

# INSTITUTIONAL FACTORS IN THE NEXUS BETWEEN PUBLIC EXPENDITURE AND ECONOMIC GROWTH IN NIGERIA

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## Abstract

*Despite the substantial budget outlay by the Nigerian government on capital and recurrent expenditure to reverse the trend of infrastructural decay, the rate of growth in the economy has not been commensurate with the quantum incurred in these areas. Rather than enhancing the economic growth as expected, the contrary is the case. This study investigates the effect of the quality of institutions on the link between public expenditure and the economic growth of the country. Secondary data sourced from Central Bank of Nigeria Statistical Bulletin (2020) and International Country Risk Guide (2017) was used for this study. The autoregressive distributed lag (ARDL) was applied to achieve the objective of the study. The results showed no long-run relationship between the gross domestic product growth rate, the proxy for economic growth, and other variables. The F-statistics value of 0.893 of the bound testing is lower than both the lower and the upper critical values at the benchmark of 5% significance level. In addition, although institutional factors do not follow a definite pattern and rather than complementing the positive impact of government expenditure on the economic growth of the country, the institutional factors constitute themselves as a drag on the growth effect which may have happened due to weak institutions which abet corruption and political interferences that culminate in weakening the efficacies of increasing public expenditure. It is therefore recommended that concerted efforts should be made by the relevant ministries, departments, and government agencies at improving the quality of institutional factors governing and characterizing economic growth and sustainable development in Nigeria.*

**Keywords:** Autoregressive Distributed Lag, Budget, Capital Expenditure, Institutional Factors and Recurrent Expenditure

## Introduction

Every government recognizes the importance of improving the living conditions of its citizens. From a capital point of view, this can be accomplished by increasing government spending, also referred to as public expenditure. This allows the government to have sufficient funds to support its capital expenditure, which will result in a rise in the nation's economic production. Governments today interfere in practically all economies to perform key responsibilities such as allocation, stability, distribution, and regulation, particularly where or when the market shows inefficient or the outcome is

socially unacceptable. The government also interferes, particularly in developing countries to achieve macroeconomic goals including economic growth and development, price stability, full employment, and poverty reduction (Usman, 2011).

Economists identify government spending as a means of limiting or boosting a country's economy. Increased government spending expands the economy by increasing economic activity, whereas reduced government expenditure reduces the economy by narrowing the inflationary gap, which can also reduce economic activity or production (Rosoui, 2015). Government expenditure simply refers to the total worth of all public sector goods and services. This type of expenditure is aimed at increasing economic growth and development, with the ultimate goal of transforming the country into an industrialized economy and raising people's living standards. The majority of government expenditure is divided into two categories: capital and recurrent. Government expenditure on capital projects such as roads, bridges, dams, energy, education, and health are classified as capital expenditures, whereas recurrent expenditures include government expenditures on administration such as wages, salaries, interest on loans, and upkeep (Obinna, 2003, Okoro, 2013). In recent years, the Nigerian government has increased spending to boost economic growth. Government capital expenditure has fluctuated throughout time, rising and falling. The amount spent on capital projects in 1984 was ₦4.1 billion, but by 1990 it had risen to ₦24.05 billion. The largest amount of economic growth occurred during this period, with 12.8 percent in 1990. Capital spending has been steadily increasing since 1991, rising from ₦28.34 billion in 1991 to ₦121.14 billion in 1995, ₦552.39 billion in 2006, and ₦1,152.80 billion in 2009; after which it became quite volatile, rising and falling until 2017 when it reached ₦979.50 billion (CBN, 2020). However, the increase in capital expenditure had little impact on the economy throughout this period, as even in 2009, when the biggest amount was recorded, the GDP only grew at a 6.9% annual growth. Furthermore, the main source of concern is that the citizen's living standards have deteriorated dramatically over the period especially after the country's restoration to democracy in 1999, with the poor infrastructure required for commercial activities, poor educational standards, and high levels of unemployment, poverty, and inequality. Does this imply that the government had not been investing its hard-earned resources in the productive sector of the economy to achieve the desired development and improvement in its citizens' well-being?

Over the last few decades, a large number of empirical studies using both time series and cross-sectional data have been conducted to examine the

relationship between government expenditure and economic growth, but the results have been mixed, varying greatly from country to country and period to period (Essien, 1997; Chang, 2002; Mutuku and Kimani, 2012). Due to the high demand for the public such as roads, electricity, education, health, external and internal security, and the high revenue flow of revenue from crude oil sales, studies on the relationship between government expenditure and economic growth has exploded in Nigeria, both analytically and empirically. However, most of these studies did not take into cognizance the effect the quality of institutions has on this relationship over the year. Therefore, this study considers the impact that institutional quality has on the nexus between public expenditure and economic growth. Following the definition of North (1990), institutional factors are the humanly devised constraints or rules of the game that structure political, economic, and social interactions. Sound institutional framework as a crucial factor in the growth process began to gain prominence in economics as far back as the work of Hamilton (1919). Afterward, institutional quality has continued to be relevant, as it has been theoretically stressed that differences in the quality of institutions are the fundamental cause of differences in economic development across countries (Acemoglu, Johnson & Robinson, 2005; North, 1990). Also, it has been widely recognized that "institutions matter" and that the institutions development or failure to develop are important in determining the development capacity of the economy (Bardhan, 2001). This study, therefore, investigate whether the quality of our institutions in Nigeria has an impact on the link between government expenditure and economic growth.

Following this introductory part is the section that reviews the literature focusing on the relevance of government expenditure to economic growth and its other determinants. The third section presents the data and techniques used in this study to estimate data and answer the research question and meet the stated objective. The fourth section presents the results, and discusses and interprets the empirical findings, while the fifth section provides a conclusion and policy implications.

## **Literature Review**

Economic growth is defined as an increase in an economy's capacity to create products and services that are required to improve the welfare of its population (Balami, 2006). Growth is defined as a gradual increase in the output of goods and services in the economy. When the pace of growth is substantially higher than the population increase, it is meaningful since it must

lead to an improvement in human wellbeing. As a result, growth is viewed as a continual process of growing the economy's productive capacity and, as a result, rising national income, with higher rates of increase in per capita output and total factor productivity, particularly labor productivity (Balami, 2006). Public expenditure is the amount of money by the government on goods and services to help the economy to flourish, usually yearly. Current or consumption expenditures in civil administration, defense forces, public health and education, and government machinery upkeep are referred to as recurrent expenditures. This is a form of recurring expense that is experienced year after year. Capital expenditures, on the other hand, are spent on long-term assets such as motorways, multipurpose dams, irrigation projects, and the purchase of machinery and equipment. They are capital investments that are one-time expenditures. Such spending is intended to boost the economy's productive potential.

### **Theoretical Issues**

The debate about the relationship between government expenditure and economic growth is not new. Its theoretical underpinnings came from two separate schools of thought: the Wagner and Keynesian schools. Adolph Wagner, a well-known German economist at the time proposed a model for determining government spending in 1883. Based on his empirical observations, he concluded that an increase in government spending is a natural result of economic growth. In other words, Wagner's law predicts that as economic progress accelerates, the share of government spending in GDP would rise. Wagner examined the linear link between government spending and economic growth and hypothesized a basic cause-effect relationship between the two. Wagner's rule of government expenditure states that there is a positive relationship between government spending and the economy's growth rate. To put it in another, increased government spending expands the government's functions and obligations. This is due to the social, administrative, and welfare difficulties that arise when the economy increases in demand complexity (Mutuku and Kimani, 2012). Overall, Wagner's hypothesis is a basic method for understanding government spending growth, based on a positive link between public spending and economic growth. Keynes's (1936) theory of public expenditure, on the other hand, argues that money is all that matters in economic growth and development, and the government is the only one who can effectively and efficiently give such a large sum of money through public expenditure. According to the Keynesian hypothesis, depression in an economy can be prevented by boosting expenditure, which leads to an increase in aggregate demand. The Keynesian

hypothesis opposes classical economists who believe that government intervention is harmful to economic growth and development since the private sector can articulate and manage the state's operations to achieve a desired degree of growth. Public spending, according to Keynes, is an exogenous factor that can be used as a policy tool to enhance economic growth. According to Keynesian theory, government spending can help to boost economic growth. As a result of the multiplier effects on aggregate demand, an increase in government consumption is likely to lead to an increase in employment, profitability, and investment. As a result, government spending boosts aggregate demand, resulting in higher output based on the expenditure multiplier.

### **Empirical Review**

Using annual time series data, Egbetunde and Fasanya (2013) examined the impact of government spending on economic growth in Nigeria from 1970 to 2010. The study employs the bound testing (ARDL) approach to examine the long and short-run relationship between public expenditure and economic growth in Nigeria. The result depicted that the variables of interest put in the framework co-integrated in the long run. The findings indicated the impact of total public spending on economic growth to be negative significantly. Recurrent expenditure, however, has a little positive significant impact on growth.

Ekpo (2016) used a regression model, an error correction model to investigate the impact of government spending on Nigerian economic growth. The analysis discovered that while investments in education and infrastructure are not particularly big, their impact is tremendous. According to the study, education and infrastructure should be prioritized as primary drivers of economic growth and development. Dikeogu et al (2016) used an error correction model, ordinary least square method, Keynesian theory, Wagner's law, and time series data. The study discovered that disaggregate public expenditure has a significant effect on economic growth. The study therefore recommended increasing government spending on infrastructure and investment to boost Nigerian's economic growth.

Ebong, Ogwumike, Udongaro, and Ayodele (2016) used annual data from 1970 to 2012 to investigate the impact of government spending on economic growth. The results of the study, which used ordinary least square technique, showed that capital expenditure on agriculture had no significant impact on economic growth in both long and short runs, whereas capital expenditure on

education had significant impact on economic growth in both long and short runs. The study also indicated that health-related capital spending had a negative impact on economic growth, with the being minor. Finally, unlike agriculture, capital expenditure on human capital through social services was found to enhance growth.

Oyeleke, Raheem and Falade (2016) considered the impact of disaggregated functional capital expenditure on Nigerian economic growth between 1970 and 2013. Both economic growth and capital expenditure statistics were estimated using error correction methodology. The study's findings demonstrated that the components of public expenditure and economic growth have long-term link. The analysis also revealed that the government's disaggregated functional expenditure did not achieve the required growth in real economic activities. However, the study found that capital spending on economic services was negative and insignificantly associated to economic growth. Aluthge, Jibir and Abdu (2021) using time series data from 1970 to 2019, this study examines the impact of Nigerian government expenditure (disaggregated into capital and recurrent) on economic growth. The Autoregressive Distributed Lag (ARDL) model is used in this study. To ensure robustness of results, the study controls for structural breaks in the unit root test and the co-integration analysis. The study's main conclusions are that capital investment has a positive and significant impact on economic growth in both the short and long run, whereas recurrent expenditure has no meaningful impact on economic growth in either the short or long term. According to the report, the government should boost its share of capital expenditures, particularly on initiatives that have a direct impact on the wellbeing of citizens.

Onifade, Cevik, Erdogan, Asongu and Bekun (2020) investigated the impact of capital expenditure, recurrent expenditure and the government fiscal expansion on the Nigerian economic growth. ARDL approach was applied on the time series data from 1981 2017. The study revealed a long term relationship between public expenditure indicators on the Nigerian economy. The recurrent expenditures of the government were found to significantly impact the economy negatively, while the capital expenditure impacted the economy positively but insignificantly. Better (2020) examined the impact of government spending on Nigeria's economic growth from 1981 to 2015. The analysis relied on secondary data from the Central Bank of Nigeria's statistical bulletin. The study found that government capital expenditure has an inelastic and negative relationship with economic growth in Nigeria, while government recurrent expenditure has an inelastic and positive relationship with economic

growth, based on time series analysis of available data on government recurrent and capital expenditures as well as the real gross domestic product. The study also notes that only government recurrent expenditure was found to be positive, appropriately signed, and logically consistent, according to the analysis. Government capital expenditure, on the other hand, was negative and erroneously signed, resulting in theoretical inconsistency. As a result, capital expenditure had no positive impact on Nigeria's economic growth. The study suggests that Nigeria's externally oriented capital expenditure predisposes the country's economy to capital flight, further impeding economic progress.

## **Methodology**

Annual data for capital expenditure as a percentage of GDP, recurrent expenditure as a percentage of GDP, and gross fixed capital as a percentage of GDP, for the period from 1984 to 2016 were obtained from the Central bank Annual bulletin (2020). The data on institutional quality is sourced from the International Country Risk Guide (ICRG) assembled by the Political Risk Services (PRS) group (2016). In line with Law, Lee & Singh (2017) the overall institutional factors are measured by five indicators such as (i) democratic accountability (ranges 0-6), (ii) government stability (ranges 0- 12), (iii) bureaucratic quality (ranges 0- 4), (iv) corruption control (ranges 0- 6) and law and order (ranges 0 – 6). Following Law et al., (2018), and overall institution variable is constructed by summing the five ICRG indicators. Sub-indicators of the institutional quality index are rescaled from 0 to 10 to maintain comparability. Higher numbers indicate a higher level of institutional quality, whilst lower values indicate a lack of institutional features. The main point of rescaling institutional quality indicators is to make them follow the same pattern so that interpretations are consistent (Muye & Muye, 2017).

The study adopted the Autoregressive Distributed Lag (ARDL) bound tests approach as espoused by Pesaran et al (2001). This estimation technique addresses the endogeneity problems inherent in most other estimation techniques. The endogeneity problem is a situation in which the lag of one of the dependent variables co-varies with the error term in the mode which often leads to measurement error in estimation and also simultaneity bias.

## Descriptive Statistics

Preceding the analysis of the role of institutional factors in the nexus between public expenditure and economic growth, the characteristics of the variables are examined through descriptive statistics.

**Table 1: Descriptive Statistics of the data**

|                     | <b>GDP<br/>GR</b> | <b>CAPE<br/>X</b> | <b>GFCF</b> | <b>RECE<br/>X</b> | <b>CAPIN<br/>ST</b> | <b>GFCFI<br/>NST</b> | <b>RECIN<br/>ST</b> | <b>INST</b> |
|---------------------|-------------------|-------------------|-------------|-------------------|---------------------|----------------------|---------------------|-------------|
| <b>Mean</b>         | 4.508             | 3.218             | 33.077      | 2.332             | 12.653              | 14.947               | 9.433               | 3.910       |
| <b>Median</b>       | 5.016             | 2.652             | 34.049      | 1.857             | 9.687               | 8.128                | 7.835               | 4.000       |
| <b>Maximum</b>      | 15.329            | 9.084             | 58.956      | 6.060             | 38.860              | 37.978               | 26.301              | 4.611       |
| <b>Minimum</b>      | -2.035            | 0.637             | 14.169      | 0.036             | 2.766               | 3.483                | 0.096               | 2.681       |
| <b>Std. Dev.</b>    | 3.973             | 1.879             | 13.950      | 2.173             | 7.945               | 12.398               | 8.915               | 0.444       |
| <b>Skewness</b>     | 0.329             | 1.008             | 0.117       | 0.433             | 1.229               | 0.777                | 0.497               | 0.775       |
| <b>Kurtosis</b>     | 3.212             | 4.083             | 1.745       | 1.652             | 4.675               | 2.000                | 1.764               | 3.183       |
| <b>Jarque-Bera</b>  | 0.657             | 7.199             | 2.242       | 3.530             | 12.161              | 4.697                | 3.460               | 3.352       |
| <b>Probability</b>  | 0.720             | 0.027             | 0.326       | 0.171             | 0.002               | 0.096                | 0.177               | 0.187       |
| <b>Sum</b>          | 148.764           | 106.208           | 1091.556    | 76.949            | 417.557             | 493.244              | 311.301             | 129.036     |
| <b>Sum Sq. Dev.</b> | 505.057           | 112.968           | 6227.626    | 151.162           | 2019.776            | 4918.881             | 2543.419            | 6.313       |
| <b>Observations</b> | 33                | 33                | 33          | 33                | 33                  | 33                   | 33                  | 33          |

**Source:** The author

The descriptive statistics provides the characteristics of the variables used in the study. The mean value of gross domestic product growth rate is 4.508%, capital expenditure ratio to gross domestic product has a mean value of 3.218%, the ratio of gross fixed capital formation to gross domestic product (a

measure of capital stock) mean value is 33.077%, recurrent expenditure a ratio of gross domestic product has a mean value of 2.332%, institutional factors mean value is 3.910. The maximum values of the variables are also shown in Table 1 above with other statistics values.

### Correlation Analysis

For the avoidance of the evidence of multicollinearity among the variables, it suffices to conduct a correlational test on the variables.

**Table 2: Correlation Matrix of the variables**

|                      | GDPG<br>R | CAPE<br>X | GFC<br>F | RECE<br>X | CAPINS<br>T | GFCFINS<br>T | RECINS<br>T | INST |
|----------------------|-----------|-----------|----------|-----------|-------------|--------------|-------------|------|
| <b>GDPGR</b>         | 1.000     |           |          |           |             |              |             |      |
| <b>CAPEX</b>         | -0.266    | 1.000     |          |           |             |              |             |      |
| <b>GFCF</b>          | -0.348    | 0.579     | 1.00     |           |             |              |             |      |
|                      |           |           | -        |           |             |              |             |      |
| <b>RECEX</b>         | 0.265     | 0.650     | 0.75     | 1.000     |             |              |             |      |
|                      |           |           | 0.47     | -         |             |              |             |      |
| <b>CAPINST</b>       | -0.275    | 0.978     | 2        | 0.570     | 1.000       |              |             |      |
|                      |           |           | -        |           |             |              |             |      |
| <b>GFCFINS<br/>T</b> | 0.234     | 0.614     | 0.81     | 0.864     | -0.543      | 1.000        |             |      |
|                      |           |           | -        |           |             |              |             |      |
| <b>RECINST</b>       | 0.227     | 0.640     | 0.94     | 0.998     | -0.556      | 0.866        | 1.000       |      |
|                      |           |           | -        |           |             |              |             |      |
| <b>INST</b>          | -0.123    | 0.085     | 0.47     | 0.337     | 0.274       | 0.302        | 0.365       | 1.00 |
|                      |           |           | 2        |           |             |              |             | 0    |

**Source:** The author

The usual benchmark according to Gujarati (2021) is 80% or a coefficient of 0.80. Among the explanatory variables the highest, not considering the interaction of the institutional factors with the variables is 75% or 0.75 which is between recurrent expenditure and gross fixed capital formation. Therefore the model is free from multicollinearity.

### Model Specification

The functional relationship between the dependent and independent variables are expressed in the following equation:

$$GDPGR = f (CAPEX, RECEX, GFCF, CAPEX*INST, RECEX*INST, GFCF*INST, INST).....(1)$$

Where:

GDPGR = Gross Domestic Product per capita growth rate (proxy for economic growth)

CAPEX = Capital Expenditure (Capital expenditure as a percentage of GDP)

RECEX= Recurrent expenditure (Recurrent expenditure as a percentage of GDP)

GFCF = Gross fixed capital as a percentage of GDP (proxy for capital stock of goods)

CAPEX\*INST = interaction of institutional factor and capital expenditure

RECEX\*INST= interaction of institutional factor and recurrent expenditure

GFCF\*INST= interaction of institutional factor and gross fixed capital formation

INST= Institutional factor index

Further, the base-line regression equation of the implicit function in Equation (1) is expressed econometrically as:

$$\begin{aligned} \Delta GDPGR_t = & \chi_0 + \sum_{i=1}^a \chi_{1i} \Delta GDPGR_{t-i} + \sum_{i=0}^b \chi_{2i} \Delta CAPEX_{t-i} + \sum_{i=0}^c \chi_{3i} \Delta RECEX_{t-i} + \sum_{i=0}^d \chi_{4i} \Delta GFCF_{t-i} + \\ & \sum_{i=0}^e \chi_{5i} \Delta CAPEX * INST_{t-i} + \sum_{i=0}^f \chi_{6i} \Delta RECEX * INST_{t-i} + \sum_{i=0}^g \chi_{7i} \Delta GFCF * INST_{t-i} + \sum_{i=0}^h \chi_{8i} \Delta INST_{t-i} + \\ & + \psi_1 (GDPGR)_{t-1} + \psi_2 (CAPEX)_{t-1} + \psi_3 (RECEX)_{t-1} + \psi_4 (GFCF)_{t-1} + \\ & \psi_5 (CAPEX * INST)_{t-1} + \psi_6 (RECEX * INST)_{t-1} + \psi_7 (GFCF * INST)_{t-1} + \psi_8 (INST)_{t-1} \\ & + \varepsilon_t .....(2) \end{aligned}$$

### Unit Root Test

It is commonly believed that the simple time series around a deterministic pattern is stationary or at least stable; this is not always accurate. Nevertheless, the co-integration technique of ARDL does not require unit-roots pretesting. However, to prevent ARDL from crashing in the presence of an embedded stochastic pattern of I (2), the study performs unit root tests to know the number of a unit root in the series. To confirm the outcome properties of the time series, this study used Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. The null hypothesis for the test (both ADF and PP) affirms that the data series in question has a unit root while the alternative hypothesis affirms that the series is stationary.

**Table 3: Unit Root Tests of Variables**

| <b>AUGMENTED DICKEY-FULLER TEST</b> |                                                |                   |                                                           |                   |
|-------------------------------------|------------------------------------------------|-------------------|-----------------------------------------------------------|-------------------|
| <b>Variables</b>                    | <b>Stationarity of all Variables in Levels</b> |                   | <b>Stationarity of all Variables in First Differences</b> |                   |
|                                     | <b>Without Trend</b>                           | <b>With Trend</b> | <b>Without Trend</b>                                      | <b>With Trend</b> |
| GDPGR                               | -4.137***                                      | -4.035**          | -                                                         | -                 |
| CAPEX                               | -1.061                                         | -2.925            | -8.600***                                                 | -8.687***         |
| RECEX                               | 0.730                                          | -2.502            | -7.519***                                                 | -7.754***         |
| GFCF                                | -1.395                                         | -4.676***         | -                                                         | -                 |
| CAPEX*INST                          | -1.051                                         | -1.925            | -9.992***                                                 | -10.197***        |
| RECEX*INST                          | 0.889                                          | -2.500            | -7.300***                                                 | -7.345***         |
| GFCF*INST                           | -0.531                                         | -2.744            | -6.828***                                                 | -6.884***         |
| INST                                | -3.470**                                       | -3.450*           | -                                                         | -                 |
| <b>PHILLIPS-PERRON TEST</b>         |                                                |                   |                                                           |                   |
| <b>Variables</b>                    | <b>Stationarity of all Variables in Levels</b> |                   | <b>Stationarity of all Variables in First Differences</b> |                   |
|                                     | <b>Without Trend</b>                           | <b>With Trend</b> | <b>Without Trend</b>                                      | <b>With Trend</b> |
| GDPGR                               | -4.234***                                      | -4.000**          | -                                                         | -                 |
| CAPEX                               | -1.989                                         | -2.861            | -8.589***                                                 | -8.680***         |
| RECEX                               | 0.375                                          | -2.399            | -7.438***                                                 | -7.754***         |
| GFCF                                | -1.398                                         | -4.739***         | -                                                         | -                 |
| CAPEX*INST                          | -2.295                                         | -2.905            | -9.634***                                                 | -10.167***        |
| RECEX*INST                          | 1.393                                          | -2.283            | -7.549***                                                 | -9.492***         |
| GFCF*INST                           | -0.347                                         | -2.649            | -6.853***                                                 | -7.036***         |
| INST                                | -3.632**                                       | -3.380*           | -                                                         | -                 |

Note: \*\*\*, \*\*, and \* denotes stationary at 1%, 5% and 10% respectively

**Source:** The author

The unit root testing for the variables shows that GDPGR, GFCF and INST are all stationary at levels, while other variables, CAPEX, RECEX CAPEX\*INST, RECEX\*INST and GCF\*INST became stationary after the first differencing. This depicts that the series has a combination of I (0) and I (1) which makes ARDL appropriate for estimation

**Table 4: ARDL bound test (test of co-integration)**

| Significance Level<br>( $\alpha\%$ ) | Critical value            |                           | Computed F-statistics |
|--------------------------------------|---------------------------|---------------------------|-----------------------|
|                                      | Lower Critical bound I(0) | Upper Critical bound I(1) |                       |
| 10                                   | 2.03                      | 3.13                      | 0.892551              |
| <b>5</b>                             | <b>2.32</b>               | <b>3.5</b>                |                       |
| 2.5                                  | 2.6                       | 3.84                      |                       |
| 1                                    | 2.96                      | 4.26                      |                       |

Source: The Author

### Co-integration Test: ARDL Bounds Testing Approach

In time series analyses, it is common to have mixed stationary properties of variables which necessitate the test of co-integration. Thus the estimation technique that captures this is considered. In line with Pesaran et al (2001), this study uses bound testing approach to test for long run relationship among the variables. The results of ARDL bound testing which explains the long-run relationship among the variables is reported in Table 4. It shows that the F-statistic (0.892551) is lower than both the lower and the upper at the benchmark of 5% significance level. This validates null hypothesis of no co-integration and supports only the existence of short-run dynamics.

### Estimated Short-Run Dynamics Results for the Selected ARDL Model (2,0,0,0,0,0,0)

Regressand: GDPGR

| Variables                                                                                                                                 | Coefficient | Standard Error | T-statistics | Probability |
|-------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------|--------------|-------------|
| D(GDPGR(-1))                                                                                                                              | -0.38176    | 0.201859       | -1.891216    | 0.0725      |
| D(CAPEX)                                                                                                                                  | -2.957458   | 5.167999       | -0.572264    | 0.5732      |
| D(RECEX)                                                                                                                                  | 3.699936    | 12.532325      | 0.295231     | 0.7707      |
| D(GFCF)                                                                                                                                   | 0.239259    | 1.653736       | 0.144678     | 0.8863      |
| D(CAPI*INST)                                                                                                                              | 0.769176    | 1.279207       | 0.601291     | 0.5541      |
| D(REC*INST)                                                                                                                               | -1.463822   | 3.070641       | -0.476715    | 0.6385      |
| D(GFCF*INST)                                                                                                                              | -0.172895   | 0.438568       | -0.394227    | 0.6974      |
| D(INST)                                                                                                                                   | 0.37629     | 21.41453       | 0.017572     | 0.9861      |
| CointEq(-1)                                                                                                                               | -0.543223   | 0.306484       | -1.772433    | 0.0908      |
| Cointeq = GDPGR - (-5.4443*CAPEX + 6.8111*RECEX + 0.4404*GFCF + 1.4159*CAP*INST-2.6947*RECEXINST-0.3183*GFCFINST + 0.6927*INST + 36.9804) |             |                |              |             |

### Panel B: Goodness-of-fit-measures

|                            |          |
|----------------------------|----------|
| R-squared                  | 0.499856 |
| Adjusted R-squared         | 0.285508 |
| F-statistics               | 2.331988 |
| Probability (F-statistics) | 0.052868 |
| Durbin-Watson statistics   | 1.890568 |

**Panel C: Diagnostic Tests**

|                                                   | Test Statistics | Probability |
|---------------------------------------------------|-----------------|-------------|
| Breusch-Godfrey serial correlation                | 0.3814          | 0.8264      |
| Breusch-Pagan-Godfrey test for heteroscedasticity | 11.0177         | 0.2745      |
| Jarque-Bera normality test                        | 5.7900          | 0.0552      |
| ARCH test for heteroscedasticity                  | 0.7687          | 0.3806      |
| Ramsey RESET specification test                   | 1.2246          | 0.2350      |

**Source:** The Authors

Table 5 above presents the estimated coefficients of the short-run relationship along with the diagnostics tests of the model. The result reveals that apart from GDPGR lag one which shows a negative and significant effect on economic growth at a 10% significance level, all other variables do not have a significant effect on economic growth within the period of the study. The CAPEX has a negative and insignificant effect on economic growth. This agrees with the study of Ebong et al (2016) and Egbatunde and Fasanya (2013) but is contrary to Onifade et al (2020). Recurrent expenditure (RECEX) has a positive effect on economic growth, but the effect is insignificant. This agrees with Oyeleke, Raheem, and Falade (2016), but is contrary to Ebong et al (2016). The variable of note is the institutional factor summary index which identifies the quality of the country's institutions. Apart from the fact that it shows an insignificant relationship with economic growth depicting its weakness, its interaction with other variables does not reveal any significant contribution it makes. It shows a dragging effect on recurrent expenditure and gross fixed capital formation, as it shows a negative relationship with the two variables, although not significant. Its association with capital expenditure (CAPEX) is positive but insignificant. This result affirms the position of Acemoglu, Johnson

& Robinson (2005) which postulates that the importance institutions in economic growth and development as the weakness of the Nigerian institutional quality has a negative effect on its economic growth.

In the lower section of Table 5, the various diagnostics tests of the model's short-run dynamics are presented. Explanatory variables in the model for almost 50 percent of the variation in economic growth, with the F-statistics value of 2.33 and the probability of 5% depicting that the explanatory variables are jointly significant at a 5 percent significance level. All the other diagnostics tests RESET specification test, serial correlation heteroskedasticity, and normality test are positive. The cumulative sum (CUSUM) and the cumulative of squares (CUSUMSQ) of the recursive residual for structural stability are used to assess the stability of the regression coefficients (Brown et al, 1975). The plots are given in Appendix 2.

### **Conclusion and Policy implications**

This study investigates the impact of institutional factors on the link between public expenditure and economic growth in Nigeria with data from 1984 to 2016. Data are collected from the Central Bank of Nigeria Statistical Bulletin and the International Country Risk Guide (ICRG). The study reveals that rather than improving on the negative impact of capital expenditure government expenditure on the economic growth of the country and the insignificant impact of recurrent expenditure on economic growth, the institutional factors constitute themselves as a drag on the growth effect. This may have happened due to weak institutions which aid and abet corruption could with political interferences that culminate in weakening the efficacies of increasing public expenditure. In summary, it is obvious from this study that public expenditure is expected to facilitate economic growth but institutional factors impede the processes. It is therefore recommended that concerted efforts should be made by the relevant ministries, departments, and government agencies at improving the quality of institutional factors such governing and characterizing the economic growth in the country such as bureaucratic accountability and corruption control

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**Appendix 1: Model Stability Test**