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The Effect of Corporate Tax on Government Expenditure in Nigeria

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Abstract

The study investigated the impact of corporate income tax on the government expenditure in Nigeria. Data on corporate income tax, value added tax, interest rate, gross domestic product, petroleum profit tax and consumer price index were collected and used as independent variable in the study while data on public expenditure were collected and used as independent variable in the estimated model. The ARDL bound test was applied and the result showed that corporate income tax have long run relationship that is significant with government expenditure. Other forms of tax such as value added tax and petroleum profit tax also have significant impact on government expenditure. The study concluded that corporate income tax should be sustained in order to ensure that government continue to fulfill her obligation of provision of social amenities that will promote the economic growth of the country.

Keywords

Corporate income tax, government expenditure, Economic growth

1. Introduction

According to Adebayo et al. (2014); Ademolekun (1983). Adubi & Obioma (1999); Aigheyisi. (2010), the less tax knowledge or education a citizen has in the economy, the greater the desire and opportunity for tax evasion, tax avoidance and non-compliance with the relevant tax laws. Tax issues are related to public spending because if taxes are not increased the government will not generate revenue to pay for public expenditure in the form of social service like hospitals and job opportunities. However, if the government increases taxes and generate

more revenue, it will certainly help to provide more public spending for the benefit of the citizens of the country.

Corporate investments in Nigeria have been affected mainly by macroeconomic factors like inflation, interest rate and exchange rate volatilities (Barro & Grilli, 1994; Arrow & Kurz, (1970)). According to the classical economist the only objective of taxation was to raise government revenue. But with the change in circumstances and ideologies, the aim of taxes has also been changed (Ekpung & Wilfred, 2014). Over the years, Governments all over the world including the government of Nigeria are challenged with poverty alleviation, security, education, health and the general welfare of the citizenry. These call for the provision of social infrastructure and implementation of development projects among other things to improve the standard of living of the people. In view of these social commitments, governments need to generate enough revenue to meet their expenditures (Ahiawodzi & Tsorhe, 2013).

Empirical Studies on the effect corporate income tax on public expenditure from across the world have shown an inconclusive evidence. While some studies find substantial and robust positive effects of corporate tax cuts (Arnold et al., 2011; Lee & Gordon, 2005; Gechert & Heimberger, 2021). Other studies find negative, insignificant or at least mixed results (see Angelopoulos et al., 2007; Gale et al., 2015; Kate & Milionis, 2019; Afonso et al., 2021).

It is observed that, the inability of private sector to meet the escalating demand of the geometrically increasing population like that of Nigeria might be due to no favorable tax policy as corporate taxes reduce the amounts of incomes available to the private firms for re-investment to expand the economy. Higher corporate taxes are noted to be a disincentive to privates' investment since they erode whatever profits that are made by the firm and hence scare away the private investor.

In the last four decades, Nigeria has experienced two historic transitions: political transition from military junta towards democracy and an economic transition from government monopoly of some items considered as public goods (e.g. telecommunication) towards free market system (Bergstrom & Goodman, 1973). These transitions have required a fundamental change in the role of the federal government, from controlling virtually all major economic assets to providing public goods and facilitating a largely privately-owned competitive economy. This has necessitated major downsizing of public expenditure and a complete overhaul of corporate tax policy and administration (Adekunle & Disu, 2018). Consequently, the main objective of this study is to investigate the effect of Corporate tax on government expenditure in Nigeria.

The rest of this paper is divided into literature review, methodology, results and discussion, conclusion and recommendations.

2. Literature Review

There has been some studies on government expenditure but the ones on tax and government expenditure are relatively few. Notwithstanding some of these studies are reviewed as follows;

Gechert & Heimberger (2021) evaluate the impact of corporate taxes on economic growth using regression methods to a novel dataset with 441 estimates from 42 primary studies. The results show that there is evidence for publication selectivity in favour of reporting growth-enhancing effects of corporate tax cuts. Adegbite (2015) analyses the effect of corporate tax on

revenue profile in Nigeria from 1993 to 2013 using Multiple regressions analysis. The results show that corporate income tax has positive significant impact on revenue profile in Nigeria.

Ali (2015) examines the relationship between corporate taxation and FDI in Nigeria from 1970-1980 using Descriptive Statistics, Correlation and Regression for analysis. The result show negative significant relationship between CTR and FDI whilst exchange rate and FDI show negative insignificant relationship. Nevertheless, GDP was positively insignificantly relationship with FDI while inflation had positive significant relationship with FDI.

Afubero & Okoye (2014) examine the impact of taxation on revenue generation in Nigeria making use of the Federal Capital Territory and Selected States as a case study. The researchers adopted primary sources of data to present and analyze the information for the study. The result shows that taxation has a significant contribution to both revenue generation and on the Gross Domestic Product (GDP).

Edame & Okoi (2014) examine the impact of taxation on investment and economic growth in Nigeria from 1980-2010 using ordinary least square method of regression. The result of the analysis show conformity to the apriori expectation because the parameter estimates of corporate income tax (CIT) and personal income tax (PIT) appears with negative signs, implying an inverse relationship between taxation and investment.

Lee et al. (2013) evaluate if the value-added tax (VAT) increases the size of government using a panel of 29 OECD countries from 1970 to 2007. The empirical findings indicate that that the demand for government spending markedly influences the tax structure of society.

Richter et al. (2013) apply an empirical analysis of the spend-tax or tax-spend hypothesis, in order to identify the direction of the causality between government spending and revenues in Greece for the period 1833-2009. The study find evidence of long-run relationship between government spending and revenues. Fahmi (2012) examines the relationship between tax holiday and FDI in Indonesia from the period of 1981 to 2010 using the OLS technique. The main focus independent variable "tax holiday" is seen to be not significant in attracting FDI inflow.

Ogbonna & Appah Ebimobowei (2012) examine the impact of tax reforms on the economic growth of Nigeria from 1994 to 2009 using descriptive statistics and econometric models such as Augmented Dickey Fuller test, Johansen test, Jacque Berra test, and Granger Causality test. The results shows that tax reforms is positively and significantly related to economic growth and also shows that tax reforms granger cause economic growth.

2.1 Gaps in Literature

Empirical Studies on the effect corporate income tax on public expenditure from across the world have shown an inconclusive evidence. While some studies find substantial and robust positive effects of corporate tax cuts (Arnold et al., 2011; Lee & Gordon, 2005; Gechert & Heimberger, 2021). Other studies find negative, insignificant or at least mixed results (Angelopoulos et al., 2007; Gale et al., 2015; Kate & Milionis, 2019; Afonso et al., 2021). The contradictions in their findings could be attributed to periods covered in the study, types of data, methodological approaches adapted. This study therefore will contribute to the existing literature by extending the work to 2020 using the ARDL econometrics procedure.

3. Research Methodology

This section encompasses the theoretical framework, model specification and the methodology to be adopted for the study.

3.1 Theoretical Framework

The framework adopted for this study is the Benefits-received theory. The theory assumes an exchange or contractual relationship between the state and the tax-payers. Certain goods and services are provided by the state and the cost of such goods and services are contributed in the proportion of the received benefits, thus, the benefits received present the basis for distributing the tax burden in specific manner (Chigbu et al., 2013). This theory overlooks the possible use of the tax policy for bringing about economic growth or stabilization. They also see the cost of service theory as very similar to the benefits-received theory. The theory emphasizes on semi commercial relationships between the state and the citizens to a greater extent. The implication according to them, was that, the citizens are not entitled to any benefits from the state and if they do, they must pay the cost thereof. In this theory, the costs of services are scrupulously recovered unlike the benefits-received theory where a balanced budget is implied (Chigbu et al., 2013).

3.2 Model Specification

This study adopts the methods utilized by Efuntade & Akinola (2020) to evaluate the effect of corporate income tax on government expenditure in Nigeria from 1980 to 2019. The variables of interest include, government public expenditure as the dependent variable, while real gross domestic product, corporate income tax, petroleum profit tax, interest rate, inflation rate and trade openness are the independent variables. In this study therefore, we specify a functional form of the model as follows:

$$PUBEXP = f(CIT, PPT, RGDP, INTR, INF, OPEN) \dots\dots\dots (1)$$

where

PUBEXP = The government public expenditure ,CIT = Corporate income tax, PPT = Petroleum Profit Tax, GDP = Real gross domestic product, INTR = Interest rate ,INF= Inflation rate ,OPEN = Trade openness

Assuming a linear relationship between our dependent variable and independent variables, our equation using the multiple regression analysis can be shown as follows:

$$PUBEXP = \beta_0 + \beta_1 CIT + \beta_2 PPT + \beta_3 RGDP + \beta_4 INTR + \beta_5 INF + \beta_6 OPEN + u_t \dots\dots\dots(2)$$

β_0 = the constant term, β 's = the parameters to be estimated, μ = stochastic error

3.3 Method of Result Evaluation

This study utilizes the Augmented Dickey Fuller (ADF) test for stationarity test. This is because, the Auto Regressive Distributed Lag (ARDL) bound test procedure is conducted based on the assumption that, the variables under consideration are either integrated of order zero or order one. Hence an order of integration was determined using the ADF test procedures. The null

hypothesis that guided the test is stated as follows: $H_0: \beta=0$ (β has a unit root); $H_1: \beta<0$ (for alternative hypothesis). According to Pesaran et al. (2001), the variables under consideration cannot be integrated of order two to avoid a spurious regression. In conducting an ARDL model procedure, a choice for an appropriate lag length is provided. Pesaran et al. (1999) were of the view that Akaike info criterion (AIC) and Schwarz criterion (SC) are appropriate in a small sample, though SC is superior to AIC: The ARDL model is written as follow:

$$\Delta PUBE_{t-1} = \beta_0 + \sum_{i=1}^n \beta_{1i} \Delta PUBE_{t-1} + \sum_{i=0}^n \beta_{2i} \Delta CIT_{t-1} + \sum_{i=0}^n \beta_{3i} \Delta PPT_{t-1} + \sum_{i=0}^n \beta_{4i} \Delta RGDP_{t-1} + \sum_{i=0}^n \beta_{5i} \Delta INTR_{t-1} + \sum_{i=0}^n \beta_{6i} \Delta INF_{t-1} + \sum_{i=0}^n \beta_{7i} \Delta OPEN_{t-1} + \delta_1 PUBE_{t-1} + \delta_2 CIT_{t-1} + \delta_3 PPT_{t-1} + \delta_4 RGDP_{t-1} + \delta_5 INTR_{t-1} + \delta_6 INF_{t-1} + \delta_7 OPEN_{t-1} + \varepsilon_t \dots\dots\dots(3)$$

Where, Δ = Difference operator, ε_t = Stochastic term

Conducting ARDL bound test, an Ordinary Least Square (OLS) is estimated firstly in order to establish if there exists a long run relationship between the variable under consideration. The test is based on an F-Statistic for the joint statistically significance of the lagged variables. The

null hypothesis of no cointegration stated as: ($H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = 0$), for the equations is evaluated using Pesaran et al. (2001) procedure. The underlining assumption is therefore stated as follows: if the F-statistic is > upper critical bound, H_0 is rejected and concludes that the variables under consideration are cointegrated, otherwise it is not accepted. However, if $F\text{-statistic} \geq \text{lower critical bound} \leq \text{upper critical bound}$, then decision becomes inclusive. If the null hypothesis of no cointegration is rejected, a vector error-correction model (VECM) is therefore estimated (Obayelu & Salau, 2010). The VECM model is therefore specified as follows:

$$\Delta PUBE_{t-1} = \alpha_0 + \sum_{t=1}^n \alpha_{1i} PUBE_{t-1} + \sum_{t=1}^n \alpha_{2i} \Delta CIT_{t-1} + \sum_{t=1}^n \alpha_{3i} \Delta PPT_{t-1} + \sum_{t=1}^n \alpha_{4i} \Delta RGDP_{t-1} + \sum_{t=1}^n \alpha_{5i} \Delta INTR_{t-1} + \sum_{t=1}^n \alpha_{6i} \Delta INF_{t-1} + \sum_{t=1}^n \alpha_{7i} \Delta OPEN_{t-1} \lambda ECM_{t-1} + \mu_t \dots\dots\dots(4)$$

where: ECM = The error correction term, λ = the error coefficient

3.4 Determining the Reliability of Estimated Results

In a view of evaluating whether the estimates of the parameters are theoretically meaningful and statistically satisfactory, this study will adopt three criteria which are economic or a priori criteria (determined by economic theory), statistical criteria (determined by statistical theory), and econometric criteria (determined by econometric theory).

3.5 Economic or A priori Criterion

This criterion is based on economic theory and it is aimed at determining whether the signs and sizes of the empirical results conform or are in tandem with economic theory postulates. Put differently, it is concerned with determining the consistency of our parameter estimates with the signs and magnitude.

3.6 Statistical Criterion (First Order Test):

This test is based on statistical theory used in evaluating the reliability of the parameter estimates of a given model. According to Gujarati (2004), a test of significance is a procedure by which sample result is used to verify the truth or falsity of a null hypothesis. It encompasses the following tests:

- I. **The T-Test:** This test is carried out to ascertain the statistical significance of the individual parameters in an econometric model say 1%, 5%, or 10% with $N-K$ degree of freedom. Decision Rule If $|t_{cal}| < t_{\alpha/2 (N-K)}$ at a given level of significance, we accept H_0 and reject H_1 but if $|t_{cal}| > t_{\alpha/2 (N-K)}$ we reject H_0 and accept H_1 . In the former, we therefore conclude that the parameter estimate is not statistically significant at a given level of significance while for the latter, we conclude that the parameter estimate is not statistically significant at a given level of significance.
- II. **F – Test:** This test is used to test overall significance of the regression model. The decision is that, if the computed F – test i.e. $F_{cal} > F_{\alpha (k-1), (N-K)}$, then we say the overall model is statistically significant at a given significance level. If $F_{cal} < F_{\alpha (k-1), (N-K)}$, then we conclude that the overall model is not statistically significant at a given significance level.
- III. **R² and adjusted R² test:** the coefficient of determination (R^2) depicts the percentage variations in the dependent variable that is captured by the variations in the independent variables in a given single regression model. It is also known as the measure of the Goodness of Fit of a regression line. The adjusted R^2 depicts the variations in the dependent variable that is accounted for by the changes in the explanatory variables of a given model taking account of the degree of freedom associated with the sum of squares. The adjusted R^2 is used in a multiple regression model.

3.7 Econometric Criterion (Order Test)

This criterion is based on the theory of econometrics and aimed at investigating whether the assumptions of econometric method employed are satisfied or not. Examples of tests under this criterion are heteroscedasticity test, Multi-collinearity test, autocorrelation test, Normality test, Stability test etc. for the purpose of this study, we will focus on autocorrelation test, normality test and stability test.

- I. **Autocorrelation Test:** the test is used to investigate if the error term of different observations is correlated or not. That is, testing for the randomness of the error term. Hence, the Durbin-Watson method was adopted for this test.
- II. **Stability Test:** this test is carried out to ascertain whether the variables adopted for this study were stable over the period under review (usually at 5% level). The CUSUM Test is adopted for this study.
- III. **Normality Test:** this test is carried out to ascertain whether the stochastic error term is normally distributed with a mean of zero and constant variance. This is expressed symbolically as;

$$\mu = N(0, \sigma_i^2)$$

3.8 Unit Root Test

This test is the first step and involves testing the stationarity of the variables, and then the order of integration of the individual series under consideration. A stochastic process $y(t)$ is known as a unit root if its first difference, $y(t) - y(t-1)$ is non-stationary. Basically, a series is said to be integrated of order $I(1)$, if it needs to be differenced once to become stationary. The same holds for an $I(2)$ series which need to be differenced twice to become stationary. If $I(0)$ then no differencing is necessary.

3.9 The Error Correction Model

Given that the existence of Co-integration is established amongst the series, then an Error Correction Mechanism (ECM) is then carried out to correct for any disequilibrium in the short run. In the model, the dynamics of both short-run (changes) and long-run (levels) adjustment processes are modelled simultaneously, thereby providing information about both the short-run and long-run relationship.

3.10 Source of data

The researcher utilizes the data generated from the Central Bank of Nigeria statistical bulletin on government public expenditure, real gross domestic product, corporate income tax, petroleum profit tax, interest rate, inflation rate and trade openness generated from the Central Bank of Nigeria.

4. Results and Discussion

This section focuses on the analysis of the raw data collected on each of the variables and the interpretation of the empirical results. The analysis begins with the unit root test

4.1 Unit Root /Stationarity test

Economic variables are generally non-stationary and they are a random process. Linear combination of non-stationary series in general is a non-stationary series and closely associated with economic theory. Because economic theory guarantees stagnation of combination of economic variables, in this study Dickey Fuller’s generalized Test for investigation of stationary variables is used. In order to assess the time series properties of the data, unit root test was conducted. As Engle & Granger (1987) argued, if individual time series data are non-stationary, their linear combinations could be stationary if the variables were integrated of the same order. The assumption is stated as follows: If the absolute value of the Augmented Dickey Fuller (ADF) test is greater than the critical value either at 1% ,5%, or 10% level of significance at order zero, one or two, it shows that the variable under consideration is stationary otherwise it is not. The results of the Augmented Dickey Fuller (ADF) test obtained are as follow:

Table 1. The Unit root test

Variable	Level difference	Probability	Order of integration	First difference	Probability	Order of integration
PUBEXP	-0.505734	0.8786		-10.80370	0.0000	I(1)
CIT	-3.224773	0.0260	I(0)			

PPT	-1.377547	0.5833		-6.179473	0.0000	I(1)
GDPGR	-7.078185	0.0000	I(0)			
INTR	-2.150459	0.2270		-6.671688	0.0000	I(1)
CPI	-0.312768	0.9134		-14.18717	0.0000	I(1)
VAT	-0.957696	0.7586		-6.049633	0.0000	I(1)

Source: Author's computation from the Eviews result

From the table above the results shows that two of the variables are stationary at level while four other variables are non-stationary at first difference. Since there exists a mixed order of stationarity, a bound cointegration test is therefore conducted.

4.2 Bound Auto Regressive Distributed Lag (ARDL) Testing Approach

Conducting the ARDL bounds test procedure, it is expected that the variables are I(0) or I(1), otherwise, the variable may be considered spurious. In the conduct of the ARDL test, we adopt the Augmented Dicky Fuller (ADF) test to determine the difference levels of the variables, to ascertain if they are I(0) and I(1) respectively. We therefore compute an F-statistics test procedure to test the long-run relationship in which the maximum lag length p is 2 in the ECM. The results for the bounds F-test is therefore presented as follows:

Table 2. The ARDL Bound test result

Test Statistic	Value	K
F-statistic	13.31190	6
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

Source: Author's computation from the Eviews result

The Bound test result from the table above indicates that the underling ARDL model can be established to determine the long-run slope-estimated coefficients and the short-run dynamic-estimated coefficients. The ARDL (1, 4) is selected based on Akaike information criterion (AIC), and the estimated results are shown in the Table below:

4.3 The Short Run Relationship of the Impact Corporate Income Taxation on Public Expenditure Growth

There is long-run equilibrium relationship among the variables in the regression model; however, it is the short-run that transmit to the long-run. Thus, Error Correction Mechanism (ECM) is therefore used to correct or eliminate the discrepancy that occurs in the short-run. The coefficients of the explanatory variables in the error correction model measure the short-run relationship. The assumption of the ECM states that if two variables are cointegrated, then, there is error correction mechanism to revise instability in short term (Engle & Granger, 1987). ECM is used to see the speed of adjustments of the variables to deviations from their common stochastic trend. ECM corrects the deviations from the long run equilibrium by short-run adjustments. This

shows us that changes in independent variables are a function of changes in explanatory variables and the lagged error term in cointegrated regression. The ECM result is therefore presented below:

Table 3. The short run error correction dynamics

ARDL Cointegrating And Long Run Form				
Dependent Variable: LOG(PUBEXP)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(PUBEXP(-1))	0.543809	0.217001	2.506017	0.0872
D(CIT)	-0.046269	0.025064	-1.845982	0.1621
D(PPT(-1))	-0.860392	0.192498	-4.469609	0.0209
D(PPT(-2))	-0.154382	0.198640	-0.777193	0.4937
D(GDPGR)	-0.054581	0.022010	-2.479863	0.0893
D(GDPGR(-1))	-0.025461	0.026957	-0.944497	0.4146
D(GDPGR(-2))	0.034067	0.021980	1.549865	0.2189
D(GDPGR(-3))	-0.055384	0.023730	-2.333925	0.1018
D(INTR)	-0.094066	0.074322	-1.265646	0.2950
D(INTR(-1))	-0.498133	0.072265	-6.893138	0.0063
D(CPI)	0.110333	0.020669	5.337939	0.0129
D(VAT)	0.143528	0.073724	1.946831	0.1467
D(VAT(-1))	0.006096	0.052427	0.116275	0.9148
D(VAT(-2))	-0.187555	0.046945	-3.995166	0.0281
CointEq(-1)	-0.619767	0.249786	-6.484618	0.0074
R-squared	0.987759	Mean dependent var		0.173564
Adjusted R-squared	0.857189	S.D. dependent var		0.665464
S.E. of regression	0.251481	Akaike info criterion		-0.574473
Sum squared resid	0.189728	Schwarz criterion		0.877086
Log likelihood	43.34052	Hannan-Quinn criter.		-0.067840
F-statistic	7.564990	Durbin-Watson stat		2.343074
Prob(F-statistic)	0.059799			

Source: Author’s computation from the Eviews result

In the short run result, the equilibrium error-correction coefficient ECM (-1) is -0.318648 which has the expected negative sign. The error correction term here is negative and significant meaning that there is a long run causality running from independent variables to dependent variable. It also confirms that all the variables are cointegrated or have long run relationship. We can therefore state that 61 percent gap between long run equilibrium value and the actual value of the dependent variable (PUBEXP) has been corrected. It can be also said that the speed of adjustment towards long run equilibrium is 61 percent annually. Its t-ratio is -3.083651, and the probability of the null hypothesis being true for zero is [0.005], which is significant even when $\alpha = 0.05$. Thus, it can also be concluded that the adjustment is quite meaningful in the short-run ARDL relationship.

Statistically, the coefficient of determination R-squared is 0.987759 while the adjusted R-squared 0.857189. This implies that the independent variables explain the dependent variable to the tune 85%. The t-statistic of the variables under consideration show that lag values of seven variables, exhibited values that is greater than positive two and less than the negative two. This

shows that the variables under consideration are statistically significant. The F-statistic shows that the overall estimate of the regression has a good fit and is statistically significant. Also, the Durbin Watson (DW) statistics $DW = 2.343074$ which is greater than the R^2 shows that the overall regression is statistically significance. Thus, the result indicates no serial auto correlation among the variables under consideration.

4.4 The Long Run Relationship of the Impact Corporate Income Taxation on Public Expenditure Growth

Table 4. The Long Run Coefficients results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CIT	-0.023152	0.010321	-2.243189	0.1106
PPT	0.647271	0.254485	2.543459	0.0844
GDPGR	0.014461	0.027104	0.533536	0.6307
INTR	0.028104	0.069028	0.407140	0.7112
CPI	0.009531	0.003158	3.018093	0.0568
VAT	0.100093	0.042209	2.371343	0.0984
C	4.651271	2.818847	1.650062	0.1975

Source: Author's computation from the Eviews result

The long-run elasticity of the dependent variables contributing to the public expenditure growth show that the coefficient of corporate income taxation CIT indicates a negative sign and is significant statistically. This implies that corporate income taxation positively impacted on public expenditure growth in Nigeria during the period under study. It can also be stated that a unit change in the value of corporate income taxation the Nigerian economy leads to a decrease in the public expenditure growth by 4.651271. The result conform to the findings of Afonso et al. (2021) on the relevance of taxation for public spending efficiency in a sample of OECD economies that inputs could be theoretically lower by approximately 32–34% and expenditure efficiency is negatively associated with taxation. That direct and indirect taxes negatively affect government efficiency performance. Also, Edame & Okoi (2014) on the impact of taxation on investment and economic growth in Nigeria that corporate income tax (CIT) and personal income tax (PIT) appears with negative signs, implying an inverse relationship between taxation and investment.

The coefficient of the variables, PPT, CPI and VAT show a positive sign and significant statistically. The positive coefficient of VAT conforms to findings of Lee et al. (2013) while evaluating if the value-added tax (VAT) increases the size of government in OECD countries that that the demand for government spending markedly influences the tax structure of society. The estimated results also show that the coefficients of GDPGR and INTR, shows a positive sign and insignificant statistically (Abu & Abdullah, 2010). The positive coefficient of the growth rate of the GDP and CPI conforms to the findings of Uwuigbe et al. (2019) on the relationship between corporate taxation and FDI in Nigeria that GDP was positively insignificantly relationship with FDI while inflation had positive significant relationship with FDI.

4.5 Diagnostic Test

To ensure the goodness of fit of the model, diagnostic test are conducted. Diagnostic tests examine the model for serial correlation, functional form, non-normality and heteroscedasticity.

Table 5. Serial correlation tests

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	10.18717	Prob. F(2,1)	0.2163
Obs*R-squared	34.31574	Prob. Chi-Square(2)	0.0000

Source: Author’s computation from the Eviews result

The serial correlation test result obtained shows that the null hypotheses of a serial correlation is rejected and the corresponding probability values of the F-statistics are statistically insignificant at 5% level. Thus we conclude that there is no serial correlation among the variables under consideration.

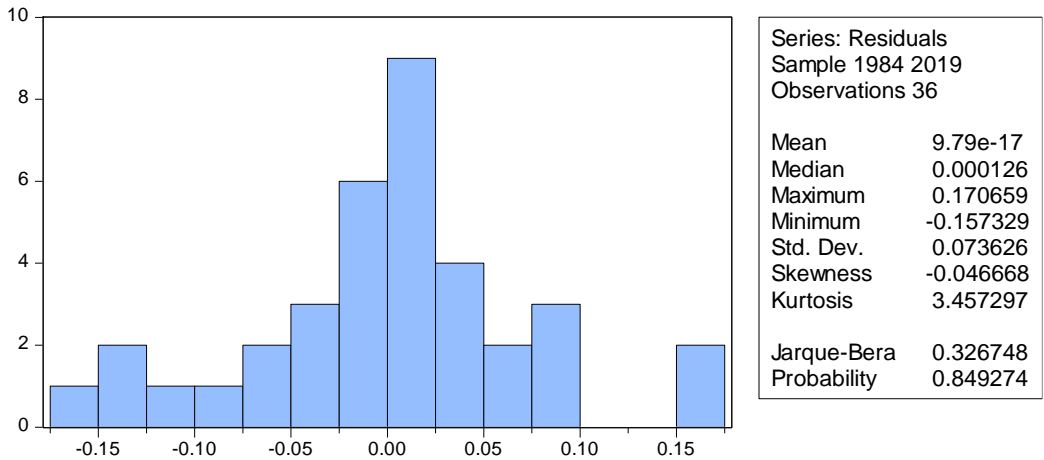


Fig 1. The normality test

Source: Author’s computation from the Eviews result

From the result, the probability is 0.849274 and this is greater than 0.05 at 5% significant level and therefore, the null hypothesis is accepted. This implies that the residuals are normally distributed.

Table 6. The Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.927307	Prob. F(32,3)	0.6278
Obs*R-squared	32.69460	Prob. Chi-Square(32)	0.4327
Scaled explained SS	0.278960	Prob. Chi-Square(32)	1.0000

From the result, the probability of Chi-Square (32) is 0.6278 and this is greater than 0.05 at 5% significant level and therefore, the null hypothesis is accepted. This implies and therefore confirm the absence of heteroscedasticity in the model. That is the error terms are homoscedastic i.e., they have constant variance in repeated sampling.

5. Conclusion

In conclusion, trend analysis of the public expenditure growth in Nigeria indicated smooth ups and downs which clearly indicate that there are fluctuations in the public expenditure growth during the period under review. The descriptive statistics indicates that from 1980 to 2019, the variables under consideration showed an averaged positive mean values. The standard deviation showed that the highest standard deviation is recorded by the PUBEXP while the least standard deviation is recorded by PPT. The skewness statistics from the table revealed that five of the variables are positively skewed and two variables are skewed negatively. The kurtosis coefficients show that two of the variables are leptokurtic, suggesting that the distributions are high relative to normal distribution, one variable is mesokurtic, , and four variables are platikurtic. The probabilities of Jarque-Bera test of normality for the variables indicates that five of the variables have values greater than 5% level of significance, thus indicating that the variables are normally distributed. The correlation test results shows that four of the variables are positively related to public expenditure growth and two variables are related to public expenditure growth negatively.

The Unit Root /Stationarity Test results shows that two of the variables are stationary at level while four other variables are stationary at first difference. The ARDL Bound test result indicates that the underling ARDL model can be established to determine the long-run slope-estimated coefficients and the short-run dynamic-estimated coefficients. The equilibrium error-correction coefficient ECM (-1) is -0.318648 which has the expected negative sign. The error correction term here is negative and significant meaning that there is a long run causality running from independent variables to dependent variable. It also confirms that all the variables are cointegrated or have long run relationship. We can therefore states that 61 percent gap between long run equilibrium value and the actual value of the dependent variable (PCREDIT) has been corrected. It can be also said that the speed of adjustment towards long run equilibrium is 61 percent annually.

The long-run elasticity of the dependent variables contributing to the public expenditure growth show that the coefficient of corporate income taxation CIT indicates a negative sign and is significant statistically. This implies that corporate income taxation positively impacted on public expenditure growth in Nigeria during the period under study. It can also be stated that a unit change in the value of corporate income taxation the Nigerian economy leads to a decrease in the public expenditure growth by 4.651271. The coefficient of the variables, PPT, CPI and VAT show a positive signs and significant statistically. The estimated results also show that the coefficients of GDPGR and INTR, shows a positive sign and insignificant statistically.

Statistically, the coefficient of determination R-squared shows that the independent variables explains the dependent variable to the tune 85%. The t-statistic of the variables under consideration show that lag values of variables, exhibited values that is greater than positive two and less than the negative two. The F-statistic shows that the overall estimate of the regression

has a good fit and is statistically significant. Also the Durbin Watson (DW) statistics of $DW = 2.343074$ indicates no serial auto correlation among the variables under consideration. The diagnostic test results indicates that there is no serial correlation among the variables under consideration. The normality test result shows that the residuals are normally distributed. The heteroskedasticity tests result shows that the error terms are homoscedastic.

Recommendation

The federal government should reduce corporate tax rate rather than eliminate corporate tax in Nigeria, lower corporation tax will increase the demand for labour which in turn raises wages, and increases consumption. Then, assistance should be provided for corporations by the government to cushion the effect of corporate tax rate on the payers in Nigeria. Moreover, the government should be able to expend more on the provision of public goods capital expenditure that would increase the stock of capital assets, increase investment and have redistributive tendencies. Furthermore, the federal Government should endeavor to provide social amenities to all nooks and crannies of the country as this will boost the level of tax compliance in Nigeria.

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