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TAX REVENUE AND ECONOMIC GROWTH OF TELECOMMUNICATION SECTOR IN NIGERIA (2001-2018)

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Abstract

This study examined tax revenue and economic growth of telecommunication sub-sector in Nigeria. Early research works identified that taxation of GSM telecommunication sub-sector as evidenced by the taxes paid has not contributed to the economic growth in Nigeria. Therefore, the objective of the study was to examine the effect of tax revenue proxied by Value Added Tax (VAT) on the economic growth, proxied by Real GDP of the telecommunication sub-sector.

The study was conducted using the annual time series data, which covered a period of 18 years (2001 to 2018). The data were largely obtained from the Central Bank of Nigeria's (CBN) Annual Reports and Statistical Bulletin, Federal Inland Revenue Service (FIRS) Annual Report, Companies Audited Financial Statements and National Bureau of Statistics (NBS) Database 2018 and the main estimation technique employed is Autoregressive Distributed Lag (ARDL) approach as enunciated by Pesaran & Shin (1999) and developed by Pesaran, Shin & Smith (2001) involving unit root test, co-integration test, short-run and long-run estimations. In the ARDL regression analysis, Economic Growth indicator is regressed against its own lag and the tax indicator selected.

Findings revealed that value added tax (with Adjusted R^2 of 0.515, and F-Statistic [Prob.(F-Stat)] of 6.66 [0.006] is significant. VAT has significant effect on the economic growth of telecommunication sub-sector in Nigeria for the period under study.

The study therefore concluded that tax revenue has positive effect on the economic growth of telecommunication sub-sector in Nigeria. Thus, it was recommended among others that government should develop more workable policies in the utilization of tax revenue while companies in the GSM telecommunication sub-sector should embrace voluntary tax compliance; policy makers should ensure principle of tax justice from the perspective of both the taxpayer and government.

Introduction

Globally, economic growth has been identified as a rise in the manufacturing of goods and services at a given time. Gross domestic product (GDP) is the most suitable method in assessing economic growth as it considers the nation's total economic production. It comprises of all goods and services that companies in the country manufacture for sale which does not matter whether they are sold locally or abroad. Economic growth can be positive, zero, or negative (Eneje, 2018). The Nigeria service sector is the leading division of the economy, thereby constituting about 50 percent of total GDP (tradingeconomics.com/Central Bank of Nigeria). Economic growth according to Todaro and Smith (2006) is the stable course by which the industrious ability of the economy is gradually augmented to yield growing levels of national output and income. The growth rate is affected by macro-economic policies, such as taxation. Nigeria as a developing nation ranks number 38 amongst 144 nations with $286.5 billion, and GDP as an indicator (World Economic Global Competitive Index, 2015). GDP is an economic gauge of a nation's entire revenue and output for a specific time in a year. It is also a proxy for economic growth; furthermore, the negative growth rate of 1.5 percent, experienced due to economic recession as at year 2016 in Nigeria has affected the performance of tax revenue. The real GDP in Nigeria took an upsurge in a space of five years (2010 – 2015). It increased from over 54 trillion naira in 2010 to over 69 trillion naira in 2015. According to the NBS report in 2016, the real GDP took a fall to ₦67,984.2 trillion in 2016 with an unfavorable impact on the tax revenue performance from ₦5,481.7 trillion in 2012 to ₦3,977.9 trillion in 2016 (FIRS Annual Report, 2016).

The role of telecommunication in improving economic growth has been a topic of discussion in the economic literature. Literature has it that the growth of a contemporary country to its full maximum capacity in the modern world cannot be accomplished if lacking ample telecommunications. Most developed countries such as United States of America, Japan and China, having realized this, had liberalized their telecommunication sectors to give way for more investment. Their outcomes were not only enhanced telecommunication abilities, but also an

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international investment surge in private sector development, added job opportunities and improved education services (Awoleye, et al 2012).

Tax revenue has made up an insignificant amount of the overall income generated over time when equated to the majority of proceeds generated by the Federal Government (Yahaya & Bakare, 2018). Taxation is a vital revenue source of any country. That is, to accomplish the goals for tax revenue, its approach to reforms also becomes essential. Taxation in Nigeria has faced chains of restructuring as far back as 1904 to date. In agreement, Omesi and Nzor (2015) affirmed that the restructuring were recommended to expand the tax base, lessen the tax load on payers, reinstate the assurance of the tax payer in the tax system, and encourage voluntary agreement on the part of the tax payer.

In both developed and developing nations, the government must strive to attain economic growth (Edame & Okoi, 2014). On this premise, fiscal policy is an indispensable tool of the government in upholding economic growth. A key aspect of the fiscal policy is taxation. Rai and Sharma (2018) assert that several economists consider tax revenue as an extremely important element that impacts a country's progress. Besides, tax revenue has afforded developing countries with a steady and anticipated fiscal environment to stimulate growth and to fund their social and physical infrastructural needs. These call for Akwe, (2014) observation that a nation's tax system is the main determining factor of other macroeconomic indexes.

The Nigerian telecommunications sector was wholly under-developed pending its liberation under the military regime in 1992 with the founding of a regulatory body- the Nigerian Communication Commission (NCC). Since then, the NCC has distributed numerous licenses to private telephone operators (PTOs). These licenses allow the PTOs to roll out both fixed wireless telephone lines and analogue mobile phones. However, the advent of democracy in 1999 created an avenue for giving Global System for Mobile Communication (GSM) licenses to three inaugural service providers known as: MTN, ECONET (which earlier changed its name to V-MOBILE, Zain, Celtel and now Airtel) and NITEL Plc in 2001. Thereafter, GLOBACOM joined in 2003 and more recently Emirates Telecommunications Corporation formerly called Etisalat which is now 9Mobile.

In consistent with the foregoing, it is important that those factors which promote economic growth through the tax revenue of GSM telecommunication sub-sector should be adequately understood and developed to implement effective strategies and to stimulate Nigeria's economic growth. Few studies have been conducted in line with this research, such as Awoleye, et al (2017); Noko, (2017); Olunga and Solomon, (2019) but with conflicting and inconclusive findings. It is presently uncertain why empirical evidence in a developing nation like Nigeria regularly produces contradictory results. These differing outcomes show that the influence of tax revenue of GSM telecommunication sub-sector on economic growth is yet to be resolute. The unsettled proof has made the matter, effect of tax revenue of GSM telecommunication sub-sector on economy growth of the sector in Nigeria open to further research.

Based on the above-mentioned gap created by the earlier researchers and inferences drawn by diverse researchers, it is therefore evident that knowledge gap exists on the relationship between tax revenue of GSM telecommunication sub-sector and economic growth of the sector in Nigeria. It is on the basis of this that this study examined the effect of value added tax on the economic growth of GSM telecommunication sub-sector. Therefore, the objective of the study was to assess the effect value added tax in the GSM telecommunication sub-sector has on economic growth of telecommunication sector in Nigeria. This objective was transposed to the question- how does value added tax in the GSM telecommunication sub-sector affect economic growth of telecommunication sector in Nigeria? Moreover, a null hypothesis was drawn from the question and sought to test that- Value added tax in the GSM telecommunication sub-sector has no significant effect on economic growth of telecommunication sector in Nigeria.

Literature review

Several empirical studies have been directed at tax revenue and economic growth. Jimoh, Adegoriola and Adeyemo (2020) investigated the impact of tax revenue on economic growth in Nigeria from 1990 to 2016. Annual time series data were sourced from Federal Ministry of Finance, Federal Inland

Revenue Service, Central Bank of Nigeria and National Bureau of Statistics. The data were tested for stationarity using Augmented Dickey Fuller (ADF) test while the co-integration was conducted using Johansen's test. The estimation technique employed for the time series data was Error Correction Model (ECM). The result showed positive significant effect of tax revenue on economic growth with petroleum profits tax, companies income tax and value added tax having positive and significant impact on gross domestic product.

Emmanuel and Ibrahim (2020) examined the relationship between tax revenue and Nigeria's economic growth. Tax revenue was proxy by petroleum profits tax; value added tax and companies' income tax, while economic growth is proxy by GDP. Data collected were analyzed with the aid of the Stata computer software. The study discovered that petroleum profits tax (oil tax revenue) has a positive but no significant relationship with Nigeria economic growth, while value added tax and companies income tax (non-oil tax revenue) have significant relationship with Nigeria economic growth.

Yahayah and Yusuf (2019) examined the impact of non-oil tax revenue on economic growth in Nigeria. The study employed the ex-post facto research design, and data were drawn from the Annual Reports of CBN and FIRS publications. Autoregressive Distributed Lag (ARDL) was employed to analyze the data collected after subjecting the series to unit root test and co-integration test using companies income tax (CIT), value added tax (VAT) and custom and excise duties tax (CED) on real gross domestic product of Nigeria. The result of the study showed that tax revenue is positively significant to economic growth.

Abomaye-Nimenibo, Michael and Friday (2018) empirically examined the tax revenue and economic growth in Nigeria from 1980 to 2015 by employing GDP as the dependent variable and Petroleum profits tax (PPT), CIT, and CED as the independent variables. The Ordinary Least Square (OLS) method was used as analytical technique using Econometric software (E-Views 9.0). The results showed that petroleum profits tax (PPT), CIT and CED were all positive but not significant.

Asaolu, Olabisi, Akinbode and Alebiogu (2018) examined the relationship between tax revenue and economic growth in Nigeria. The study adopted a descriptive and historical research design; secondary data for twenty-two years (1994 -2015) were gathered from various issues of the CBN statistical bulletin and annual reports. Tax revenue as an independent variable was measured with VAT; PPT; CIT and CED while the dependent variable was Economic Growth (EG) proxied by the GDP. Analysis was performed on data collected using ARDL. Regression and other post estimations (Jarque-Bera test; Breusch-Godfrey LM and Ramsey Reset Test) to ascertain the existence of relationship between the variables. Egbunike, Emudainohwo and Gunardi (2018) examined the effect of tax revenue on economic growth of Nigeria and Ghana. The study used multiple regressions as tools of analysis and thus found, a positive impact of tax revenue on the gross domestic product of Nigeria and Ghana. Yelwa, Awe and Mohammed (2018) studied impact of value added tax on economic growth in Nigeria from 1994-2016. The study made used of ordinary least squares (OLS) and Granger causality techniques to examine the impact of VAT and CED on GDP. The study revealed that VAT and CED have no significant effect on economic growth.

Khumbuzile and Khobai (2018) examined the impact of taxation on economic growth in South Africa from 1981 to 2016. The methodology used for analysis was the ARDL approach. Results revealed that there is a negative relationship between taxes and economic growth in South Africa. Furthermore, it showed that economic growth, trade and openness, capital taxes are co-integrated. Thus, it was noted that fiscal policy is very essential to force sustainable economic growth in South Africa. Another study by Gwa and Kse (2018) examined the contribution of tax revenue on the economic growth of Nigeria between 1997 and 2016 using time series secondary data. Ordinary least square of multiple regression models was adopted to ascertain the contribution of PPT, VAT and CIT on economic growth proxied by GDP. The study found that there was a positive significant effect on Nigeria's economic growth.

Amos, Uniamikogbo and Aigienohuwa (2017) researched the effect of PPT, VAT CIT and education tax (tertiary education tax) on Nigeria's economic growth, proxied by GDP between 1995 and 2015. The researchers employed the econometric model of multiple linear regressions and ordinary least square (OLS) technique. Results showed that CIT had a positive and statistically significant effect on Nigeria's economic growth. Whereas VAT had a positive but, statistically insignificant effect on Nigeria's economic growth.

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Akwe (2014) studied the impact of non-oil tax revenue on economic growth from 1993 to 2012 in Nigeria. Relevant secondary data were used from the 2012 Statistical Bulletin of the CBN. These data was analyzed using the Ordinary Least Squares Regression. The result from the test shows that there exists a positive impact of non-oil tax revenue on economic growth in Nigeria.

Cornelius, Ogar and Oka (2016) examined the impact of tax revenue on the Nigerian economy growth. The study covered the period from 1986 to 2010 using companies income tax, petroleum profits tax as independent variable against gross domestic product. Their findings revealed that, there was no significant relationship between tax revenue and the growth of the Nigeria economy. Ojong, Anthony and Arikpo (2016) sought to investigate the impact of tax revenue on economic growth in Nigeria over the period 1986 to 2010 using the ordinary least square model. The findings of their ordinary least square model revealed insignificant relationship between tax revenue received and economic growth.

The Ability to Pay Theory and Wagner law were found to be most suitable for the purpose of addressing the concerns and preoccupations of this study. The Ability to Pay Theory is the most common and recognized principle of equity in taxation as citizens of a country should pay taxes to the government in accordance with their ability to pay. The Wagner's theory classifies providing the economic necessities of the public as a fundamental government accomplishment. That said, as government role and actions increase, public expenses also follow suit. Consequent upon the above, this study is anchored on Ability to Pay Theory and Wiseman and Peacock Hypothesis.

Methodology

This work adopted *ex-post facto* research design, relying on secondary data obtained from the annual financial statements of GSM companies in Nigeria. Here the researcher has no control over the past occurrences because they have already occurred and cannot be manipulated. The effect of tax revenue of telecommunication companies on economic growth of telecommunication sub sector in Nigeria was examined using ARDL regression approach. However, prior to the application of ARDL regression approach that examined the effect of telecommunication taxation on GDP of telecommunication sector in Nigeria, the study carried out descriptive analysis to describe the selected variable of interest. The descriptive statistics tools used under the descriptive analysis to describe selected variable of interest are mean, median, minimum, maximum and standard deviation. Skewness, kurtosis and Jarque-Bera are used to describe the shape of the series. The time series properties of the selected variables of interest are examined using Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests approaches. The variables under consideration are Real Gross Domestic Product (RGDP) and VAT.

There are four GSM telecommunication companies in Nigeria which are MTN, Globacom, 9mobile, and Airtel. These companies represent both the population and the sample size. Regarding the geographical area and time span, the study selected Nigeria as the country to survey. The period covered in this research is 2001 to 2018, that is 18 years. The choice of the period was informed by the year licenses were granted to the companies by the Federal Government of Nigeria and the year they commenced operations. In addition, companies with 31st December as their accounting year-end have not filed their annual returns with the FIRS for 2019 as at the time of concluding this study.

The accuracy and correctness of data extracted from the institutions like National Bureau of Statistics, CBN, Audited Financial Statements of the Companies and FIRS, for all the variables were cross-checked by the researcher and the supervisor. Hence, the credibility of these institutions further validated the data. The data used in this study were obtained from secondary sources which were adjudged reliable, having passed through rigorous auditing process and regulatory procedures both internally and externally before becoming a public document. These financial statements were deemed to be reliable due to their compliance with the guidelines of Companies and Allied Matters Act sections 352-354, as all appropriate regulatory bodies and accounting standards were duly verified and adhered to by the external auditors. The computation of tax paid were certified by FIRS.

Model Specification

This study adopted the model by Arowosegbe, Emmanuel and Osasere (2017); Bukire and Adejuma (2016); Eneje, (2018); Igga, (2018); Ogwuru, and Agbaraevoh, (2017); George and Bariyima (2015); Olaleye, Riro and Memba (2016) which considered two groups of variables, namely the dependent, and independent variables. Though the

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dependent variable is Economic growth measured by the RGDP of the sector, the independent variable is tax revenue of GSM telecommunication sub-sector with value added tax as a proxy. The model is stated hereunder:

$Y = f(x_1)$

$EG_t = \alpha_0 + \beta_1 VAT_t + \mu_t$

Where:

$RGDP_t$ = Real Gross Domestic Product at time t

VAT_t = Value Added Tax at time t

α_0 = Constant

b_1 = coefficient of the explanatory variables.

μ_i is the white noise error term.

***Apriori* Expectation**: A positive relationship between tax revenue of the GSM sub-telecommunication sector and economic growth of telecommunication sector in Nigeria was expected. Positive relationship is expected between value added tax and economic growth of telecommunication sector in Nigeria.

Results and discussion of findings

The results of the analysis which involve the use of descriptive and inferential approaches are presented in the section. The effect of tax revenue of telecommunication companies on economic growth of telecommunication sub sector in Nigeria was examined using ARDL regression approach. However, prior to the application of ARDL regression approach that examines the effect of telecommunication taxation on GDP of telecommunication sector in Nigeria, the study carried out descriptive analysis to describe the selected variable of interest. The descriptive statistics tools used under the descriptive analysis to describe selected variable of interest are mean, median, minimum, maximum and standard deviation. Skewness, kurtosis and Jarque-Bera are used to describe the shape of the series. The time series properties of the selected variables of interest are examined using ADF and PP unit root tests approaches.

Descriptive Analysis

The basic statistical features such as mean, median, minimum, maximum, standard deviation, skewness, kurtosis and Jarque-Bera are employed. The variables under consideration are RGDP and VAT.

Table 4.1: Summary Statistics

Obs.	Mean	Median	Max.	Min.	Stdev.	Skew (Kurt)	J-Bera [Prob]
GDP							
18	3,548,301.00	4,294,936.00	6,602,077.00	339,917.30	2,316,802.00	-0.20 (1.37)	2.11 [0.350]
VAT							
18	31,636.62	39,246.27	71,503.00	324.49	26,812.60	-0.11 (1.38)	2.00 [0.370]

***SOURCE**: Author's Compilation (2020), underlying data from Central Bank of Nigeria's (CBN) Annual Reports and Statistical Bulletin, Federal Inland Revenue Service (FIRS) Annual Report, Companies Audited Financial Statements and National Bureau of Statistics (NBS) Database. **NOTE**: **GDP**=Gross Domestic Product (a proxy for Economic Growth) and **VAT**= Value Added Tax.*

Interpretation

According to the result in Table 4.1 each of the variables has 18 observations. From the results, GDP has the maximum and minimum values of ₦6, 602,077.00m and N339, 917.30m respectively with a standard deviation of 2,316,802.00. The standard deviation value that is extremely big points to the fact that GDP recorded during the years under study varies significantly. Furthermore, the average value of GDP stood at ₦3,548,301.00m while the median value stood at ₦4,294,936.00m indicating that the series is symmetrical and this is confirmed by the insignificant value of Jarque-Bera (2.11[P - value = 0.350]).

Accordingly, the VAT during the years has a minimum value of ₦324.49m and a maximum value of ₦71, 503.00m with an average value of ₦31, 636.62m and a standard deviation of ₦26, 812.60m. Also, mid values of the series that is ₦39,246.27m is relatively the same as that of average value as supported by the Jarque-Bera

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(1.38[P – value = 0.370]) result. This can be regarded as a normally distributed series. Again, the minimum; maximum and standard deviation values indicate that there are wide gaps among the VAT values recorded during the period.

Empirical Analysis

In this sub-section, the results of the analysis carried out to investigate effect of tax revenue of telecommunication companies on economic growth of telecommunication sector in Nigeria is examined using ARDL regression approach are reported. In order to capture the objective of the study, a model are estimated. In the model, GDP is regressed on its lag and VAT.

Table of Results

Lag Length Selection Criteria for GDP and VAT

The result of lag order selection criteria for the model GDP and VAT model is presented In Table 4.3. The Table shows separate column for each possible values of the selection criterion and an asterisk indicates the lag order selected by the criterion statistic.

Table 4.3: Lag Length Selection Criteria for GDP AND VAT

Lag	*LogL*	*LR*	*FPE*	*AIC*	*SC*	*HQ*
0	-18.49188	NA	0.052702	2.732251	2.826657	2.731245
1	1.468978	31.93737	0.006341	0.604136*	0.887356*	0.601119
2	4.719183	4.333606	0.007309	0.704109	1.176142	0.699081
3	15.39308	11.38549*	0.003329*	-0.185744	0.475103	-0.192784*

SOURCE*: Author's Compilation (2020), underlying data from Central Bank of Nigeria's (CBN) Annual Reports and Statistical Bulletin, Federal Inland Revenue Service's (FIRS) Annual Report, Companies Audited Financial Statements and National Bureau of Statistics (NBS) Database.* ***NOTE****:* indicates lag order selected by the criterion, LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion*

Interpretation

As suggested by the Akaike information criterion (AIC) and Schwarz information criterion (SC) in Table 4.3, the study uses the lag length 1 as the optimal lag length. Even though, the lag length selection criteria start with the maximum lag of 3 as usual.

Bounds Co-Integration Test for Gross Domestic Product and Value Added Tax

The null hypothesis for the co-integration test's result presented in Table 4.16 is 'no co-integration'. The result of the test is conducted using ARDL bound co-integration test approach.

Table 4.4: Bounds Co-Integration Test Gross Domestic Product and Value Added Tax

Significance	*Critical Value Bounds*	*Test Statistic: F-statistic*	*Critical Value Bounds*
	I0 Bound		*I1 Bound*
10%	4.04	**227.346**	4.78
5%	4.94		5.73
2.5%	5.77		6.68
1%	6.84		7.84

SOURCE*: Author's Compilation (2020), underlying data from Central Bank of Nigeria's (CBN) Annual Reports and Statistical Bulletin, Federal Inland Revenue Service's (FIRS) Annual Report, Companies Audited Financial*

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*Statements and National Bureau of Statistics (NBS) Database***, ** and * represent 1%, 5% and 10% alpha levels respectively.*

Interpretation

The result in Table 4.16 shows that the null hypothesis of no co-integration can be rejected at 1% level given the fact that the computed F-statistic value (227.346) is above upper (***I1 Bound***) Critical Value Bounds .bound value. Therefore, the study concludes that there is long – run relationship among the variables.

ARDL Short – run and Long – run Models for Gross Domestic Product and Value Added Tax

The ARDL regression result based on Akaike info criterion (AIC) gave ARDL (1, 1) in this model that has Economic Growth proxied by Gross Domestic Product (GDP) as dependent variable while the independent variables are lags of GDP and current Value Added Tax (GVT).

Table 4.5: ARDL Short Run and Long – run Forms for Gross Domestic Product and Value Added Tax

Variable	***Coefficient***	***Std. Error***	***t-Statistic***	***Prob.***
Short run Model				
DLOG(VAT)	0.027579	0.030688	0.898669	0.3852
CointEq(-1)	-0.041372	0.001783	-23.203589	0.0000
Lung run Model				
LOG(VAT)	0.048484	0.010084	-4.808230	0.0003
C	0.608915	0.097190	6.265187	0.0000
R2	0.606			
Adj. R2	0.515			
F-Statistic [Prob.(F-Stat)]	6.66 [0.006]			
Durbin-Watson stat	1.960			

SOURCE*: Author's Compilation (2020), underlying data from Central Bank of Nigeria's (CBN) Annual Reports and Statistical Bulletin, Federal Inland Revenue Service's (FIRS) Annual Report, Companies Audited Financial Statements and National Bureau of Statistics (NBS) Database.* ***NOTE****: the dependent variable is* ***GDP*** *(Gross Domestic Product measuring Economic Growth),* ***VAT*** *= Value Added Tax (Independent variable), ***, ** and * represent 1%, 5% and 10% alpha levels respectively.*

The Models

$EG_t = \beta_4 VAT_t + \lambda ECM_{t-i} + \mu_t$ (short –run model)

$\Delta EG_t = 0.028 VAT_t - 0.041 ECM_{t-i} + \mu_t$

$EG_t = \alpha_0 + \beta_4 CIT_t + \mu_t$ (long-run model)

$EG_t = 0.609 + 0.048 VAT_t + \mu_t$

Interpretation

According to the estimated result from the model that inspects the short – run and long – run effects of Value Added Tax on Gross Domestic Product in Nigeria, using Autoregressive distributed lag (ARDL) approach, the adjusted coefficients of determination value shows that about 99.7 percent of the variances in current GDP is collectively explained by the lags of GDP and current Value Added Tax (VAT). The F-statistics which is 6.66 (P - value = 0.006). This is significant at 1% level and suggests that the model is well fit.

Diagnostics for Model for Gross Domestic Product and Value Added Tax

To check whether the residual (error term) of the estimated model is free from serial correlation, heteroskedasticity and normally distributed, the study employed, Breusch-Godfrey Serial Correlation LM Test with the null hypothesis of no serial correlation and reports a histogram and descriptive statistics of the residuals, including the skewness, kurtosis and Jarque-Bera statistic for testing normality in Table 4.18.

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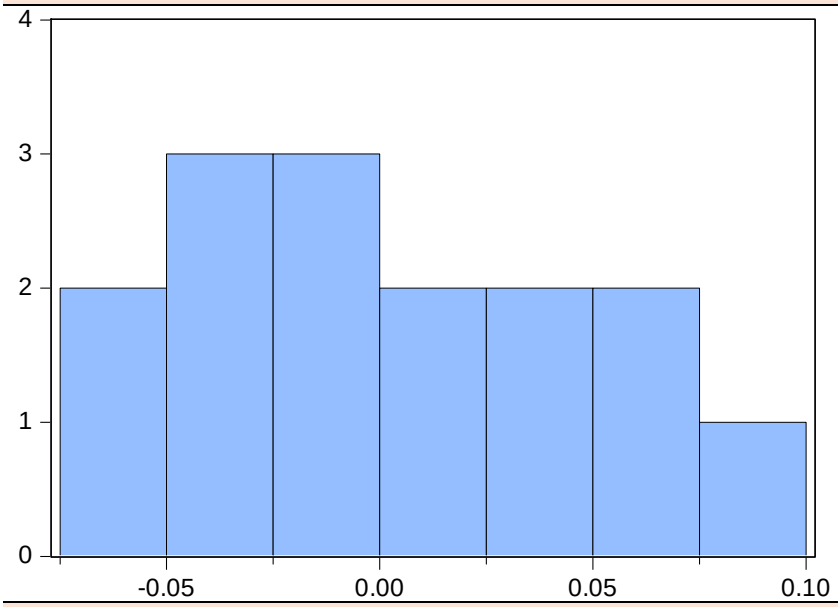
Table 4.18: Diagnostic Tests for Gross Domestic Product and Value Added Tax

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.225165	Prob. F(1,13)	0.2900
Obs*R-squared	1.574862	Prob. Chi-Square(1)	0.2095



Series: Residuals
Sample 2004 2018
Observations 15

Mean	2.22e-17
Median	-0.001745
Maximum	0.091400
Minimum	-0.065565
Std. Dev.	0.047783
Skewness	0.372410
Kurtosis	2.065335
Jarque-Bera	0.892722
Probability	0.639953

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.184500	Prob. F(3,13)	0.9050
Obs*R-squared	0.694250	Prob. Chi-Square(3)	0.8746
Scaled explained SS	0.500294	Prob. Chi-Square(3)	0.9188

***SOURCE**: Author's Compilation (2020), underlying data from Central Bank of Nigeria's (CBN) Annual Reports and Statistical Bulletin, Federal Inland Revenue Service's (FIRS) Annual Report, Companies Audited Financial Statements and National Bureau of Statistics (NBS) Database*

Interpretation

The insignificant value (F-Statistic = 1.225; P - value = 0.290) of the Breusch-Godfrey Serial Correlation LM Test in Table 4.18 confirmed the absence of serial autocorrelation in the model. From the results, it is observed that the residual of ARDL model has the skewness value of 0.372 and the kurtosis is 2.0.65. Also, the Jarque-Bera test value is 0.893 with a probability value (0.640) that is not statistically significant. This indicates that the null hypothesis of normality can be safely accepted and the error term is normally distributed. Additionally, the Breusch-Pagan-Godfrey reported in the Table with F-statistic values of 0.185 (P - value = 0.905) is insignificant suggesting the acceptance of null hypothesis of no Heteroskedasticity in the error term.

Findings

From the result, the estimated coefficients of Value added tax in Table 4.17, are coefficient = 0.028; P – value = 0.385 and coefficient = 0.048; P – value = 0.000 for short-run and long-run models respectively. Furthermore, the adjusted R-squared is 0.515 and F-Statistic [Prob.(F-Stat)] is 6.66 [0.006] showing a significant result.

Decision

Since the computed results are statistically significant the study fails to accept the null hypothesis ($H_{o)}$ which states that VAT has no significant effect on economic growth in Nigeria and consequently determines that VAT has significant effect on economic growth of Nigeria telecommunication companies both in the short-run and long - run

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The findings from the descriptive analysis show that there are some level of fluctuations in variables as revealed by the minimum, maximum and standard deviation values the years of inconsistency that are related to the point that efforts of the government and policy makers towards economic growth were unfulfilled at some points.

The result of this study as presented in Table 4.5 confirms that VAT has significant effect on Economic Growth in Nigeria both in the long-run. Igga, (2018) has no similar result when he investigated VAT role in the economic growth of the Republic of South Sudan. In the study, he found that majority of South Sudan demand for the introduction of VAT and this may be due to the fact that the effect of value added on economic growth is found to be positive and statistically significant. Similar to this Igga result is the result of Ogwuru, and Agbaraevoh, (2017) and Chukwuemeka (2018) that examined impact of VAT on economic growth and development in Nigeria and found positive and significant relationships. Also, Apere and Durojaiye, (2016) examined the relationship between VAT, and GDP. Findings showed that there is a long-run significant positive relationship between VAT and GDP in Nigeria over the time span being analyzed. However, the result seems to contradict that of Ali (2018) and Okwara and Amori(2016) who found out that VAT has negative relationship with economic growth.

Conclusion and Recommendation

This study has examined the effect of tax revenue and economic growth of telecommunication subsector in Nigeria. The study was conducted using the annual time series data, which covered a period of 18 years (2001 to 2018). The data were largely obtained from the CBN Annual Reports and Statistical Bulletin, FIRS Annual Report, Companies Audited Financial Statements and NBS Database, 2018 and the main estimation technique employed is ARDL approach as enunciated by Pesaran & Shin (1999) and developed by Pesaran, Shin & Smith (2001) involving unit root test, co-integration test, short-run and long-run estimations. In the ARDL regression analysis, Economic Growth indicator is regressed against its own lag and value added tax. VAT has significant effect on economic growth of Nigeria for the period under study. This positions further points to the present reality on the need for the country to consider other viable sources of revenue for economic growth. The study therefore concluded that tax revenue has positive effect on the economic growth of telecommunication subsector in Nigeria.

Based on the findings of this study, governments should introduce better practical strategies in the application of tax revenue for economic growth; Companies in the GSM telecommunication sub-sector should embrace voluntary tax compliance. Also, policy makers should ensure the principle on tax justice from the perspective of both the taxpayer and government. This is to ensure that the telecommunication industry and general public make required payments and government should manage tax revenue prudently. Lastly, the tax authority should provide more tax inducements so as to entice external investments in telecom industry, and all kinds of gaps in the tax decrees should be eliminated.

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