# IMPACT OF PUBLIC SECTOR SPENDING AND CORRUPTION ON ECONOMIC GROWTH IN NIGERIA

Hyellafiya Caleb
Department of General Studies,
Federal Polytechnic Kaltungo,
Gombe State, Nigeria
+234(0)7033535596
hyellafiyacalebharis@gmail.com

Mustapha Yusuf Kabara
Department of Economics and Development Studies,
Federal University of Kashere,
Gombe State, Nigeria.
+234(0)8064392331
yusufmustapha88@gmail.com

Ali Madina Dankumo
Department of Economics and Development Studies,
Federal University of Kashere,
Gombe State, Nigeria.
+234(0)8038368681
kumotito@yahoo.co.nz

***Corresponding author:***
Hyellafiya Caleb
Department of General Studies,
Federal Polytechnic Kaltungo,
Gombe State, Nigeria
+234(0)7033535596
hyellafiyacalebharis@gmail.com

## ABSTRACT

*This study examined the impact of public sector spending on economic growth in Nigeria from 1996 to 2022, employing the Autoregressive Distributed Lag (ARDL) model as the estimation technique. The findings revealed that, in the long run, government expenditure on education and health, foreign direct investment (FDI), and trade openness positively impact economic growth, while corruption negatively affects it. These results suggest that increased government spending on education and health enhances economic growth, whereas corruption hinders it. Therefore, it is recommended that the Nigerian government increase funding for the education and health sectors while intensifying efforts to combat corruption to prevent financial leakages that could otherwise contribute to economic growth.*

***Keywords:*** *Corruption, Education, Economic Growth, Government Expenditure, Health, Public Sector*

## Background to the Study

Public expenditure has served as a common means of using fiscal policy in many countries to achieve economic growth, expansion, development and transformation of the economic base. Musgrave (1989), described public expenditure as tool used to achieve three distinct objectives which include allocation, distributive and stabilization purposes. Government spending or public expenditure includes all government consumption, investment, and transfer payments (Sholokhov, 2022).

Government expenditure is an important instrument utilized in the process of development. It plays a pivotal role in the functioning of any economy at almost all stages of growth and development. Most developing countries and developed countries today use public expenditure to improve income distribution, direct the allocation of resources in desired areas, and influence the composition of national income (Udonwa & Effiong, 2023; Vtyurina, 2020; World Bank, 2008). In most developing countries, the variation in government spending pattern is not only projected to guarantee stabilization but also to spur economic growth and expand employment opportunities (Swaroop, 2016).

Public expenditures, aimed at infrastructure development for long-term benefits, and are subject to the detrimental impact of corruption. Despite the


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good intentions of these investments, corruption can impede their effectiveness and lead to adverse consequences. The misallocation or embezzlement of funds allocated for capital projects can result in incomplete or substandard infrastructure, undermining the creation of lasting assets and diminishing the potential for future dividends (Udonwa & Effiong, 2023). It is now official, the judiciary is the most corrupt institution; judges now are the biggest bribe takers in Nigeria as a result those engaged in corruption buy their ways by bribing the judges in order to go scot free (NBS, UN Report 2024). According to a recent survey conducted and published by the National Bureau of Statistics (NBS) in collaboration with United Nations office of Drugs and Crime (UNODC) Nigerian public officials received N721 billions in cash bribes in 2023 and judges topped the list of recipient (UN Report, July, 2024). This is a very bad reputation on Nigerian's judiciary which is considered the last hope for the common poor man, hence continuous increase in the rate of corruption.

Corruption is a global problem, and no country of the world is totally free of its menacing grip, it has been seen as a structural problem of political, economic, cultural and an individual's malaise (Asom & Ijirshar 2017). It has affected many countries all over the world, especially developing countries (Nageri, et al., 2013). According Dankumo, et al., (2019) corruption in the public sector often exacerbates conditions of poverty (low income, poor healthcare and education status, bad roads, poor agricultural policies etc.) in countries that are already struggling with the strains of economic growth, democratic transition, and bad governance like Nigeria.

Lucas (1988) believes that public spending on education promote human capital, which in turn might contribute to economic growth. Romer (1990) highlighted the role of spending on research and development in economic growth. More specifically, in respect of the endogenous growth theory, spending on education and health is viewed as promoting human capital, which would lead to endogenous technical progress and thus accelerated economic growth. In accordance with this theoretical proposition, policymakers very often advocate increased spending on the education and health sectors as a stride to boost human capital. While public spending on education and health has been on a rise in Nigeria, corruption has also been a major issue in the economy. The problem of inefficient channeling of the funds to key areas in the economy as well as funds embezzlement have distorted the pace of economic growth in Nigeria (World Bank, 2016). In collaboration with Education for All (EFA) global monitoring report by UNESCO (2015), which stated that many governments have increased spending but few have prioritized education and health in national budget. Whether public spending on education and health can trigger economic growth amidst high level of corruption in Nigeria has propelled for this study.

Literature such as Omodero & Nwangwa (2020); Chandana et al (2021); Aberu & Lawal (2022), Eboh et al (2022); Ideh et al (2022) Ojoh & Ojo (2022) and Dankomu et al (2024) have studied impact of government expenditure on education and health on the general performance of Nigerian economy without observing the effect of corruption.

Consequently, this study examined the impact of public expenditure on education and health and corruption on economic growth in Nigeria. This study will be relevant to government policymakers in formulating growth policies and reforms that can drive the economy through education and health.


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## Literature Review

The Keynesian theory of 1936 believes that expenditure can contribute positively to economic growth; Keynes discussed the relation between public expenditures and economic growth, he regarded public expenditures as an exogenous factor that can be utilized as a policy instrument to promote economic growth. From the Keynesian thought, public expenditure can contribute positively to economic growth. Hence, an increase in government consumption is likely to lead to an increase in employment, profitability, and investment through multiplier effects on aggregate demand. As a result, government expenditure augments the aggregate demand, which provokes an increased output depending on expenditure multipliers. Increase in the size of government expenditure is the surest and easiest way an economy can overcome recession. Government spending should be used as a policy tool or instrument for growth.

Looking at the impact of public sector spending and corruption on economic growth in Nigeria, as spending on public goods such as education, health and infrastructures etc increase, the economy of a country will also increase. Public spending can stimulate economic growth by increasing aggregate demand and creating jobs. It can help reduce unemployment by creating jobs and stimulating economic activity, spending can help stabilize the economy during times of economic downturn or uncertainty.

A Policy-Oriented Theory of Corruption was developed by Teveik, Albert and Charles in 1986, in explaining the role of government in fighting corruption. They state that despite corruption frequent occurrence, government involvement in corruption has suffered unexpectedly with its effect on the growth of the economy which needs serious investigation. The theory opines that the high level of corruption in any country whether developed or developing countries will not allow the country's economy to grow and that if the field of administrative corruption is to become more theoretical and less descriptive, it must develop a framework and methodology that will help to measure its effect on economic growth.

This policy-oriented theory of corruption and government spending highlights the importance of institutional strengthening transparency and accountability in reducing corruption and ensuring effective government spending.

## Empirical Review

Chandana et al. (2024), investigates the impact of Nigerian government expenditure on economic growth using time series data from 1970 - 2019. They employ Autoregressive Distributed Lag (ARDL) model. To ensure robustness of results, the study accounts for structural breaks in the unit root test and the co-integration analysis. They find out that capital expenditure has positive and significant impact on economic growth both in the short run and long run while recurrent expenditure does not have significant impact on economic growth both in the short run and long run.

Ridhwan et al., (2022) examined the effect of health on economic growth based on 719 estimates obtained from 64 studies from all over the world. The study find evidence of a publication bias towards a positive estimated effect of health on economic growth. After accounting for heterogeneity of the estimates, the show that health has a genuine positive effect on economic growth. Less developed countries seem to enjoy a higher


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effect of health on growth driven by the ongoing economic–demographic transition in those countries. The variation of the health effect on economic growth is also influenced by the available data, estimation procedure, model specification, publication channel, and country characteristics in each study. Studies that do not account for endogeneity seem to create an upward bias. Studies with more comprehensive variables seem to increase the estimated effect of health on growth. A higher number of years of compulsory education, longer working experience, and more favorable environmental conditions also increase the effect size. Overall, the results confirm the key role of the health factor in explaining economic growth across countries.

Tomy (2022) conduct a quantitative study using panel data from 175 countries from 2000 to 2020 to argue that corruption causes a distortion in public expenditure distribution by diverting valuable resources from social spending to military spending. Highly corrupt countries tend to spend a higher percentage of their GDP on the military, freeing up less of the finite resources for investment in education and healthcare. The study found out that corruption drives up military spending causing a crowding out of social spending.

Spyromitros and Panagiotidis (2022) examined the effect of corruption on economic performance of 83 developing countries in the period of 2012-2018 with AR (1) and FM-OLS data processing techniques. The study's empirical results show that corruption hinders the economic growth of those developing countries. Different levels of corruption impact economic growth in different regions; specifically in Latin American countries corruption impacts positively on economic growth or vice versa; in the other regions, it is negative. Finally, investment, human development, government growth and institutional quality play essential roles in economic growth.

Yerima et al., (2022) examined the impact of government expenditure on economic growth in Nigeria over the period of 1981 to 2019. Using Error Correction Model and Granger Causality Test. The study found out that government expenditure (GE) has 24 percent positive and insignificant impact on economic growth in Nigeria (t statistics (0.021831) < critical value (1.694). It implies that a percent increase in government capital expenditure results to 8 percent insignificant increase in economic growth in Nigeria and there is bilateral cause effect relationship between government expenditure and economic growth in Nigeria.

Ojo and Ojo (2022) examined Nigeria's health expenditure, education, and economic growth, spanning from 1981 to 2019 using principal component analysis (PCA) to calculate variables such as the education expenditure index and the health expenditure index, as well as other explanatory factors such as inflation, life expectancy rate, maternal mortality rate, and GDP growth. The study used an error correction model (ECM) as an estimating approach. According to the empirical data, government disbursement on education and health has a positive and considerable impact on economic growth and interaction. The results further demonstrate the absence of serial autocorrelation.

Tanko et al., (2024) examined the impact of government expenditure and corruption on human capital development in Nigeria over the period 1990 to 2019. The study used interaction model and applied Error Correction Model for the analysis. The results of the interaction model showed that with proper Control of Corruption in Nigeria, government expenditure will yield about 0.022375 percent significant increase in human capital development. The implication of this result is that control of corruption over government


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expenditure in Nigeria will positively influence on development of human capital in Nigeria and as such, government should continue to implement policies that will fight against misallocation of resources in order to improve human capital development in Nigeria. While existing studies looked at the impact of government expenditure and corruption on economic growth, researchers rarely explore how government expenditure on education, health expenditure and corruption affect economic growth in Nigeria in a single study.

In a recent study by Dankumo, et al. (2024) on the impact of interacted public expenditure and corruption on poverty in Sub Saharan Africa, they found that corruption sands the will of public expenditure's impact on reducing poverty in the SSA, through its impact on growth.

**Methodology**

The econometric method of analysis was employed to empirically examine the impact of public sector spending and corruption on economic growth in Nigeria. The study relied on secondary data obtained from different sources. Data on Real Gross Domestic Product (RGDP) proxy for economic growth), Government Education Expenditure (GEE), Government Health Expenditure (GHE), Foreign Direct Investment (FDI) and Trade Openness (TOP) were obtained from World Bank (2023), Corruption Perceptions Index (CRI) was obtained from Transparency International database (2022).

**Model Specification**

Based on the Keynesian theory of aggregate demand which held that economic growth is determined by consumption, investment and government expenditure which is specify:

$$Y = C + I + G \quad (1)$$

Where; Y is aggregate demand, C is consumption, I is the investment from the cooperate bodies (rms) and G is government expenditure. The study centered on government expenditure which could be on health or education. This study Adapted a model of Yerima et al (2022) who studied impact of government expenditure on economic growth in Nigeria, by modifying it and including Corruption (C), Foreign Direct Investment (FID) and Trade Openness (TOP) as explanatory variables to examine the impact of public sector spending and corruption on economic growth in Nigeria. This is because Foreign Direct Investment and Trade Openness are essential for Nigeria's economic growth and development. FDI create more employment opportunities, contribute to poverty reduction and diversify Nigeria's economy by reducing dependence on oil exports and promoting economic stability. Based on a study carried out by Abinabo and Abubakar (2023), Trade Openness has a positive effect on economic growth in Nigeria and Emeka (2024), FDI positively impacts Nigeria's economic growth by fostering capital formation and technology transfer.

The modified model is therefore specified as:

$$RGDP = f(GEE, GHE,\ CPI, FDI, TOP) \quad (2)$$

Where; RGDP is Real Gross Domestic product, GEE is Government Education Expenditure, GHE is Government Health Expenditures, CPI is Corruption Perception Index, FDI is Foreign Direct Investment (FDI) and TOP is Trade Openness. The stochastic form of the model is specified as:


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$$RGDP = b_0 + b_1 GEE + b_2 GHE + b_3 \text{CPI} + b_4 \text{FDI} + b_5 \text{TOP} + E_{1t} \quad (3)$$

$b_0$- Slope intercept , $b_1 b_2 b_3 b_4\ b_4$ ; Parameters to be estimated $E_t$ - Error Term (Stochastic variable)

A priori expectation; $b_1 b_2\ b_3\ b_4\ b_5 > 0$

**Method of Data Analysis**

This study used the Autoregressive Distributed Lag (ARDL) model for estimation, and the choice of ARDL is based on the mixed stationarity of the series. Though, ARDL is suitable even if variables exhibit different order of integration such as (I(0) and I(1). The ARDL methodology allows for the investigation of both immediate and prolonged dynamics within time series data.

Using the study variables, the Autoregressive Distributed Lag (ARDL) bound testing method to for cointegration was fitted as follows:

$$\text{GDP}_t = \alpha_0 + \alpha_1 \text{GDP}_{t-i} + \alpha_2 \text{GEE} + \alpha_3 GHE_{t-i} + \alpha_4 \text{CPI} + \sum_{i=0}^{p} \beta_1 \Delta \text{GDP}_{t-i} + \sum_{i=0}^{p} \beta_2 \Delta \text{GEE} + \sum_{i=0}^{p} \beta_3 \Delta GHE_{t-i} + \sum_{i=0}^{p} \beta_4 \Delta CPI_{t-i} + \varepsilon_t \quad (4)$$

$$\text{GDP}_t = \alpha_0 + \alpha_1 \text{GDP}_{t-i} + \alpha_2 \text{GEE} + \alpha_3 GHE_{t-i} + \alpha_4 \text{CPI} + \alpha_5 \text{FDI} + \alpha_6 TOP_{t-i} + \sum_{i=0}^{p} \beta_1 \Delta \text{GDP}_{t-i} + \sum_{i=0}^{p} \beta_2 \Delta \text{GEE} + \sum_{i=0}^{p} \beta_3 \Delta GHE_{t-i} + \sum_{i=0}^{p} \beta_4 \Delta CPI_{t-i} + \sum_{i=0}^{p} \beta_5 \Delta \text{FDI}_{t-i} + \sum_{i=0}^{p} \beta_6 \Delta \text{TOP}_{t-i} + +\varepsilon_t \quad (5)$$

Where $\beta_0$ symbolize a drift component, Δ is the First difference operator. $\beta_i$, $\alpha_i$ are parameter coefficients of the variables. $\varepsilon_t$ is white noise with zero mean. The terms with the summation signs (∑) above represent the error correction dynamics while the part of the equation with $\alpha_i$ corresponds to the long-run relationship

ARDL model Long run equation.

$$\text{GDP}_t = \beta_0 + \sum_{i=0}^{p} \beta_1 \Delta \text{GDP}_{t-i} + \sum_{i=0}^{p} \beta_2 \Delta \text{GEE} + \sum_{i=0}^{p} \beta_3 \Delta GHE_{t-i} + \sum_{i=0}^{p} \beta_4 \Delta CPI_{t-i} + \sum_{i=0}^{p} \beta_5 \Delta \text{FDI}_{t-i} + \sum_{i=0}^{p} \beta_6 \Delta \text{TOP}_{t-i} + \varepsilon_t \quad (6)$$

**Short-run ARDL Model Specification**

The Autoregressive Distributed Lag (ARDL) model, within a limited time frame, serves as a statistical framework utilized for the examination and comprehension of the associations among variables. Its primary emphasis lies in the representation of short-term dynamics and the reactions of variables to short-term alterations or disturbances. As a result, the error correction models are delineated based on this premise.

$$\text{GDP}_t = \alpha_0 + \alpha_1 \text{GDP}_{t-i} + \alpha_2 \text{GEE} + \alpha_3 GHE_{t-i} + \alpha_4 \text{CPI} + \alpha_5 \text{FDI} + \alpha_6 TOP_{t-i} + \varepsilon_t \quad (7)$$

$\alpha_0$ (s = 1, 2, …6.) are the parameters of the variables respectively.


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Δ - first difference operator.

Several diagnostic tests will be performed to ascertain the goodness of fit of the model. These tests include serial correlation (Langrangian Multiplier (LM), normality (Jarque-Bera) and Heteroskedasticity using ARCH. Furthermore, the technique known as cumulative (CUSUM) and cumulative sum of square (CUSUMSQ) will be used to check the stability of the model of the regression.

## RESULTS AND DISCUSSIONS

This section presents and discus the estimated result to achieve the stated objective. It considered descriptive statistics in other to ascertain the pattern of distribution followed by pre-estimation techniques before the presentation of the ARDL estimates. The reliability of the results in this section is affirmed using post estimation testes.

### Unit Root Tests Results

The unit root test was conducted to ascertain the stationarity of variables in the model before estimation. The Augmented Dicker-fuller (ADF) and Phillips-Perron (PP) unit root tests were used in this study to validate the stationary of the data. The ADF test result is presented in Table 1.

**Table 1: Unit Root Test Results**

| Variable | Level | 5% Critical Level | 1st Difference | 5% Critical Level | Order of Integration |
|---|---|---|---|---|---|
| **ADF Unit Root** | | | | | |
| GDP | -2.608099 | -2.981038 | -7.037262 | -2.986225 | I(1) |
| P-Value | 0.1042 | | 0.0000 | | |
| GEE | -0.373378 | -1.955020 | -3.015376 | -1.955020 | I(1) |
| P-Value | 0.5396 | | 0.0041 | | |
| GHE | -3.416079 | -2.981038 | -5.413444 | -2.991878 | I(0) |
| P-Value | 0.0237 | | 0.0002 | | |
| CPI | -0.956266 | -2.981038 | -5.457127 | -2.986225 | I(1) |
| P-Value | 0.7532 | | 0.0002 | | |
| FDI | -6.958303 | -2.986225 | -5.231966 | -3.612199 | I(0) |
| P-Value | 0.0000 | | 0.0016 | | |
| TOP | -0.718211 | -2.981038 | -5.300809 | 0.0002 | I(1) |
| P-Value | 0.8250 | | -2.986225 | | |
| **PP Unit Root** | | | | | |
| GDP | -2.623246 | -2.981038 | -7.140291 | -2.986225 | I(1) |
| P-Value | 0.1013 | | 0.0000 | | |
| GEE | -0.313813 | -1.954414 | -2.956504 | -1.955020 | I(1) |
| P-Value | 0.5626 | | 0.0048 | | |
| GHE | -4.821539 | -3.595026 | -6.703017 | -3.603202 | I(0) |
| P-Value | 0.0026 | | 0.0001 | | |


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| | | | | | |
|---|---|---|---|---|---|
| CPI | -0.910248 | -2.981038 | -5.457127 | -2.986225 | I(1) |
| P-Value | 0.7686 | | 0.0002 | | |
| FDI | -3.786246 | -2.981038 | -6.958303 | -2.986225 | I(0) |
| P-Value | 0.0086 | | 0.0000 | | |
| TOP | -0.718211 | -2.981038 | -5.300809 | -2.986225 | I(1) |
| P-Value | 0.8250 | | 0.0002 | | |

***Source: Extracts from Eviews 10***

The ADF unit root results in Table 1 showed different or mixed stationary of the study variables. Specifically, government health expenditure and Foreign Direct Investment are integrated at order zero or stationary without differencing (I(1)). In contrast, economic growth, government expenditure on education, corruption and trade openness became stationary at first difference or integrated at order one (I(1)). The study further confirmed the stationarity properties of the model variables using PP unit root test and the result reveals that the variables under the study have mixed order of stationarity or integration. The PP unit root result affirmed level integration for government expenditure on education and Foreign Direct Investment, suggesting that the variables are integrated of order zero (I(0)). While economic growth, government expenditure on education, corruption and trade openness are stationary at first difference or integrated of order one (I(1)). The mixed order of integration of the variables justifies the use of the ARDL model for data analysis. The ARDL technique is suitable in this context because it can accommodate variables with different orders of integration, providing a robust framework for examining the long run and short run effect among the variables. The study also conducted a correlation test to check if the model has the problem of multicollinearity as shown beneath.

**Table 2: Correlation Test**

| | GDP | GEE | GHE | CPI | FDI | TOP |
|---|---|---|---|---|---|---|
| GDP | 1 | | | | | |
| GEE | -0.113 | 1 | | | | |
| GHE | 0.335 | -0.621 | 1 | | | |
| CPI | -0.525 | 0.639 | -0.461 | 1 | | |
| FDI | 0.577 | -0.041 | 0.383 | -0.568 | 1 | |
| TOP | -0.266 | 0.016 | -0.334 | 0.693 | -0.194 | 1 |

***Source: Authors' Computation Using Eviews 10***

The diagonal of the matrix (from the top left to the bottom right) has values of 1 because it represents the correlation of each variable with itself. The value of 0.33, -0.52, 0.58, -0.62, 0.64, 0.46, 0.57, and 0.68 indicates moderate correlation. While the value of -0.11, 0.34, 0.27, 0.04, 0.01, 0.38, 0.33 and 0.19 suggest a weak correlation of variables in the model. The correlation results shows that the model values for all the variables are below 0.8(80%) which implies that estimated result is not expose to the problem of multicollinearity. This study used ARDL bound test to determine the existence of long-run interaction among the model variables. Thus, the bound test estimated output is presented in Table 3.


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**Table 3**: **ARDL bound test Result**

| Test Statistic | Value | Signif. | I(0) | I(1) |
|---|---|---|---|---|
| | | | Asymptotic : n=1000 | |
| **F-statistic** | 8.013613 | 10% | 2.68 | 3.53 |
| **K** | 5 | 5% | 3.05 | 3.97 |
| | | 1% | 3.81 | 4.92 |

***Source: Authors' Computation Using Eviews 10***

The ARDL bound test result in table 3 reveals the F-statistic value of 8.013613 and it is greater than the Pesaran upper and lower bound critical values of 3.97 and 3.05 at the 5% significance level. This implies the existence of long-run interaction among the variables included in the model. Furthermore, the upper bound critical value of the bound test at 5% level of statistical significance is 3.97 which surpasses the lower bound critical value of 3.05. This implies that the model variables are related in the long run therefore, the ARDL long-run coefficients are reliable for making inference. Due to the existence of long run interaction among the variables in the model, the study consequently considered the long run output as presented in Table 4

**Table 4: Long run Impact Estimates**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| GEE | 0.478503 | 0.184768 | 2.589748 | 0.0175 |
| GHE | 0.146900 | 0.067307 | 2.182540 | 0.0412 |
| CPI | -0.485855 | 0.119256 | -4.074055 | 0.0096 |
| FDI | 1.671282 | 0.986323 | 1.694457 | 0.1510 |
| TOP | 0.587220 | 0.223455 | 2.627906 | 0.0161 |

***Source: Authors' Computation Using Eviews 10***

The ARDL result in table 4 reveals that government expenditure on education has positive and significant impact on economic growth at 5% level of statistically significant. The output means that a percent increase in government expenditure on education increases economic growth in Nigeria by 47%. This implies that more educational spending result to greater benefit by improving economic growth which comes through human capital. This theoretical expectation was also affirmed by Lawanson and Umar (2020). Furthermore, the estimated result indicates that government health expenditure affects economic growth positively and the coefficient is statistically significant at 5% level. This signifies that economic growth in Nigeria improves by 14% due to increase in government health expenditure during the study period. The positive effect of government health expenditure on economic growth as discovered in the study is theoretically supported by Keynes aggregate output theory (Keynes 1936). It the result also agrees with the empirical findings of Ebhotemhen and Hezekiah (2021). However, the result contradicted the outcome of Olayiwola and Olusanya (2021) who revealed that government health expenditure does not improve economic growth. Contrarily to the above, the study shows that corruption has negative and significant impact on economic growth at 5% level of statistically significant. The result implies that as corruption increases by 1%, economic growth declines by


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48% during the study period. Thus, corruption is detrimental to the economic growth in the country. On the other hand, the impact of FDI on economic growth is positive but the coefficient is not statistically significant at 5% level. This means even though FDI improves economic growth but the impact is not substantial which could be align with unfavourable economic policies for foreign inflows. It implies that FDI is a tool that can facilitated economic growth but its contribution during the study period is weak. Similarly, the impact of openness of trade on economic growth is positive and the coefficient is significant at 5% level of statistically significance. The result signifies that a percent increase in openness of trade results to increase in economic growth by about 58%, suggesting the relevance of country interaction to economic improvement. The implication of the result is that interaction or openness of Nigerian economy is critical for its economic growth. The short run estimates estimated result for the impact of public sector spending and corruption on economic growth in Nigeria is contained in Table 5.

**Table 5: Short run ARDL Estimates**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -4.199773 | 0.470243 | -8.931077 | 0.0003 |
| D(GEE) | 0.077407 | 0.185898 | 0.416394 | 0.6820 |
| D(GHE) | 0.194431 | 0.068334 | 2.845285 | 0.0360 |
| D(CPI) | -0.067642 | 0.050241 | -1.346356 | 0.2360 |
| D(FDI) | -0.326453 | 0.389946 | -0.837175 | 0.4407 |
| D(TOP) | 0.685945 | 0.307978 | 2.227254 | 0.0376 |
| ECM(-1) | -0.169683 | 0.064635 | -2.625259 | 0.0162 |
| **R-squared** | 0.976157 | | | |
| **Adjusted R-squared** | 0.945161 | | | |

***Source: Authors' Computation Using Eviews 10***

The short run estimated coefficients reveal that government expenditure on education has positive impact on economic growth but the coefficient is not significant at 5% level of statistical significance. It insinuates that it may takes more time before expenditure on education will yield substantial influence on growth. The coefficient of government health expenditure is positive and statistically significance at 5% level of significance. The result could be interpreted as a 1% increase in government health expenditure leads to 19% increase in economic growth in the short run. This signifies the immediate influence of government health expenses in the economy. The impact of corruption on economic growth is negative but not significance at 5% level of statistical significance which suggests that the detrimental influence of corruption is not much noticeable within the shortest period. On the other hand, the coefficient of FDI is negative but not significance within the study period. This suggests that FDI has failed to assume a strong role in improving economic growth in Nigeria in the short run. In contrast, the impact of openness of trade on economic growth is positive and statistically significance at 5% level. It implies that a percent increase in openness of the Nigeria economy leads to immediate improvement in economic growth. That is to say openness of trade result to greater trade benefit to the Nigeria economy.

The error correction coefficient (ECM factor) in Table 5 is negative (-0.169) and statistically significant at 5%


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level. This implies that deviations in the model will be reverted or corrected back to the equilibrium with an adjusted speed of 16% within the shortest possible time. The study shows R-square value of 0.976 and the Adjusted R - square value of 0.945. The goodness of fit of the model as explained by adjusted R-square implies that 97% of variations in economic growth is explained by the independent variables in the model (government expenditure on education, government health expenditure, corruption, FDI and openness of trade). The explanatory power of the model as reveals by Adjusted R-square is 94% which shows the effectiveness and efficiency of the predictors.

The diagnostic tests for reliability checks are presented in Table 6.

**Table 6: Post Estimation Test Result**

| **Heteroskedasticity Test: Breusch-Pagan-Godfrey** | | | |
|---|---|---|---|
| F-statistic | 2.969692 | Prob. F(22,1) | 0.4324 |
| Obs*R-squared | 23.63819 | Prob. Chi-Square(22) | 0.3665 |
| Scaled explained SS | 0.019115 | Prob. Chi-Square(22) | 1.0000 |
| **Breusch-Godfrey Serial Correlation LM Test** | | | |
| F-statistic | 0.099578 | Prob. F(2,11) | 0.9060 |
| Obs*R-squared | 0.444580 | Prob. Chi-Square(2) | 0.8007 |
| **Ramsey RESET Test** | | | |
| | Value | Df | Probability |
| F-Statistics | 0.936661 | (3,10) | 0.5343 |

***Source: Authors' Computation Using Eviews 10***

The covariance between the error term and the explanatory variables indicated the absence of heteroskedasticity in the model, suggesting that the variables are homoscedastic. This is confirmed by the Breusch-Pagan-Godfrey probability values of 0.432 4and 0.3665 for both the F-statistic and the observed R-squared, which exceed the critical value of 0.05. Thus, there is no evidence of heterosckedasticity hence, existence of homoscedastic. The result of the residual serial correlation test in Table 6 further shows the probability value of 0.9060 for F-statistic and 0.8007 for Observed R-squared which indicates the absence of serial correlation due to the fact that the probability values are above 5% level of statistical significance. This suggests that the residuals are uncorrelated with one another, thereby affirming the reliability of the study's estimates.

This study further carried out Ramsey RESET Test to check for model specification error. The Ramsey error specification test reveals the F-statistic value of 0.936661 with the associated probability value of 0.5343 which is greater than 0.05 critical value. Thus, the null hypothesis which state that there are no omitted variable in the model was accepted, implying that the model was correctly specified. The stability of the estimated model was also ascertained using CUSUM (Cumulative Sum) and Cumulative Sum of Squares (CUSUMSQ) tests are employed to assess the stability and structural integrity of a model over time as seen in Figure 1 and 2 below.


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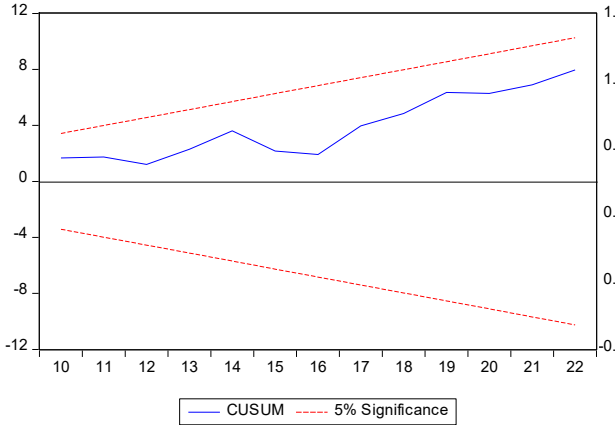


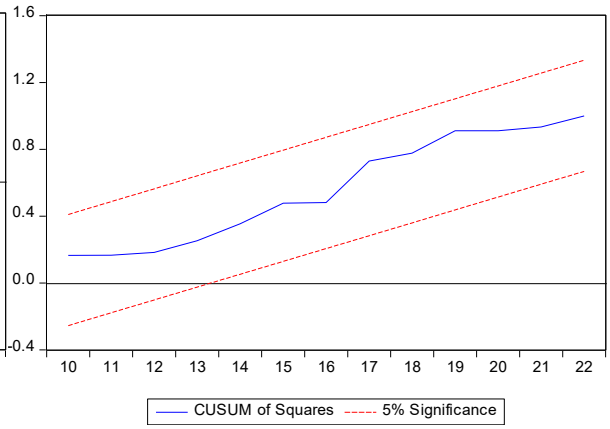


**Figure 1: CUSUM** **Figure 2: CUSUM of Square**

***Source: Authors' Computation Using Eviews 10***

Figure 1 reveals that the Cumulative Sum (CUSUM) aligns with the stability of the residuals as they have not drift away from the mean with passage of time. The CUSUM line graph lies between the two 0.05 critical lines which indicate that the model satisfied stability condition. Similarly, the graph of Cumulative Sum of Square (CUSUM of square) in Figure 2 indicates no incidence of instability in the model because the CUSUM of square line is within the significance region of 5%. The CUSUM of Square line graph lies between the two 0.05 critical lines which indicate that the model was correctly specified.

**Conclusion and Recommendations**

The study examined the impact of public sector spending and corruption on economic growth of Nigeria. The study covered a time period of twenty-six (26) years, spanning from 1996 to 2022. Utilising ARDL and Toda Yamamoto techniques, the study findings revealed that government expenditure on education and government health expenditure have positive impact on economic growth in Nigeria at 5% level of statistical significance. Contrarily, corruption affect economic growth negatively and the result is significant at 5% level of statistical significance. The study therefore concluded that government expenditure on education and government health expenditure improve economic growth, while corruption adversely affect economic growth in Nigeria.

The study recommends that due to the negative effect of corruption on economic growth amidst increase in government expenditure on education and health, the study advocate for the introduction of real-time monitoring systems for public financial management using digital tools to reduce corruption in Nigeria. This can be achieved by digitalizing government services or payments to reduce illegal use of resources. The study further recommend that Nigerian government should also prioritized spending in education and health as well as adopt strides of reducing corruption during planning and formulation economic policies given that these variables can predicts economic growth in the country.

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