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ROLES OF GOVERNMENT EXPENDITURE IN TRANSFORMING AGRICULTURAL OUTPUT IN NIGERIA

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Abstract

This study investigates the roles of government expenditure in transforming agricultural output in Nigeria from 1981 to 2024. The objectives of the study were to examine the roles of government expenditure in transforming agricultural output, the source of data for this study is from secondary sources mainly from the Central Bank of Nigeria Statistical Bulletin and World Bank Database. The analyses involved the descriptive statistics, graph and trend analysis, this study employs the Augmented Dickey-Fuller test to determine the series stationarity and the ARDL Bound test co-integration was used to test for the long run relationship between the variables. The regression result revealed that government expenditure has a positive and a significant impact on Agricultural output in the long run and short run which implies that an increase in government expenditure increases the output of the agricultural sector in Nigeria. The implications of these findings extend to policymakers and the government to establish strategic approaches and adequate policy interventions needed to achieve the desired agricultural outcomes in Nigeria.

Keywords: Government Expenditure, Agricultural output, Nigeria, ARDL.

1. Introduction

Agriculture remains the backbone of Nigeria's economy, employing over 40% of the workforce, contributing significantly to GDP and a base for inter-sectorial linkage (NBS,

2023). However, its potential remains largely untapped, with debates surrounding the effectiveness of government expenditure in expanding the sector's output. Overtime, Nigeria followed oil-driven economic policies, neglecting agriculture which has predominantly been a source of livelihood and income to a major percentage of the population. Despite low budgetary allocations, Christopher, Abdu and Batiyak (2023) identified a positive correlation between agricultural output and expenditure in the 1990s, highlighting an erratic and insufficient allocation of funds, hindering sustained growth. Agbaeze, Amujiri and Okoye (2015) argue that dependence on oil revenue led to inconsistent investments in agriculture, hindering long-term planning and infrastructure development. This limited the sector's ability to withstand external shocks, as evidenced by the decline in agricultural output during the 2008/2009 global financial crisis (NBS, 2010).

Government expenditure represents both the current and capital expenditure incurred in the running of the economic activities and the transformation of various sectors in the economy. The level of spending can be attributed to the sources of revenue and the performance of the vibrant sectors in the country, Nigeria as a whole significantly allot her revenue through the annual budgetary allocation cutting across various sectors. Although, the expended government expenditure has not actualized the desired positive impact on the agricultural output and in the economy at large, notwithstanding the various implementations, institutions and policies introduced into the system and this can be linked with the intermediaries between the government and the agricultural sector (Oluleye, 2019).

In recent years, the governments have seen renewed emphasis on diversifying the economy and boosting agriculture sector, with the adoption of initiatives like the Anchor Borrowers'

Programme (ABP) which aims to increase production and reduce reliance on imports, however Awoyemi, Abegunde & Adewuyi (2022) highlights the possible implementation challenges and long-term sustainability due to the distribution of government spending. The government contribution to the agricultural sector in Nigeria is significantly low as compared to other developing countries like Kenya (6%), Brazil (18%) and the 10% allocation goal set by African Leaders Forum, under the Comprehensive Africa Agricultural Development Programme (CAADP). The nexus between government expenditure and agricultural sector output could be linked to the second goal of the Sustainable Development Goals (SDG) targets "End hunger, achieve food security, improved nutrition and promote sustainable agriculture" which is to build resilient and sustainable agricultural sector (Latief & Zhang, 2023).

Notwithstanding, the diverse conclusions from the extant researchers in respect to the effect of government expenditure on agricultural output in Nigeria, a comprehensive investigation to study the intrinsic relationship between government expenditure and agricultural output in Nigeria will be carried out in order to contribute towards achieving better agricultural outcomes (output). This study can extensively achieve the objective of capturing the effect of government expenditure in transforming agricultural output in Nigeria from 1990 to 2024.

2. Literature Review

Wagner postulates the relationship between public expenditure and the growth of an economy, the theory highlights public expenditure as an endogenous factor such that causality runs from national income to government expenditure, as the per capita income rise the share of public sector in national output rises.

Wagner posits that as an economy grows and develops, there is a tendency for public expenditure which is income-elastic to increase both in absolute terms and as a percentage of Gross Domestic Product (GDP), this is driven by various factors such as increased demand for public goods and services. The theory highlights Social and Political Factors as major influencer of country's public expenditure, as societies become wealthier and more complex, there is often a greater demand for government intervention to address social inequalities, provide public goods, and maintain law and order. Wagner's Law has been used to explain the growth of the welfare state in many industrialized countries as economies develop and income levels rise, there is a greater expectation for governments to provide agricultural, healthcare, education, and other welfare services to ensure a certain development in the sectors of the economy (Ibrahim, Mubarak &Adewinle, 2020).

2.1 Empirical Review

Empirical studies on the relationship between government expenditure and agricultural output have produced mixed results across different economies. While some studies suggest a positive and significant impact, others highlight an insignificant or even negative relationship. This section reviews existing literature that empirically examines the role of government spending in transforming agricultural productivity, particularly within Nigeria and other countries. The studies reviewed employ various econometric techniques, including the Ordinary Least Squares (OLS), Vector Error Correction Mechanism (VECM), Auto-Regressive Distributed Lag (ARDL) and Johansen Co-integration tests, to analyze both short-run and long-run effects. By synthesizing these findings, this review provides insight into the

effectiveness of government expenditure as a tool for enhancing agricultural output and economic growth.

Utilizing the Ordinary Least Square methodology, Ukpong, Uduak & Akpan (2022) investigated the impact of government spending on agricultural output using time series data from 1990 to 2020 in Nigeria. Their findings revealed that government expenditure insignificantly impacts the output of the agricultural sector in the period under review. The study also recommended the intervention of the government in strengthening the banking sector to further expand the credit base.

Adetule & Olakunle (2022) examined the linkage between government expenditure and agricultural sector output in Nigeria from 1986 to 2019. The study adopting the Granger causality test to examine the causal relationship between the variables agricultural output, agricultural exports, agricultural employment, government expenditure, capital, trade openness, foreign direct investment and interest rates, the study found that government expenditure has no causal relationship with agricultural output and exports.

Nuhu, Onuoha & Dalyop (2022) evaluated the nexus between government expenditure and agricultural output in Nigeria for the period 1981 to 2019. The study applied the Auto Regressive Distributed Lag (ARDL) co-integration test to establish the short and long dynamics, the result of the test revealed that the government capital and recurrent expenditure exerts an insignificant effect on the output from the agricultural sector.

Haruna (2022) analyzed the impact of government expenditure on agricultural and economic growth spanning from 1980 to 2019. The Johansen co-integration test and Vector Error

Correction Mechanism was employed in analyzing the effects of government expenditure on the agricultural sector and the economy at large. The result obtained showed that government expenditure positively influences economic growth and agricultural output has a positive and significant impact with Economic Growth.

The result of the Ordinary Least Square Approach and annual time series data from 1990 to 2020 adopted by Okpala, Nwaolisa & Chijindu (2022), in order to determine the influence of government expenditure on agricultural sector output in Nigeria, revealed that the agricultural credit scheme positively influence agricultural output while government expenditure insignificantly influence agricultural output.

Keji & Efuntade (2021) adopted the Auto Regressive Distributed Lag in examining government expenditure in Nigeria from 1981 to 2018. The study extensively revealed that government expenditure exhibits a positive and significant relationship with agricultural output growth in Nigeria in the long run whilst in the short run government expenditure was found insignificant.

Okeke & Okeke (2022) evaluated the macroeconomic variables influencing agricultural output in Nigeria from 1995 to 2020. The macroeconomic variables under study were tested using the Augmented Dickey Fuller test. The Johansen Co-integration technique and the Ordinary Least Square analysis were employed and the outcome of the analysis showed that money supply, exchange rate and inflation were positively related with agricultural output while commercial bank loan on agriculture, interest rate and recurrent government expenditure on agriculture were negatively related.

3. Methodology

3.1 Model Specification

To ascertain the role of government expenditure in transforming agricultural output sector performance in Nigeria, the mathematical and economic relationship between agricultural sector output, government expenditure and other explanatory variables.

The extended and modified form of Keji &Efuntade's study on "Agricultural output and government expenditure in Nigeria" will be implemented so that Agricultural output depends on government expenditure and the other relevant control variables.

Thus, the model is specified as;

$$Ago = f(gxp, pop, cpi, exr)$$

Assuming a linear relationship exists among these variables the equation is expressed as:

Ago= $\beta_0 + \beta_1 gxp + \beta_2 pop + \beta_3 cpi + \beta_4 exr + \mu$

Where: Ago= Agricultural Sector Output contribution to GDP

Gxp= Government Total Expenditure

Pop= Population Growth Rate

Cpi= Consumer Price Index

Exr= Exchange Rate

μ= Stochastic error term

β_0 =Coefficient of the independent variables

3.2 Sources of Data

The annual time series data gathered for this study is primarily from secondary sources, namely; the Central Bank of Nigeria (CBN) Statistical Bulletin and the World Bank Data base. The study extensively covers the study from 1990- 2024 covering the period of 34 years. The data for the Agricultural sector output (AGO), Government Expenditure (GXP), Exchange Rate (EXC) and Consumer Price Index (CPI) proxy for inflation rate were obtained from the Central Bank of Nigeria Statistical Bulletin. The data for Population Growth rate (POP) was obtained from the World Bank Database.

4. Results and Discussion

4.1 Descriptive Statistics

The statistical description of the variables used in the study is highly important to prevent the possible problems associated with time series data. With a view to examining the roles of government spending in transforming Agricultural output in Nigeria, it is important to consider the descriptive statistics prior to analysis of time series data to overcome the problem of multicolinearity among the independent variables which can lead to spurious regression. Table 4.1provides the descriptive statistics of the data series employed in the study. For all the variables, the mean and median values lie within their maximum and minimum values showing a good level of consistency.

Table 4.1 Descriptive Statistics Summary

	LAOUTPUT	LGXP	EXR	CPI	POP
Mean	8.824091	6.422591	115.6556	18.94662	1.35E+08
Median	8.743078	6.925681	114.8990	12.94178	1.28E+08
Maximum	9.856976	10.10362	425.9792	72.83550	2.19E+08
Minimum	7.742187	2.265558	0.617708	5.388008	75175387
Std. Dev.	0.736539	2.444989	119.1827	16.45496	43034182
Skewness	0.031427	-0.352964	1.025345	1.877082	0.376637
Kurtosis	1.424274	1.862022	3.230143	5.437063	1.921600
Jarque-Bera	4.352012	3.138328	7.452019	35.05778	3.028146
Probability	0.113494	0.208219	0.024089	0.000000	0.220012
Sum	370.6118	269.7488	4857.537	795.7582	5.67E+09
Sum Sq. Dev.	22.24207	245.0969	582385.6	11101.40	7.59E+16
Observations	42	42	42	42	42

Source: Author's computation (2025)

The standard deviation measures the degree of dispersion of the series, the log of agricultural output is the least volatile variable with standard deviation of 0.73 while the population growth rate is the most volatile with of standard deviation 430. The skewness value of all the variables are positive which shows that the variable is positively skewed while the skewness value of the log of government expenditure is negative, which implies that the variable is negatively skewed. The Kurtosis values of all the variables except from exchange rate and

consumer price index are playtykurtic because their kurtosis values are less than 3 which implies that these variables will have a lower value below the sample mean. However, exchange rate and consumer price index kurtosis value show that the variable is leptokurtic (peaked) relative to normal distribution. The Jarque-Bera statistics accepted the null hypothesis of normal distribution because the probability value of the variables exceeds 5% significance level.

4.2 Correlation Analysis

The correlation result shows the degree of association among the variables. The result revealed that all the variables have a positive relationship with the dependent variable and are highly correlated asides from the consumer price index (CPI) which has a negative relationship.

Table 4.2 Correlation Matrix

VARIABLE	LAOUTPUT	LGXP	EXR	CPI	POP
LAOUTPUT	1				
LGXP	0.9624	1			
EXR	0.8939	0.8736	1		
CPI	-0.3401	-0.2850	-0.2895	1	
POP	0.9754	0.9554	0.9537	-0.3055	1

Source: Author's computation (2025)

4.3 Unit Roots Test

The stationarity test is also known as the unit's root test, used to check the level of integration of time series data. It is a precondition for conducting regression analysis. For instance, the Autoregressive distributed lagged (ARDL) technique is employed if the level of integration of the time series variables are integrated of order zero (I (0)) and one (I (1)).

Table 4.3Unit Root Test

Variable	T. Statistics	Prob. Value	T. statistics	Prob. Value.
LAOUTPUT	**-1.7003**	**0.7331**	**-5.9796**	**0.0001**
LGXP	**-1.1326**	**0.9105**	**-7.6965**	**0.000**
EXR	**-0.0963**	**0.9962**	**-4.7974**	**0.0021**
CPI	**-4.1301**	**0.0121**	**-10.8289**	**0.0000**
POP	**-0.9272**	**0.9424**	**-3.3887**	**0.0673**

Source: Author's computation (2025)

4.4 Optimal lag length criteria

From the table below, the optimal lag length of 3 was selected based on the AIC and HQ criterion.**Table 4.4 Optimal Lag Criteria**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1108.173	NA	4.26e+18	57.08581	57.29909	57.16233
1	-743.8427	616.5594	1.20e+11	39.68424	40.96390*	40.14337
2	-701.1258	61.33709	5.15e+10	38.77568	41.12173	39.61742
3	-659.1804	49.47402*	2.58e+10*	37.90669*	41.31912	39.13104*

Source: Author's computation (2025)

Note: * indicates lag order selected by the criterion.

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

4.5 ARDL Bound Test

The Bounds Testing co-integration test result in Table 4.5, represents the second order or sufficient condition for employing the ARDL methodology.

Table4.5 ARDL Bound Test Co-integration Regression Result

F-Bounds Test		**Null Hypothesis: No levels relationship**		
Test Statistic	**Value**	**Signif.**	**I(0)**	**I(1)**
F-statistic	24.69847	10%	2.68	3.53
K	4	5%	3.05	3.97
		2.5%	3.4	4.36

Source: Author's computation (2025)

The bounds test co-integration test result presented above reveals that the variables in the ARDL regression model are co-integrated in the long-run. This is because the value of the F-statistic (24.6) is greater than the values of the lower (3.05) and upper (3.97) bounds at 5 percent levels of significance. Therefore, we reject the null hypothesis which states that there is no levels relationship; and accept the alternative hypothesis that levels relationship exists among the variables in the regression model.

4.6 Autoregressive Distributed Lagged (ARDL) Regression Result

Table 4.6.1 Long Run Parameter Estimate

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGXP	0.400581	0.045590	-8.786567	0.0000
EXR	0.002806	0.000355	7.909217	0.0000
CPI	0.000202	0.000429	0.470868	0.6418
POP	-4.67E-08	4.50E-09	-10.37270	0.0000
@TREND	0.234549	0.024411	9.608411	0.0000

Source: Author's computation (2025)

4.6.2 ARDL ECM Analysis (Short-Run Dynamic Model)

Variable	Coeff.	Std. Error	t-Statistic	Prob.
C	8.747529	0.647951	13.50030	0.0000
D(LGXP)	-0.102442	0.024722	-4.143794	0.0003
D(LGXP(-1))	0.085755	0.022810	3.759453	0.0009
D(LGXP(-2))	-0.075645	0.021600	-3.502125	0.0018
D(EXR)	0.000227	0.000273	0.829395	0.4147
D(EXR(-1))	-0.002389	0.000307	-7.778734	0.0000
D(EXR(-2))	-0.002294	0.000350	-6.554054	0.0000
D(POP)	4.33E-07	3.35E-08	12.93688	0.0000
CointEq(-1)*	-0.809912	0.060735	-13.33525	0.0000

Source: Author's computation (2025)

The result in the table above shows that the log of Government expenditure has a positive and a significant effect on Agricultural output, hence this indicates that 4% increase in Government expenditure will lead to an increase of 0.4% in Agricultural productivity in the long run. This shows that increases in the government spending will provide the expected effect on the agricultural sector overall performance in the economy.

Exchange rate and the consumer price index has a positive and a significant and insignificant relationship with Agricultural productivity respectively such that a 1% increase in the rate of exchange within the economy will adversely increase the agricultural output by .002% while the rate of inflation on the other hand has no significant effect on the economy in the long run. The population growth rate has a significant and a negative relationship with economic growth, which indicates that a 1% increase in agricultural output can be attributed to a decline of about 4% in the population growth rate in the economy in the long run.

The ARDL short-run regression result reveals that the current and second lagged impacts of Government expenditure on current levels of agricultural sector output were negative. However, the first lagged impact was found to be positive and significant at 5 percent level, which implies that the level or rate of Government expenditure on the agricultural sector in the previous year (s) exert negative and positive impacts on the current level of agricultural development in the Nigeria. This implies that a unit increase in the government spending, increases the agricultural sector development by 0.08 units, holding other variables constant.

Similarly, it can be observed that the impact of current values of exchange rate on agricultural sector output is positive and significant at 5 percent levels while the past lags of exchange rate on current levels of agricultural sector output were negative. The negative impact observed from the exchange rate is not in line the with economic principles such that a depreciation of the Nigerian Naira as against the United States Dollar, would automatically increase the cost of exchanging the agricultural produce in the country. The current value of the population growth rate exerts a positive effect on the agricultural output in the short run.

Importantly, the error correction term is -0.809, and the result is statistically significant at 5 percent level. This means that annually about 8.0 percent of errors or disequilibrium in the model will be cleared or adjusted. Besides the above, it can be observed that the adjusted R-squared is 0.88 which implies that approximately 88 percent of variations in the dependent variable is explained by variables in the model. Likewise, the value of the Durbin-Watson statistic is 2.14 which implies that there is absence of serial and auto regression within the regression model. Drawing from the above, it can be claimed that the model is of good-fit and free from time series econometric problems as such the regression result can be used for both policy implication and forecasting economic policies.

5. Conclusion and Recommendations

5.1 Conclusion

The findings on the roles of government spending in transforming agricultural sector output in Nigeria, therefore results in the following conclusion:

Based on the descriptive analysis of the data series conducted, this study concludes that there is a good level of consistency in the data series employed for this study. The data set used in the study are consistent as depicted in the descriptive statistic where the hypothesis of normal distribution is rejected for the data set which is tenable in reality. Given the estimation results, the study concludes that Government spending positively influences the agricultural sector output, which indicates that an increase in the government spending increases the productivity of the agricultural sector in Nigeria. This confirms the relationship between Government spending and the agricultural sector output observed in this study. Exchange rate was found to be positively related in the long run whilst population growth rate

negatively relates with the output of the agricultural sector, however, its impact is mixed in the short run.

5.2 Recommendations

The findings of this study have a number of policy implications on the economy at large. In line with the findings and the conclusions drawn from this study, the following recommendations are made is that the total allocation to the sector is increased to about 15% of the annual governmental budget and that the government spending specifically allotted to the agricultural sector should be supervised and followed up closely such that the funds are directed to the right cause such as provision of fertilizers, advanced machineries and farming techniques because the output from the sector will provide a means of sustenance and food security. Diversification of the economy to the non-oil sectors such that more efforts should be geared towards the improvements of non-oil sectors in which the agricultural sector is inclusive

The governments should ensure the participation of private organizations most particularly the financial and manufacturing sector in terms of credit availability and the procurement of agricultural domestic produce in the industries which will in turn advance the agricultural sector extensively and equally augment the governmental efforts. The agriculturalists should be informed and educated on the availability and the importance of agricultural credit facilities, schemes and farmers cooperatives association all created primarily for providing and granting the farmers access to unlimited loans and credit options which will enhance each farmers' productivity and the agricultural sector as a whole. The government should equally create more economic reforms, aid the integration of the farmers into the agricultural

value chains, favorable agricultural policies, robust funding and the provision of agricultural produce boosters such as fertilizers and irrigation facilities towards an overall agricultural development and an advanced agricultural system as a whole.

The Nigerian government should effect changes on the overvalued currency which has brought about irregular pricing of the agricultural produce and has discouraged the engagement of the youth in the agricultural system creating a reduction in farm labor, therefore appropriate pricing policies and effective exchange rate policies to balance the overvalued currency should be incorporated. Youth empowerment programs and support should be embraced to further impress the youth which makes up the larger population of the country to participate and engage in the development of the sector and the economy at large.

References

Adetule, A., & Olakunle, O. (2022). Government Expenditure and Agricultural Performance in Nigeria: A Test for Causality. *Asian Basic and Applied Research Journal*, 4(1), 236–245

Agbana, E. &Ebisine, L. (2022). Government Expenditure on Agriculture and Economic Growth in Nigeria. *Journal of Good Governance and Sustainable Development in Africa*, 7(2), 47-60.

Agbaeze, C. C., Amujiri, M. O., & Okoye, C. U. (2015). Government expenditure and agricultural development in Nigeria: An empirical analysis. *International Journal of Social Science and Economics Research,* 3(4), 1545-1557.

Haruna, F. (2022). An Analysis of Impact of Government Expenditure on Agricultural Development and Economic Growth in Nigeria: An Empirical Investigation (1980-2019).

IOSR Journal of Economics and Finance (IOSR-JEF), 13(01); 28-34.

Ibrahim, N. & Mubarak, S. &Adewinle, F. (2020). Relationship between growth and expenditure:

An examination of Wagner's Law in Nigeria. EPRA *International Journal of Economic Growth and Environmental Issues,* 9(1).

Latief, R. & Zhang, L. (2023). Nexus between government agricultural expenditures and agricultural credit: The role of sustainable agricultural growth and sustainable agricultural income. *Sustainable Development*, 13.

National Bureau of Statistics (NBS). (2010). Annual Abstract of Statistics, 2010.

National Bureau of Statistics (NBS). (2023). Labour Force Statistics: Unemployment and Underemployment Report Q3 2022.

Nuhu, N., Onuoha, J. &Dalyop, G. (2022). Impact of Government Expenditure on Agricultural Output in Nigeria (1981-2019). International Journal of Advanced Research in Social Sciences, Environmental Studies, 7(2).

Okeke, D. & Okeke, R. (2022). Investigating the Effect of Macroeconomic Variables on Agricultural Output in Nigeria. Asian *Journal of Research in Agriculture and Forestry*, 8(2), 41-48.

Okpala, C. Nwaolisa, E. &Chijindu, A. (2022). Agricultural Credit Guarantee Scheme Fund, Government Expenditure on Agriculture and Agricultural Output in Nigeria 1990–2020. *International Journal Res Innovation Soc Sci* (IJRISS), 6, 859-867.

Oluleye, F. & Toba, B. (2018). Public and private investments and agricultural sector performance in Nigeria, 1981-2016.

Oluleye, F. (2019). Effects of sectoral public expenditure on Economic Growth in Nigeria. *East*

African Scholars *Journal of Economics, Business and Management*, 2 (3).