera | 4.244984 | 3.576029 | 4.234119 |

| | | | |
|---|---|---|---|
| Probability | 0.119733 | 0.167292 | 0.120385 |
| Sum | 536.9038 | 249.1145 | 415.3382 |
| Sum Sq. Dev. | 174.8528 | 213.3394 | 11.05989 |
| Observations | 40 | 40 | 40 |

*Source: Authors' own computation using E view 10*

The results from the Table1 indicated that log of RGDP had a mean of 10.38345 and standard deviation of 0.532529 during the study period. The results also indicated that log of GXA had a mean of 6.227863 and standard deviation of 2.338855 during the study period. Again, the log of ACGF recorded a mean of 13.42259 with standard deviation of 2.117405.

From the same Table1, all the variables are normally distributed as the probability value of their Jarque Bera statistics were above 0.05. Hence, all the variables met the condition of normality for Ordinary Least Square (OLS) method. Furthermore, the empirical analysis was conducted in five phases. It began with, unit root test, co-integration for long run relationship, estimation of ECM and diagnostic tests.

**Unit root tests**

The Augmented Dickey–Fuller test is used in testing the null hypothesis that there is a unit root in a particular time series of interest. This is not the only tests available, but it represents widely used approach. The series can be said to be stationary if the ADF values are greater than the critical values at 5 per cent. The unit root tests are presented in Table 1. The lag length used in the ADF test based on minimizing the Akaike Information Criterion (AIC), starting with a lag length of 2.

Table2. Unit Root Test using Augmented Dickey-Fuller (ADF) Test

| Variables | *Augmented Dickey-Fuller Test* | | | | Order of int. | Remark |
|---|---|---|---|---|---|---|
| | @ level | @ 1st Diff | 5% C. V | Lag | | |
| Log(RGDP) | -0.950479 | -4.133918 | -2.941145 | 2 | I (1) | Stationary |
| Log(ACGF) | -1.033786 | -5.655032 | -2.938987 | 2 | I (1) | Stationary |
| Log(GXA) | -1.270338 | -7.566315 | -2.945842 | 2 | I (1) | Stationary |

*Source: Authors' own computation using E view 10*

ADF unit root tests in Table2 shows that Real Gross Domestic Product (RGDP), Government Expenditure on Agriculture (GXA) and Agricultural Credit Guarantee Scheme Fund (ACGF) where were non–stationary series at levels I(0) but became stationary at first different I(1) as their ADF values are greater than the critical values of 5% at first difference. Having ascertained the stationarity status of the variables we proceed next to consider if there exists at list a linear combination of the variables with unit roots that is stationary using the Johansen co-integration test.

**Table3: Co-integration analysis**

Table 2: Unrestricted Cointegration Rank Test (Trace)

| Hypothesized No. of CE(s) | Eigenvalue | Trace Statistic | 0.05 Critical Value | Prob.** |
|---|---|---|---|---|
| None * | 0.549682 | 81.94057 | 69.81889 | 0.0040 |
| At most 1 | 0.438246 | 51.62413 | 47.85613 | 0.0212 |
| At most 2 | 0.326787 | 29.70984 | 29.79707 | 0.0512 |

*Source: Authors' own computation*

The Johansen's test revealed that the trace statistics shows the existence of one (1) co-integrating equation between the variables of Real Gross Domestic Product (RGDP) and the above stated explanatory variables at 5% level of significance (Table3). The conclusion drawn from this result is that there exists a long run relationship between Real Gross Domestic Product and the explanatory variables.

**Table4: Normalize Long run Equation among the variables**

| Normalized cointegrating coefficients (standard error in parentheses and T-statistics) | | | | |
|---|---|---|---|---|
| LOGRGDP | LOGACGF | LOGGXA | | |
| 1.000000 | -0.376909 | -0.402628 | | |
| | (0.06528) | (0.05734) | | |
| T-Statistic | (-5.77373) | (-7.02176) | | |

*Source: Authors' own computation*

The Table4 above is the long run normalized equation among the variables whose interpretation was made based on reversing the signs of the independent variables. The T-statistics of the exp lanatory variables were obtained by dividing their coefficients by their standard errors, and they are above 2 by rule of thumb; they are all significant. As such, agricultural credit guarantee sch eme fund has positive and significant relationship with real gross domestic product (RGDP). Th is means that as agricultural guarantee credit scheme fund increased by 1 per cent, real gross do mestic product would increase by 0.38 per cent. This conforms to economic theory; as governm ent makes credit facilities available for farmers, they would have more funds available to buy m ore inputs to increase agricultural productivity which will in turn increase our GDP.

Again, government expenditure on agriculture also had positive and significant relation ship with real gross domestic product (RGDP). This means that as government expenditure on a griculture increased by 1 per cent real gross domestic product would increase by 0.40 per cent. This conforms to economic theory as the level of investment contributes to economic growth vi a increasing her expenditure on agriculture.

**Table5: Over Parametized Error Correction Model**

Dependent Variable: DLOG(RGDP)
Method: Least Squares
Date: 10/13/22 Time: 00:14
Sample (adjusted): 1985 2021
Included observations: 32 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 0.054727 | 0.020326 | 2.692539 | 0.0144 |
| DLOG(RGDP(-1)) | 0.090157 | 0.206184 | 0.437268 | 0.6668 |
| DLOG(RGDP(-2)) | 0.154584 | 0.166702 | 0.927305 | 0.3654 |
| DLOG(RGDP(-3)) | -0.061910 | 0.151756 | -0.407957 | 0.6879 |
| DLOG(ACGF) | 0.011944 | 0.016164 | 0.738941 | 0.4690 |
| DLOG(ACGF (-1)) | -0.002320 | 0.021471 | -0.108072 | 0.9151 |
| DLOG(ACGF (-2)) | 0.003362 | 0.019545 | 0.172034 | 0.8652 |
| DLOG(ACGF (-3)) | 0.000591 | 0.018865 | 0.031342 | 0.9753 |
| DLOG(GXA) | 0.037399 | 0.038340 | 0.975453 | 0.3416 |
| DLOG(GXA (-1)) | -0.063195 | 0.037985 | -1.663671 | 0.1126 |
| DLOG(GXA (-2)) | -0.057577 | 0.032554 | -1.768657 | 0.0930 |
| DLOG(GXA (-3)) | 0.028009 | 0.035177 | 0.796226 | 0.4357 |
| ECM(-1) | -0.123444 | 0.077580 | -1.591173 | 0.0281 |

| | | | |
|---|---|---|---|
| R-squared | 0.754343 | Mean dependent var | 0.039760 |
| Adjusted R-squared | 0.712875 | S.D. dependent var | 0.039512 |
| S.E. of regression | 0.033693 | Akaike info criterion | -3.651876 |
| Sum squared resid | 0.021569 | Schwarz criterion | -3.056421 |
| Log likelihood | 71.43001 | Hannan-Quinn criter. | -3.454499 |
| F-statistic | 1.969471 | Durbin-Watson stat | 1.856317 |
| Prob(F-statistic) | 0.000281 | | |

The coefficient of determination the adjusted ($R^2$) was 0.712875 and it measured the proportion of the variation in economic growth measured in terms of Real Gross Domestic Product which is resulting from the two related variables; agricultural credit guarantee scheme fund and government expenditure on agriculture. This figure implies that 71.3% of the growth of the Nigerian economy resulted from increase in agricultural credit guarantee scheme fund and government expenditure on agriculture stated in the model. The other 28.7% is accountable for other factors not included in the study.

The F-stat of 1.969471 significant at 0.05 levels of significance do confirm to the relationship between the dependent and the explanatory variables. That is, the explanatory variables are jointly statistically significant in the determination of the relationship between the selected variables and economic growth of Nigeria. The over paramatized error correction model (ECM) indicates that short run disequilibrium that occurred in the previous years was corrected in the current period at the speed of 12.3%.

### 4.2 Discussion of Findings

The long run normalized equation among the variables from Table4, all explanatory variables w ere all statistically significant. As such, agricultural credit guarantee scheme fund and governme nt expenditure on agriculture have positive and significant impact on economic growth proxy b y real gross domestic product (RGDP). This implies that investing on agricultural sector being t he link to the other productive sectors would contributes 71.3 per cent increase to the real GDP on the economy of Nigeria, conforming to economic theory where government expenditure has positive multiplier effect on national income, again this is also in line with most of the previous studies like Asmau (2020), Akanbi and Onuk (2018) Cletus and Sunday (2018) and Dahun and Utpal (2018), Kenechukwu and Udoka (2021), Megbowon (2019), Weolebon (2018), Kenny (2019), Ukpara (2017), James & Uduak (2022), Aina & Omojola (2017) and Oladipo,Oyefabi & Abdul (2020), conforming to the a priori expectation. The D.W statistic is 1.856317 indicating absence of autocorrelation in the model. This absorbs the model of any serial correlation among the exploratory variables and makes the model/estimation to be acceptable. Also, the Akaike info and Schwarz criterion show the improvement of the model compare to the short run regression result.

### 4.3 Post Diagnostics

**Table6: Test for serial correlation**

Breusch-Godfrey Serial Correlation LM Test:

| | | | |
|---|---|---|---|
| F-statistic | 0.920331 | Prob. F(2,17) | 0.4173 |
| Obs*R-squared | 3.126280 | Prob. Chi-Square(2) | 0.2095 |

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 10/13/22 Time: 00:22
Sample: 1985 2021
Included observations: 32

Presample and interior missing value lagged residuals set to zero.

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -0.002481 | 0.037895 | -0.065473 | 0.9486 |
| DLOG(RGDP(-1)) | 0.395312 | 0.715149 | 0.552769 | 0.5876 |
| DLOG(RGDP(-2)) | -0.324589 | 0.294268 | -1.103039 | 0.2854 |
| DLOG(RGDP(-3)) | 0.033502 | 0.201379 | 0.166362 | 0.8698 |

The null hypothesis of no serial correlation is accepted as the prob. Value of observed R –squared (0.2095) is greater than 0.05 levels of significance. Thus, there is no serial correlation.

**Table 7: Test for Heroscedasticity**
Heteroskedasticity Test: Breusch-Pagan-Godfrey

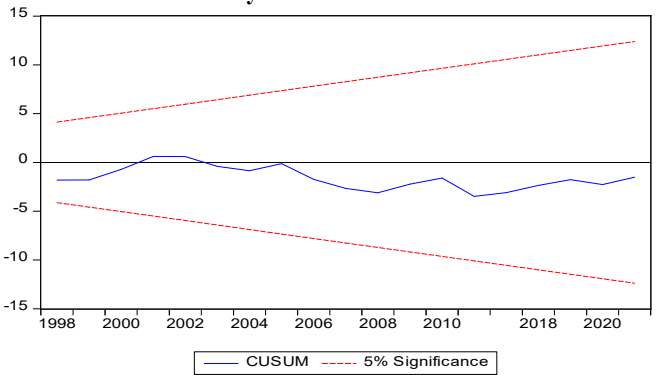
| | | | |
|---|---|---|---|
| F-statistic | 0.441822 | Prob. F(12,19) | 0.9248 |
| Obs*R-squared | 6.981347 | Prob. Chi-Square(12) | 0.8588 |
| Scaled explained SS | 4.787773 | Prob. Chi-Square(12) | 0.9647 |

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 10/13/22 Time: 00:23
Sample: 1985 2021
Included observations: 32

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 0.000336 | 0.000920 | 0.364646 | 0.7194 |
| DLOG(RGDP(-1)) | -0.007492 | 0.009336 | -0.802449 | 0.4322 |
| DLOG(RGDP(-2)) | 0.005941 | 0.007548 | 0.787021 | 0.4410 |
| DLOG(RGDP(-3)) | -0.001845 | 0.006871 | -0.268491 | 0.7912 |
| DLOG(AGCRF) | -0.000871 | 0.000732 | -1.190636 | 0.2485 |
| DLOG(AGCRF(-1)) | 0.000137 | 0.000972 | 0.140720 | 0.8896 |
| DLOG(AGCRF(-2)) | 0.000265 | 0.000885 | 0.299355 | 0.7679 |

The null hypothesis of homoscedasticity is accepted as the prob. Value of observed R –squared (0.8588) is greater than 0.05 levels of significance. Thus, there is no heteroscedsticity.

**Test for Model Stability**




The model is stable as it is within the 5% upper and lower boundaries**.**

## Conclusion and Recommendations

### 5.1 Conclusion

Agricultural sector being the main link to other productive sectors as the source of raw materials, foreign earnings and source of food to the teeming population. The results from the study showed that government expenditure on agriculture had significant and positive impact on economic growth of Nigeria from 1981-2021. The findings also revealed that 71.3 percent of our economic growth is attributed to government expenditure on agriculture. Investing on agriculture via government expenditure would improve the GDP of the country. Therefore, it can be concluded that agricultural expenditure attributed to 71.3 per cent variation to economic growth of Nigeria.

### 5.2 Policy Implications of the Findings

Historically, agriculture was the mainstay of the economy as it was the major foreign exchange earner of Nigeria and provider of jobs and food to sustain her large population. The findings from the current study also affirmed that agriculture accounts for 71.3 per cent economy growth in the Nigeria. According to Olayemi (1998) agricultural development strategies that have been adopted in the country can be categorized into the exploitative strategies, the agricultural project strategy, the direct government production strategy and the integrated rural development strategy.

### Exploitative strategy

The Nigerian Government during the colonial period and early years of independence adopted this strategy for agricultural development. In the 1950s the traditional economists observed agricultural sector as a residual, subsistence sector made up of peasant farmers. Myint (1958) in his "Vent-for-surplus" theory particularly categorized a developing economy as consisting of a "modern sector" that is largely non-agricultural and a "subsistence sector" that is agricultural. The subsistence sector that is perceived to be unproductive but full of under-utilized resources is expected to feed the modern sectors. As such, the subsistence sector was expected to be taxed to finance the modern sector. This essentially was the basis of the agricultural strategy in the 1950s and the 1960s in Nigeria with levies on export crops providing revenue for government to develop the modern sector (Adubi 2004).

### 3 Recommendations

Based on the findings of this study, it can be recommended that, government should evolve policies toward diversifying the economy and encourage the campaign for improvements in the non-oil sectors of the economy especially spending more on the agricultural sector. This study would provide useful guidance to potential and prospective investors to be fully guided on how to make appropriate investment decisions that pertains to investment horizons for better returns and improvement on their worth. More so, government should be more proactive in insisting on the private sector especially, the financial sector to set aside funds annually for agricultural financing to compliment government efforts, as well as make efforts through its agencies to enlighten farmers of the availability of such credit facilities.

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