# TAXATION AND OUTPUT PERFORMANCE IN NIGERIA

## Patrick, OLOGBENLA (PhD)

Department of Management and Accounting
Obafemi Awolowo University, Ile Ife, Osun State. Nigeria

**Abstract:** This study examines the impact of taxation on output performance in Nigeria from 1994 to 2020 by employing Gross Domestic Product (GDP) as the dependent variable and Petroleum Profit Tax (PPT), Company Income Tax (CIT), and Value Added Tax (VAT) as the independent variables. The analysis of the study was carried out using the Auto Regressive Distributed Lag (ARDL). The result showed that Petroleum Profit Tax and Value Added Tax had a positive and significant effect on the growth of output in the economy. On the other hand, Company Income Tax deters the output performance of the economy. The following are some policy recommendations as a result of the findings of the study: Government should use the revenue generated from tax especially that of company income tax to develop the domestic sector of the economy, especially the Agro-allied industry and the manufacturing sector qualitative development, Government should sensitize the citizenry through an awareness campaign and enlightenment on the need to pay tax and not to evade it, Nigeria's tax regulatory body needed to implement policies that will reduce the loopholes in tax laws which taxpayers capitalize on to evade tax, lastly, the government should enact an act prohibiting tax avoidance and tax evasion a punishable offense with serious sanctions imposed.

**Keywords:** Taxation, Output Performance, Revenue, Auto Regressive Distributed Lag

## INTRODUCTION

Taxation has a major impact on the economy and this can't be over-emphasized, some of the advantages of tax to the economy are: first, revenue produced from taxes can be utilized to create another area of the economy where the government can create more assets; second, it can likewise be utilized to redistribute income for poor people; third, revenue produced from taxes can be utilized to give federal aid to the indigents and poor of poor; fourth, revenue produced from taxes can be utilized to stimulate areas that can create more employment opportunities to the citizens; finally, revenue created from taxes can be utilized to stimulate economic growth using revenue attained from taxations to provide social overheads that attract investors, these overheads include electricity, road and transportation, and others. However, in Nigeria the situation appears not to be what is expected, this is because, despite the huge revenue obtained from taxes such as Company Income Tax, Value Added Tax, and most especially Petroleum Profit Tax, the nation is still experiencing instability in terms of economic growth.

It is deserving of note that the Nigerian Government has been planning various approaches to improve its tax revenue among which are the tax policy review of 1991, 2003, 2012, and 2017, and changes of different tax collection act to suit the current real factors. Also, some tax policies by the tax authority (FIRS) were put in place over the few years such as the E- Payment scheme, Tax Identification Number (TIN), and Anti-Tax Avoidance legislation. Notwithstanding every one of these actions to increase tax revenue which was expected to boost economic growth via adequate funding of public expenditure, the economy has not been developing still, major tax challenges still exist which include frontiers of professionalism, poor accountability, lack of awareness of the general public on the imperatives and benefits of taxation, corruption of tax officials, tax avoidance and evasion by taxing units, connivance of taxing officials with taxing the population, high rate of tax, poor method of tax collection.

There have been controversies surrounding the topic. These controversies can be observed in the work of Khumbuzile and Khobai (2018), and Macek (2016), who stated that economic growth was adversely affected by

increments in taxation. However, Michael and Friday (2018), Ilaboya, and Mgbame (2016) concluded that taxation had no impact on economic growth. Anyanwu (2018); Akwe (2014) indicated a positive relationship between taxation and economic growth, others, Saibu (2015); Gareth (2016); Bonu and Pedro (2009); Saima et al. (2014) showed a negative relationship. Most of the studies testing empirically the relationship between taxation and economic growth have found a negative impact of the aggregate tax on economic growth.

Thus, there is a need to understand with empirical facts the impact of taxation on the output growth of Nigeria from 1980-2019. The study focuses on the impact of Petroleum Profit Tax, Company Income Tax, and Value Added Tax on output performance in Nigeria. The rest of the paper is divided into, a literature review, methodology, results, and discussion then, a conclusion and recommendations.

## LITERATURE REVIEW

### Keynesian Theory of Taxation

The initiator of the Keynesian tax assessment hypothesis was John Keynes, who uncovered its fundamental standards in his book "The General Theory of Employment, Interest, and Money," wherein he upheld state intercessions in the cycles of market economy guidelines. As indicated by Keynes, quick economic growth should be founded on a market extension and a related expansion in consumption. Subsequently, state mediation is accomplished at the degree of effective demand. One of the primary suspicions in Keynes' hypothesis is that economic growth is identified with savings only in cases of full employment. In the opposite case, a lot of savings thwart economic growth as they represent a passive form of income and are not invested in production; thus Keynes recommended that overflow reserve funds should be deducted with the assistance of taxation. This is the reason the state should mediate to take away excess savings with the assistance of taxation to back speculations and cover public expenditures. Keynes contended that general reformist tax collection is essential and that low duty rates lead to diminished state revenues and accordingly add to monetary insecurity. That is, according to Keynes taxes must play the most important role in the system of state regulation. High taxes invigorate economic activities; impact the soundness of the economy and with regards to the economic system goes about as "coordinated adaptability systems."

### Empirical Literature

A research study carried out by Taufik and Imbarine (2016) applied the square root transformation of ordinary least squared (OLS) and reports a positive effect of tax revenue on growth in an open trade environment. A similar result was obtained in another study by N'Yilimon (2019) using the unit root test on panel data. It suggests also the absence of a non-linear relationship between taxation and economic growth of West African Economic and Monetary Union (WAEMU) countries. Tanzi (2017) also finds that total tax revenue has a high positive significance to the change in GDP, in which four of the components of tax revenue (are GST, IPCT, ITT, and TTR). However, the impacts of tax revenue were not consistent for all countries in the four levels of income.

A significant negative impact of higher marginal tax rates on economic growth was the result of the research by Barry and Jules (2018) which underscores the importance of controlling for regressivity, convergence, and regional influences in isolating the effect of taxes on economic growth in the United States. Another study conducted by Kanghua et al. (2018) utilized descriptive statistics, a multi-segment linear regression model, and principal component analysis to analyze how economic growth and tax reform affect the total tax revenue and structure. Their findings indicate that economic growth not only has a significant impact on the total tax revenue and structure changes but also has a long-term stable relationship with total tax revenue.

The existence of a strong and positive impact of VAT revenue on the economic growth (GDP) of Pakistan was the findings by Bilal (2015) in his investigation using the Ordinary Least Square (OLS) Regression technique. Ravindra et al. (2017) in their own study adopted the use of the descriptive technique in estimating and analyzing the data and found out that Value added tax has been identified as the real goal maker by the Indian government in the coming years to foster growth and prosperity in the country.

The investigation by Ibadin and Oladipupo (2018) inspected the effect of indirect taxes on the economic growth of Nigeria, using time series data spreading over a long-term period, from 1981 to 2014. The information gathered

from secondary sources was investigated and tried for stationarity, utilizing the Augmented Dickey-Fuller test. The Value Added Tax (VAT), Petroleum Profit Tax (PPT) and Custom and Excise Duties (CED), were fixed at the second difference while the Real Gross Domestic Product (RGDP) was fixed at the level. Consequently, the study used the Error Correction Model to assess the effect of VAT, PPT, and CED on the RGDP. The discoveries uncovered that VAT and PPT apply a positive and significant relationship to the RGDP. It was moreover revealed that CED of two-period lags has a positive relationship with RGDP and VAT of two-period lags exhibits a negative anyway critical relationship with RGDP.

A research study conducted by Dickson and Presley (2018) in their study using the Ordinary Least Squares (OLS) technique in estimating the equations, and the use of secondary data was adopted in data analysis. Their study revealed that a well-articulated tax incentive will not only promote increased economic activity in the country but also stimulate foreign investors into the economy thereby improving revenue productivity and the tax base of Nigeria's tax system

Yadirichukwu and Ebiringa (2017) inspected experimentally, the impact of different types of tax on the economic growth of Nigeria. Secondary data was used within the times of 1985-2015, and the econometric technique adopted was OLS regression and the Granger causality technique. The outcome indicated that among the determinant factor of economic growth in the nation through tax, just custom and exercise obligations are equipped for impacting development, and have a significant inverse relationship with the GDP. The investigation subsequently suggested that the company income tax system ought to be restructured to bring about more revenue capable of contributing more significantly to the Nigerian economic growth as it is proven in the advanced nations of the world. The study additionally saw that custom service operations and revenue generations in the border aren't basically reflected in the economy due to non-responsibility and straightforwardness as well as leakages in the system.

Edame and Okoi (2019) in a contradicting approach; in their study adopted the Ordinary least square estimating technique, with the use of a time series analysis data, and found out that there is a negative relationship between taxation and economic growth, and also a negative relationship between taxation and GDP.

## METHODOLOGY

The chosen output performance indicator is the real Gross Domestic Product (RGDP) is specified to depend on the taxation indicators which are the petroleum profit tax (PPT), company income tax (CIT), and value-added tax (VAT), Capital (K) and Labour (L). The study adopted and modified the model Nasiru, Haruna, and Abdullahi (2016) in their study "evaluating the impact of value-added tax on the economic growth of Nigeria". This study adopts a modified version of the model, in order to take care of those variables not captured in the previous study. A linear relationship is used between real GDP and its determinants. Thus, the functional relationship is expressed as follows

rGDP= f (K, L, PPT, CIT, VAT)

The structural form is expressed as $rGDP = \beta_o + \beta_1 K + \beta_2 L + \beta_3 PPT + \beta_4 CIT + \beta_5 VAT + \mu$

Each of the independent variable is also regressed against the endogenous variable (RGDP) in order to separately know the impact and relationship between each of the independent with the dependent variable.

Where: RGDP = real GDP , K= capital (using gross capital formation as a proxy), L = labour (using labour force) , PPT = petroleum profit tax, CIT = company income tax , VAT = value added tax , $\mu$ = stochastic variable or error term incorporating other factors that are not considered in the model. $\beta_o$ = constant term , $\beta_1 - \beta_3$= parameters to be estimated

**A priori expectations**

A priori expectations are determined by the principles of economic theory guiding the economic relationship among the variables being studied. There exists a significantly strong positive relationship between taxation and economic growth.

**Definition of variables**

1. Output performance (Real Gross Domestic Product): Real gross domestic product is a macroeconomic measure of the value of economic output adjusted for price changes. This adjustment transforms the money-value measure, nominal GDP, into an index for the quantity of total output.

2. Petroleum Profit Tax: PPT is a tax on the income of companies engaged in upstream petroleum operations in lieu of CIT. The PPT rates vary as follows: 50% for petroleum operations under production sharing contracts (PSC) with the Nigerian National Petroleum Corporation (NNPC).

3. Company Income Tax: CIT is a tax on the profits of registered companies in Nigeria. It also includes the tax on the profits of foreign companies carrying on any business in Nigeria. The CIT is paid by limited liability companies inclusive of the public limited liability companies. The CIT is currently charged at the rate of 30% for companies having more than N100 Million Naira turnover. It is also charged at the rate of 20% for companies with a turnover between N25 Million and N100 Million.

4. Value Added Tax: VAT A value-added tax (VAT) is a consumption tax placed on a product whenever value is added at each stage of the supply chain, from production to the point of sale. The amount of VAT that the user pays is on the cost of the product, less any of the costs of materials used in the product that has already been taxed. The rate of VAT is presently 7.5% in Nigeria, this was increased from 5% recently.

**Sources of variables**

The needed data for the model is real gross domestic product (RGDP), capital (K), labor (L), petroleum profit tax (PPT), company income tax (CIT), and value-added tax (VAT). The data cover the period from 1994-2020.

The sources of data are as follows:

Real Gross Domestic Product (RGDP): This study used real GDP as precedence laid by most past studies to measure economic growth. The real GDP determines the actual level of productivity in an economy. Data were obtained from the Central Bank of Nigeria (CBN) Annual Statistical Bulletin. Capital (K), labor (L), petroleum profit tax (PPT), company income tax (CIT), and value-added tax (VAT) were chosen to be the type of income mainly collected by the federal government. Data were obtained from the Central Bank of Nigeria (CBN) Annual Statistical Bulletin, Federal Inland Revenue Service Database (FIRS), and World bank databank.

**Estimating techniques**

The study shall employ both descriptive and inferential techniques. For objective one, the study shall use descriptive techniques like graphs and tables, in order to analyze the trends of both manufacturing output and exchange rate. With respect to objective two, this study shall employ the Auto-Regressive Distributed Lag (ARDL) method.

**RESULTS AND DISCUSSION**

This section discusses the empirical results after interpreting the raw results from the estimating technique which is the ARDL. The process begins with the descriptive analysis of the variables.

**Table 1: Descriptive Analysis**

|         | RGDP     | K        | L        | CIT      | PPT      | VAT      |
|---------|----------|----------|----------|----------|----------|----------|
| Mean    | 48784.33 | 9935.365 | 48250459 | 550.9504 | 1220.174 | 445.3674 |
| Median  | 32995.38 | 7535.271 | 49185874 | 332.4000 | 1157.800 | 312.6000 |
| Maximum | 144210.5 | 44187.03 | 63226720 | 1604.700 | 3201.300 | 1263.500 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Minimum | 1762.813 | 744.0923 | 35509739 | 12.28000 | 42.80000 | 7.260000 |
| Std. Dev. | 46061.38 | 10477.24 | 7659764. | 548.6980 | 997.0578 | 407.1247 |
| Skewness | 0.675345 | 1.911197 | -0.023452 | 0.616141 | 0.432374 | 0.554625 |
| Kurtosis | 2.095457 | 6.361283 | 2.020312 | 1.908028 | 2.037166 | 1.964151 |
| Jarque-Bera | 2.972880 | 29.14753 | 1.082237 | 3.049785 | 1.884195 | 2.591347 |
| Probability | 0.226176 | 0.000000 | 0.582097 | 0.217644 | 0.389809 | 0.273713 |
| Sum | 1317177. | 268254.8 | 1.30E+09 | 14875.66 | 32944.70 | 12024.92 |
| Sum Sq. Dev. | 5.52E+10 | 2.85E+09 | 1.53E+15 | 7827808. | 25847228 | 4309514. |
| Observations | 27 | 27 | 27 | 27 | 27 | 27 |

**Source:** Authors Computation 2021 using E-views 10.

The table above shows the descriptive properties of the variables under consideration. It can be observed that the mean (average value) of Real Gross Domestic Product (RGDP), Capital (K), Labour, Company Income Tax (CIT), Petroleum Profit Tax (PPT), and Value Added Tax (VAT) are 48784.33, 9935.36, 48250459, 550.95, 1220.174 and 445.36 respectively.

The median values of Real Gross Domestic Product (RGDP), Capital (K), Labour, Company Income Tax (CIT), Petroleum Profit Tax (PPT), and Value Added Tax (VAT) are 32995.38, 7535.27, 49185874, 332.40, 1157.80, and 312.60 respectively. The standard deviation measures the degree of dispersion of the series, the standard deviation of Real Gross Domestic Product (RGDP), Capital (K), Labour (L), Company Income Tax (CIT), Petroleum Profit Tax (PPT), and Value Added Tax (VAT) are 46061.38, 10477.24, 7659764, 548.6980, 997.0578 and 407.1247 respectively.

The skewness values of Real Gross Domestic Product (RGDP), Company Income Tax (CIT), Petroleum Profit Tax (PPT), and Value Added Tax (VAT) are 0.67, 0.61, 0.43, and 0.55 which shows that the variables are positively and moderately skewed. Labour (L) has a skewness value of -0.02 which is it is negatively and moderately skewed, while capital (K) is positively and highly skewed with a skewness value of 1.91.

The kurtosis values of Real Gross Domestic Product (RGDP), Labour (L), Company Income Tax (CIT), Petroleum Profit Tax (PPT), and Value Added Tax (VAT) are 2.09, 2.02, 1.93, 2.03, and 1.96 respectively. This indicates that the variables are clearly platykurtic because the kurtosis values are less than 3 which implies that these variables will have a lower value below the sample mean. However, capital (K) has a kurtosis value of 6.36 which shows that the variable is leptokurtic.

The Jarque-Bera statistics accepted the null hypothesis of normal distribution because the probability value of Real Gross Domestic Product (RGDP), Labour (L), Company Income Tax (CIT), Petroleum Profit Tax (PPT), and Value Added Tax (VAT) are greater than 5% significant level except capital (K).

**Table 2 Correlation Matrix**

| | RGDP | K | L | CIT | PPT | VAT |
|---|---|---|---|---|---|---|
| RGDP | 1 | 0.90062 | 0.91240 | 0.983042 | 0.731936 | 0.99192 |
| K | 0.900622 | 1 | 0.748397 | 0.8790481 | 0.5777104 | 0.90217465 |
| L | 0.91240765 | 0.7483973 | 1 | 0.8911742 | 0.821654 | 0.9151091 |

| | | | | | | |
|---|---|---|---|---|---|---|
| CIT | 0.98304213 | 0.8790481 | 0.8911742 | 1 | 0.7338468 | 0.9811890 |
| PPT | 0.73193668 | 0.5777104 | 0.82165457 | 0.7338468 | 1 | 0.7782559 |
| VAT | 0.9919280 | 0.90217465 | 0.9151091 | 0.9811890 | 0.7782559 | 1 |

**Source:** Authors Computation 2021 using E-views 10.

The correlation result shows that all the variables have a positive relationship with Real GDP. It thus indicates that the macroeconomic variables affected the growth of the Nigerian economy positively during the period under review.

**Unit root test**

Due to the result obtained from the descriptive analysis above, it is important to determine the stationarity properties of the time series under consideration by conducting the unit root test. Therefore, the unit root test was conducted using the Augmented Dicky-Fuller (ADF) test, and the outcome of the unit root test is summarized in the table below:

**Table 3: Unit Root Analysis**

| Augmented Dickey Full (ADF) Test | | | | | | |
|---|---|---|---|---|---|---|
| **Variables** | **AT LEVEL** | | | **AT DIFFERENCE** | | |
| | t-statistics | Prob.Value | Status | t-statistics | Prob.Value | Status |
| RGDP | 0.149708 | 0.9957 | I(0) | -3.7049888* | 0.0459 | I(1) |
| CIT | -1.972322 | 0.5874 | I(0) | -6.217805* | 0.0002 | I(1) |
| PPT | -0.439227 | 0.5139 | I(0) | -4.816892* | 0.0000 | I(1) |
| VAT | -1.696331 | 0.7199 | I(0) | -3.939022* | 0.0268 | I(1) |
| K | -8.420467* | 0.0000 | I(0) | | | |
| L | -4.699545* | 0.0058 | I(0) | | | |

**Source:** Authors' Computation 2021, Using E-views 10. **Note: * denote 5% critical values.**

The outcome of the ADF unit root test above indicated that Real Gross Domestic Product (RGDP), Company Income Tax (CIT), Petroleum Profit Tax (PPT), and Value Added Tax (VAT) are stationary at the first difference since their probability value are less than 0.05 after the first differencing, which implies that they are integrated of order 1 i.e I(1). However Capital (CAP) and Labour (LAB) are stationary at level, which implies that they are integrated of order 0 i.e I(0).

**Optimal lag length criteria**

From the table below, the optimal lag length of 2 was selected based on the AIC and HQ criterion

**Table 4: Optimal Lag Criteria.**

| Lag | LR | FPE | AIC | SC | HQ |
|-----|-----|-----|-----|-----|-----|
| 0 | NA | 2.42e+54 | 142.2512 | 142.5458 | 142.3294 |
| 1 | 280.3393 | 3.72e+48 | 128.7607 | 130.8223 | 129.3076 |
| 2 | 75.01785* | 1.60e+47* | 124.9409* | 128.7696* | 125.9566* |

**Source:** Authors Computation using E-views 10, 2021.

**Note:** * indicates lag order selected by the criterion.

LR: sequentially modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion

**ARDL bound test**

**Table 5: ARDL Bound Test**

| Significant Level | F-statistics | Lower Bound I(0) | Upper Bound I(1) |
|-----|-----|-----|-----|
| 5% | 30.34384 | 2.39 | 3.38 |
| 1% | | 3.06 | 4.15 |

Source: Authors' computation using E-views 10, 2021.

From the table above, the hypothesis that there is a long and short-run relationship between Real Gross Domestic Product (RGDP), Company Income Tax (CIT), Petroleum Profit Tax (PPT) Value Added Tax (VAT), Capital (CAP), and Labour (LAB) is accepted at 5% significant level, because the F-statistics is higher than the lower bound 2.39 and the higher bound 3.38. Hence, it is necessary to estimate both the long-run and short-run dynamic models.

**ARDL analysis**

**Table 6: Long Run Parameter Estimate**

| Variable | Coefficient | Std. Error | t-Statistics | Prob |
|-----|-----|-----|-----|-----|
| CIT | -30.67128 | 75.02343 | -0.408823 | 0.6969 |
| PPT | 37.34733 | 10.29718 | 3.626946 | 0.0110 |
| VAT | 184.5534 | 114.0402 | 1.618319 | 0.1567 |
| K | -9.20E-07 | 2.84E-07 | -3.237086 | 0.0178 |
| L | -8.56E-05 | 0.000733 | -0.116717 | 0.9109 |
| C | -5348.284 | 23653.77 | -0.226107 | 0.8286 |

**Source:** Authors Computation using E-views 10, 2021.

The result in the table above shows that Company income tax and Labour have a negative and insignificant effect on output performance, hence Company income tax has no effect on the economy in the long run, also Value added tax although having a positive relationship had an insignificant effect on output performance in the long run. This negates the theoretical arguments of J.M Keynes which state that taxation has an effect on output performance. Petroleum profit tax on the other hand had a positive relationship and significant effect on output performance, this indicates that a 1% increase in petroleum profit tax will lead to a 37.34 increase in the growth of the economy, in the long run, this scenario is in line with the apriori expectation of the effect of tax on output performance.

Capital and Labour had a negative relationship with output performance in the long run, with the effect of Capital significant which implies that a 1% increase in capital will deter the economy by -9.20E-07 in the long run and that of Labour insignificant in the long run.

**Table 7: ARDL ECM Analysis (Short-Run Dynamic Model)**

| Variable | Coefficient | Std.Error | t-Statistics | Prob |
|---|---|---|---|---|
| D(CIT) | -10.19671 | -10.19671 | -7.048592 | 0.0004 |
| D(PPT) | 1.804405 | 0.379632 | 4.753039 | 0.0031 |
| D(VAT) | 26.48449 | 4.825918 | 5.487968 | 0.0015 |
| D(K) | 8.33E-09 | 1.87E-08 | 0.446459 | 0.6709 |
| D(L) | 0.003601 | 0.000577 | 0.000577 | 0.0008 |
| CointEq(-1)* | -0.279175 | 0.029246 | -9.545722 | 0.0001 |
| $R^2$ | 0.995127 | | | |
| Adjusted $R^2$ | 0.990661 | | | |
| S.E. of Regression | 428.8672 | | | |
| Sum squared Resid | 2207125 | | | |
| Log likelihood | -171.2043 | | | |
| F-statistic | 7058.240 | | | |
| Prob(F-statistic) | 0.000000 | | | |
| Durbin-Watson stat | 2.144166 | | | |

**Source:** Authors Computation using E-views 10, 2021.

The short-run error correction term, ECM from the ARDL model estimate is negative as expected with a value of -0.279175 and is statistically significant. Thus, the gap between the long-run equilibrium value and the actual value of the dependent variable is corrected with the speed of adjustment equal to 27% (percent) annually. The result further shows that CIT has a negative and significant relationship with output performance in the short run; this indicates that 1% increase in CIT deters output performance by 10.19671. This is against apriori expectation hence this could have occurred as a result of a lack of proper usage of income accrued to the government from company income tax.

It can also be observed that PPT has a positive and significant effect on the growth of the economy even in the short run; i.e a 1% increase in PPT will boost the economy by 1.804405. Hence the government needs to capitalize on this influence of PPT on the growth of the economy as it is more expected for PPT to have a major influence on the growth of an oil-dependent economy such as Nigeria. Furthermore, VAT a positive and significant relationship with output performance in the short run. This indicates that a 1% increase in VAT will lead to a 26.48449 increase in the growth of the economy. Hence, this goes in line with a priori expectations and it is expected that the government capitalizes on this to boost the economy also. Labour also has a positive and significant relationship with output performance as expected based on profound theories of classical economists. However, Capital has an insignificant relationship with output performance which negates a priori expectations.

The coefficient of determination ($R^2$) shows that the explanatory variables employed in the study explain approximately 99.06% of the total variation in output performance. This indicates that the variables used in the model are appropriate and suitable for the analysis. The Durbin Watson statistics of 2.144166 falling in between the standard of 1.5 and 2.5 also shows that the variables are sufficient to explain the dependent variables.

**Post estimation analysis**

**Table 8: Breusch-Godfrey Serial Correlation LM Test:**

| | | | |
|---|---|---|---|
| F-statistic | 3.180425 | Prob. F(2,4) | 0.1490 |
| Obs*R-squared | 14.73435 | Prob. Chi-Square(2) | 0.0006 |

**Source:** Authors Computation using E-views 10, 2021

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

**Table 9: Heteroskedasticity Test: Breusch-Pagan-Godfrey**

| | | | |
|---|---|---|---|
| F-statistic | 0.861418 | Prob. F(17,6) | 0.6284 |
| Obs*R-squared | 17.02465 | Prob. Chi-Square(17) | 0.4527 |
| Scaled explained SS | 1.842217 | Prob. Chi-Square(17) | 1.0000 |

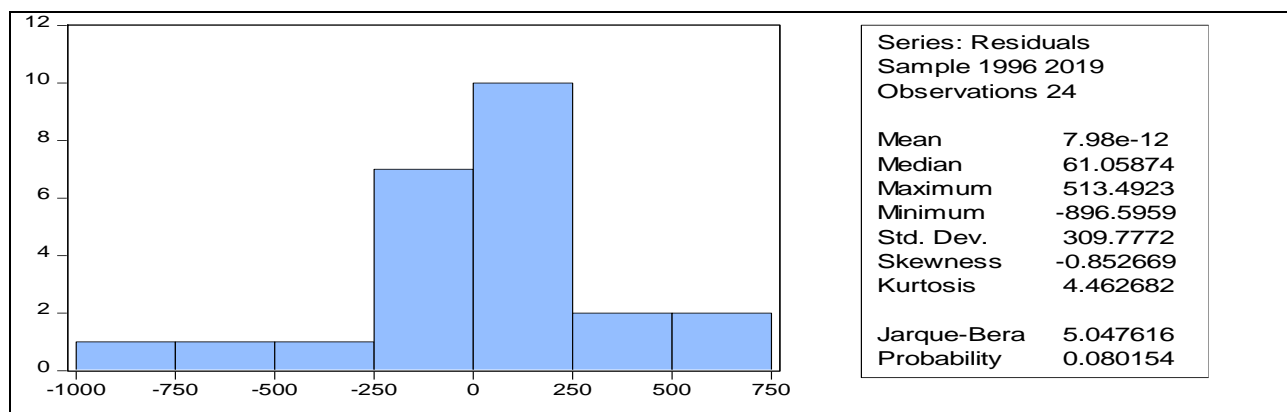**Source:** Authors Computation using E-views 10, 2021

From the result, the probability of F-statistics is 0.6284 and this is greater than 0.05 at a 5% significant level therefore, the null hypothesis is accepted. This implies and therefore confirms the absence of heteroscedasticity in the model. That is the error terms are homoscedastic i.e., they have constant variance in repeated sampling.

**Table 10: Diagnostic test**

| Diagnostic Test | Result |
|---|---|
| Normality test: Jarque-Bera | Significant |
| CUSUM | Stable |
| CUSUM of square | Stable |

**Source:** Authors Computation using E-views 10, 2021

**Figure 5: Normality test: Jarque-Bera**



(**Source:** Authors Computation using E-views 10, 2021)

The Normality test of the model using Jarque-Bera showed that the model is significant since the probability value is greater than the 5% significance level as seen in figure 1 below. Also, the Cumulative Sum of Recursive Residual (CUSUM) and Cumulative Sum of Squares of Recursive Residual (CUSUMSQ) are indicated in Figures 2 and 3 respectively. The graph reveals that the residuals are within the 95% confidence interval which implies that the model did not suffer from any econometric problem.

## CONCLUSION AND RECOMMENDATIONS

Using the Auto Regressive Distributed Lag (ARDL) in analyzing the data collected on the gross domestic product (GDP), petroleum profit tax (PPT), company income tax (CIT) and value-added tax (VAT) through a secondary source. The result shows that company income tax and value-added tax has no significant relationship in explaining the output performance in Nigeria in the long run, with petroleum profit tax having a significant impact on the economy in the long run. However, tax has the ability to impact on the economy positively if properly and systematically integrated. The positive signs of the petroleum profit tax and value-added tax is an indicator that Nigeria at large is benefitting from tax revenue; since revenue from the tax is used by the government to finance its major economic projects.

The results further revealed that there is a significant relationship between petroleum profit tax, company income tax, value-added tax, and Nigeria's output performance in the short run, with company income tax having a negative relationship with output performance which is actually against a priori expectations. The implication is that tax revenue from company income has not contributed much to the growth of Nigeria's economy as one considers the fact that most of the revenue generated from taxes especially company income in this case is squandered by the government officials and tax administrators.

One of the main purposes of tax revenue is to raise revenue that the government can use to provide adequate amenities and infrastructure as well as enhance growth and development but the case seems to be different in Nigeria as the physical evidence does not show that funds generated from tax revenue are used for this purpose.

**Policy recommendations**

If output performance and development have to be achieved in Nigeria, then the Federal Government as a matter of urgency, restructure the tax system in Nigeria. Revenue from tax should also be properly and judiciously expended to provide basic amenities to the taxpaying citizens of Nigeria. Below are a few recommendations for the government to achieve its growth objective:

a. Government should use the revenue generated from tax especially that of company income tax to develop the domestic sector of the economy, especially the Agro-allied industry and the manufacturing sector qualitative development.
b. Government should sensitize the citizenry through awareness campaigns and enlightenment on the need to pay tax and not evade it.
c. Government to encourage and also insist on taxes remittance to Government accounts via the electronic payment system. This will go a long way in curbing fraudsters as well as being a means of supporting the cashless economy.
d. Nigeria's tax regulatory body needed to implement policies that will reduce the loopholes in tax laws that taxpayers capitalize on to evade tax.
e. Enact an act prohibiting tax avoidance and tax evasion a punishable offense with serious sanctions imposed.

## REFERENCES

1. Ajakaiye D.O and Odusola A.F (2016). Price effected on value added tax in Nigeria: Policy analysis series 2(2), 48-68
2. Akwe, J.A., (2015). Impact of non-oil tax revenue on economic growth: The Nigerian perspective. International Journal of Finance and Accounting, 3(5): 303-309.
3. Amahala N.N, Okeke M.N and Obi J.C (2017). Audit and quality determinants: Evidence from quoted health care firms in Nigeria. International journal of Academic research in Accounting, Finance and

Management Sciences 7(4), 216-231

4.  Anyanwu J.C and Oainkhenan H.E (2017). Modern macroeconomics, theory and application in Nigeria: Joanee educational publishers ltd, Onisha, Nigeria
5.  Anyawu J.C (2017). Nigeria public finance. Onitsha, Joance education publishers
6.  Asogwa F.O and Nkolika O.M (2016). Value added tax and investment growth in Nigeria Time series analysis JOSR Journal of humanities and social science (IOSR-JHSS) 18(2); 28-31
7.  Azubike J.U.B (2019). Challenges of tax authorities, tax payers in the management of tax reform processes, Nigerian Accountant 42(2), 36-42
8.  Bakare A.S (2015). Value added tax and output growth in Nigeria, proceeding of 8th annual London business research conference imperial college, London, UK, 8-9 July, 2013 1-11
9.  Barry, W.P. and G.K. Jules, (2018). State income taxes and economic growth. Journal of Management, 28(1): 53-71.
10. Bilal, H., (2015). The role of value added tax (VAT) in the economic growth of Pakistan. Journal of Economics and Sustainable Development, 13(6): 174-184.
11. Central Bank of Nigeria, 2019. Statistical bulletin. Available from http://www.cbn.gov.ng/.
12. Chibu E.E (2016). A co-integration of value added tax and economic growth in Nigeria: 1994-2012 Interbational journal of management sciences and business research 3(2) 95-103
13. Claus I Haugh, D.Scobies, and Torn Quist (2017). Savings and Growth in an open economy: Treasury working paper, available from http//11.treasury.gov.pdf. Accessed 23 April 2016
14. Edame E (2018). The essential of public finance and public financial management in Nigeria. Revised 3rd Edition: Calabar, Wusen press ltd
15. Edame, G.E. and W.W. Okoi, (2019). The impact of taxation on investment and economic development in Nigeria. Academic Journal of Interdisciplinary Studies, 4(3): 209-218. DOI 10.5901/ajis.2014.v3n4p209.
16. Fagbemi T.O, Uadiele O.M and Noah A.O (2010). the ethics of tax evasion: Perceptual evidence from evidence from Nigeria. European Journal of Social Sciences, 17(3) 360-371
17. Ibadin P.O and Oladipupo A.O (2018). Indirect taxes and economic growth in Nigeria. Ekon.misaolPrasksaDbk,xxivBR2 (345-364)
18. Ihendinihu J.U and Onwuchkwa J.C (2019). Stock market performance and economic growth in Nigeria (1984-2011): Journal of emerging trends in economics and management sciences 3(6), 971- 977
19. Izedonmi F.L and Okunbo J.A (2016). The role of value added tax in the economic growth of Nigeria: British journal of economics, management and trade, 4(12):1999-2007
20. Kanghua, Z., L. Shan and L. Qian, (2018). The impact of economic growth and tax reform on tax revenue and structure: Evidence from China experience. Modern Economy. Irvine, Calif.: Scientific Research Publishing, 4: 839-851.
21. Lucas R.E (2017). On the mechanics of economic development: Journal of monetary economics 22(1) 3-42
22. Macek R (2016). The impact of taxation on economic growth: case study of OECD countries reviews of economic perspectives. 14(4): 309-328
23. Murkur G.A (2018). Design of tax and corruption. Conference paper of fighting corruption: Common challenges and shared experiences
24. N'Yilimon, N., (2019). Taxation and economic growth: An empirical analysis on dynamic panel data of WAEMU countries. University of Lome MPRA Paper No. 61370.
25. Nwadialor Eugene and Ekezie Chineze (2016). Effect of tax policy on economic growth in Nigeria (1994-2013). International journal of business administration, sciedu press, vol 7(1) pg 50-58, January
26. Oboh C.S and Isa E.F (2017). An empirical investment of multiple tax practices and taxpayers compliance in Nigeria.
27. Ochei O.O (2016). Nigerian tax reform: Challenges & prospects, accessed from medwelljournal.com on may 4, 2016
28. Okoi M.N and Matthew A.S (2015). Correlatiom between value added tax and national revenue in Nigeria: An ECM model. Research Journal of finance and accounting 6(6) 230-238
29. Okpe I.I (2000). Personal income tax in Nigeria Enugu: Ochumba printing and publishing company
30. Olatunji O.C (2019). A review of value added tax (VAT) administration in Nigeria: Medwell journal 3(4) 61-68
31. Onwucheka J.C and Aruwa S.A (2019). Value added tax and economic growth in Nigeria: European journal of accounting, auditing and finance research, 2(8) 62-69

32. Owolabi S.A and Okwu A.T (2016). Empirical evaluation of contribution of value added tax to development of Lagos state economy. Middle eastern finance and economics, Euro journals publishing. 9. Accessed from http: www.eurojournal.com/mefe.htm on June 2. 2016

33. Ravindra, T., S. Ambalika and A. Sweta, (2017). The effect of value added taxes on the Indian society. Journal of Accounting and Taxation, 2(3): 32-39.

34. Romer P.M (1990). Endogenous technological change: Journal of political economy 98(5) 571

35. Solow R (1956). A contribution to the theory of economic growth. The quarterly journal of economics 70 (1): 63-94

36. Swan T (1956). Economic growth and capital accumulation. The economic record 32(2): 324 -361

37. Todaro M.P (1995). Economic development in the third world, Third Edition, Longman, London

38. Yadirichukwu E and Ebiringa O.T (2017). Analysis of tax formation and impact on economic growth in Nigeria: International journal of accounting and financial reporting 2(2), 367-385