

THE NEXUS BETWEEN TAXATION AND NIGERIAN ECONOMIC GROWTH

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Abstract

This study investigates the relationship between taxation and economic growth in Nigeria between the periods of 1980 -2019. The study adopts the endogenous growth model as its theoretical framework. The study uses Vector Error Correction Model (VECM) and the Granger Causality estimation technique to analyze the data. The results reveal that company income tax and petroleum income tax hinder economic growth in Nigeria while personal income tax and value added tax promotes economic growth in Nigeria. The granger Causality result reveals that company income tax, value added tax and petroleum profit tax affects economic growth in Nigeria. The study recommends that government should focus more on VAT, which has no direct negative impact on company, rather enhance economic growth; also government should reduce the company income tax rate in order not to discourage investors vis-à-vis reducing company's productivity, which can deteriorate economic growth, as revealed in the study. Furthermore, Government should diversify the economy and focus less on PPT because of the volatility nature of the oil sector and consequent unreliability in using it to project revenue and expenditure.

Keywords: *Taxation, economic growth, endogenous growth model, nigeria*

JEL Codes: *H2, O4, O42*

Introduction

Adequate funding is required for any government to efficiently carry out its statutory functions. These functions have consistently been increasing due to the world's political and economic dynamics vis-à-vis the ever changing global economy. In addition to this, the Nigerian government is facing explosive population growth which needs to be taken care of vis-à-vis challenges associated with high population. Regrettably, the revenue of Nigeria's government has not been increasing to meet the ever increasing expenditure. The major reason for this shortfall is the mono-economy nature of the country with heavy reliance on revenue from crude oil, which is highly volatile, and its price being exogenously

determined. As such Nigeria is at the mercy of foreign countries and international organizations for aid and loans to argument its income and these do come with stringent conditions which may not be completely good for the receiving economy. With the recent global financial crisis, foreign aid is not flowing as before to developing countries, including Nigeria, and this is adversely affecting different sectors of the economy. Therefore, there is a need to diversify the economy from oil by looking inward on how to finance the budget. Abomaye-Nimenibo et al. (2018) argued that taxation has been identified as one of the efficient ways of mobilizing domestic resources for economic growth globally. The need to

focus on domestic revenue mobilization was further re-echoed by the G20 at their summit in 2010. Unfortunately, Nigeria has not fully harnessed this potential revenue as revealed by its tax quota. Tax quota is the ratio of total tax revenue to GDP and it is the most used indicator to measure tax burden. As of 2017 the tax quota of Nigeria was 5.7% which is far below the average for Africa of 17.2%, Latin America Countries average of 22.8, OECD average of 34.2%. This shows that Nigeria tax revenue to GDP is lower when compared to developed countries and even fell below the average of African and developing countries. This is adversely affecting the government in performing its responsibilities and spending in critical areas that would have stimulated economic growth. It is worthy of note that the Nigerian Government has been formulating different policies to improve its tax revenue among which are the tax policy reviews of 1991, 2003, 2012 and 2017, and amendments of various taxation acts in order to suit the current realities. Despite all these measures to increase tax revenue which were expected to boost economic growth via adequate funding of public expenditure, the economy has not been growing as expected as shown in Table 1.

TABLE 1: ECONOMIC INDICATORS IN NIGERIA

| Year | Tax revenue (₦ Billion) | GDP growth rate |
|------|-------------------------|-----------------|
| 2015 | 3,741.8 | 2.65 |
| 2016 | 3,307.5 | -1.62 |
| 2017 | 4,027.94 | 0.81 |
| 2018 | 5,320.52 | 1.94 |
| 2019 | 5,263.1 | 1.58 |

This study is designed to determine the actual effect of tax on economic growth. Furthermore, there are empirical evidences on how taxation affects economic growth as researchers like Gashi et al. (2018), Babatunde et al. (2017), Chimilila (2018), and Vatavu, Lobont, Stefea and Brindescu-Olariu (2019) argue that taxation positively affect economic

growth, while Khumbuzile and Khobai (2018), and Macek (2014), stated that economic growth was adversely affected by increment in taxation. Michael and Friday (2018), Ilaboya and Mgbame (2012) concluded that taxation had no impact on economic growth. Given the controversies surrounding how taxation affects economic growth this study will investigate the way in which taxation has been affecting economic growth in Nigeria between 1980 and 2019. The study will make use of Company Income Tax, Personal Income Tax, Petroleum Profit Tax, Value Added Tax, human capital and gross capital formation as the explanatory variables while real Gross Domestic Product would be the dependent variable. The data is sourced from Federal Inland Revenue Service and World Bank indicator. The statistical tool to be used for this study is E-view 10 while the data would be analyzed with VECM and Granger Causality Test. The remaining part of this paper is structured as follow: section 2 is all about literature review, section 3 describes the methodology which consist of theoretical framework and model specification, section four presents the data analysis, and lastly section 5 consist of summary and policy recommendations.

Literature review

The origin of tax in Nigeria can be traced to 1904 when community tax was introduced in the Northern Nigeria, this was even before the amalgamation of the country in 1914 Ola (2001). This was later implemented in 1917 and 1921 in Western and Eastern region respectively Oduola (2006). Taxation is defined as a process of collecting taxes while tax is the compulsory monetary burden imposed by the government against its citizens to support in funding public expenditure. In Nigeria taxes are being levied on individual, assets, corporate entities and transaction. The National tax policy of 2012 split taxes being levied on Nigerian citizens on the following bases:

- (i) individual's bases: personal income tax and development levy;
- (ii) assets bases: property tax;
- (iii) corporate entities bases: company income tax, education tax, technology level and petroleum profit tax; and
- (iv) transactions bases: value added tax, capital gain tax, stamp duty, import duty and export duty.

Taxes has enormous important to the economy and this cannot be over-emphasized, some of the benefit of tax to the economy are: first, revenue generated from taxes can be used to develop other sector of the economy where government can generate more funds; second, it can also be used to redistribute income in favor of the poor; third, revenue generated from taxes can be used to provide social security to the indigents and poor of poor; fourth, revenue generated from taxes can be used to stimulate sectors that can create more jobs to the populace and create wealth for the junk majority of the citizens and develop the economy; fifth, revenue generated from taxes can be used to stimulate economic growth by using the revenue realized from it to provide basic infrastructure that can attract investors such as electricity, road and transportation; and lastly, revenue generated from taxes can be used to strengthen financial institutions and develop effective regulatory system. Despite these benefits of tax to the economy, the tax revenue that have usually been realized in Nigeria are always short of target and this has been adversely affecting the implementation of the annual budget and economic growth in Nigeria. The reason for this low tax revenue are summarized below: First, high rate of tax avoidance and evasion coupled with lopsided tax laws vis-à-vis poor enforcement of the law due to limited manpower in tax administration in Nigeria. Second, the percentage of informal sector is higher than that of formal sector and in an informal sector there is improper record of profit generat-

ed on which tax would be based, also they have limited revenue potential so less tax can be generated as such the country tax base is narrow, i.e. the few working in formal sector pays the bulk of the government revenue tax. Third, lack of social truth on the government, citizens don't want to pay tax because of the fear that the fund would not be efficiently utilized or even embezzled. Corruption has been one of the menaces that is affecting Nigeria society as the country is rated the thirty-third most corrupt country in the world. Lastly, the high rate of tax exemption giving to investors has been reducing the expected tax revenue. This is reported by Van Parys and James (2009) and joint report by the IMF, OECD, UN and the World Bank (2011). IFC investor surveys reveals that tax incentives are not sufficient to attract investment to countries, rather a favorable investment climate, skills vis-à-vis market size and good governance does. Therefore, the tax incentives given are not necessary, rather it gives room for bribery and corruption in the tax administrative system Zee et al. (2002), and Fjeldstad and Semboja (2001).

Even though taxation is good for the economy as explained previously, Marina (1999), and Engen and Skinner (1996) are of the view that higher taxes do have adverse effect on the economy growth. They gave five ways through which tax do negatively affect economic growth as highlighted below:

First, higher tax can distort investment i.e. an increase in the statutory tax rate for income tax, corporate tax and capital gain tax would discourage investment. Second, higher tax can dwindle labor supply growth by discouraging workers from increasing their input and they will prefer leisure to work. Third, it can dissuade productivity growth when expenditure on research and development, that could lead to innovation and technological advancement, has been reduced Forth, tax can affect marginal

productivity of capital when investors from highly taxed sectors to lower taxed sectors thereby lowering overall economic productivity. Fifth, high taxes on labor can distort the efficient use of human capital as labor would not be seeking employment in sectors with high tax, even when the sector has higher social productivity.

Empirical review on developed countries
Using a panel data, Stoilova and Patonov (2012) investigated the impact of tax on 27 European Union member countries between 1995 and 2010, the result showed that direct tax contributed to economic growth. Likewise, Vatavu et al. (2019), explored how tax affects welfare gain and economic growth in the 7 richest European countries and 7 Central and Eastern Europe Countries. Using the Granger Causality Test, the study showed that taxes contributes positively to economic. Similarly, Tosun and Abizadeh (2005), in their study of OECD countries between 1980 and 1999 using fixed effect random estimation technique, found that personal tax and property tax had positive impacts on economic growth while corporate tax and international trade tax had no significant impact on economic growth.

Conversely, Macek (2014) investigated the impact of tax on OECD countries using panel dataset between the period of 2000 and 2011. Macek found that personal income tax, corporate tax and social security contribution adversely affects economic growth. Likewise, Dackehag and Hansson (2012), in their study of 25 rich OECD countries between the periods 1975 - 2010 found that personal income tax and corporate tax inhibits economic growth. Furthermore, Hakim, Karia and Bujang (2016), used Arellano-Bond dynamic panel GMM estimation technique to investigate the impact of goods and service tax on economic growth in developing and developed countries between 2005 and 2012. Their study

revealed that goods and services tax had negative impact on economic growth of developing countries, but had positive impact on economic growth of developed countries.

Empirical review on developing countries
Canavire-Bacarreza et al. (2013), in their work, examined the relationship between taxation and economic growth in Latin America using generalized method of moments (GMM) estimation technique found that personal income tax, corporate tax and consumption tax contributed positively to economic growth. Also, Babatunde et al. (2017) investigated how taxation affected economic growth in African countries from 2004 to 2013 using the panel estimation technique; they found that tax revenue promoted economic growth. Furthermore, Chimilila (2018) examined the long-run effect of domestic resource mobilization (tax) on economic growth in Tanzania between 1996 and 2015 using the Autoregressive Distributed Lag (ARDL) estimation technique. He found that domestic resource mobilization (tax) enhanced economic growth in the long-run. Similarly, in their study of the impact of tax revenue on economic growth in Nigeria and Ghana between 2000 and 2016 using multiple regression estimation technique, Egbunike et al. (2018) revealed that tax revenue had positive impact on economic growth. In addition, Gashi et al. (2018), investigated the impact of tax structure on the economic growth of Kosovo between the period of 2007 and 2015 using Ordinary Least Squares (OLS) analytical tool, the study revealed that tax positively influence economic growth.

Contrariwise, Khumbuzile and Khobai (2018) investigated the effect of taxation on economic growth of South Africa between 1981 and 2016 using Auto-Regressive Distribution Lag (ARDL) estimation technique and found that taxes hampered economic growth. Using

Ordinary Least Square technique to investigate the effect of tax on Kenya's economic growth from 1973 to 2010, Owino (2019) found that Customs Duty (CD) and Excise Duty (ED) instigated economic growth while income tax (IT), and Value Added Tax (VAT) are insignificant to economic growth.

Empirical review on Nigeria

Umoru and Anyiwe (2013) in their study investigated the relationship between tax structure and economic growth in Nigeria between the period of 1988 and 2011 using Johansen's co-integration estimation technique. They found that direct tax contributed positively to economic growth while indirect tax deterred economic growth. Furthermore, Onakoya and Fintinni (2016) examined the relationship between tax revenue and economic growth in Nigeria between 1980 and 2013 using Vector Error Correction Model (VECM). They found that petroleum profit tax and company income tax positively influence economic growth while customs and excise duties inhibit economic growth. Also, Uzoka & Chiedu (2018) explored the impact of tax revenue on economic growth in Nigeria from 1997 to 2016 using Vector Error Correction Mechanism (VECM) estimation technique, the study showed that PPT, CIT, VAT and CED positively influenced economic growth, while CGT and EDT had no impact on economic growth.

Abomaye-Nimenibo et al. (2018), explored how tax affect economic growth between the period of 1980 and 2015 using Johansen co-integration model. They found that company income tax, petroleum profit tax and custom and excise duties did not affect economic growth. This was a similar result to Ilaboya and Mgbame (2012) in their study to determine the impact of tax on economic growth in Nigeria between the period of 1980 and 2011 using Autoregressive Distributed Lag (ARDL) estimation technique. They found that indirect tax

has no impact on economic growth.

Methodology

Theoretical framework

Endogenous growth model is a conglomeration of various theoretical and empirical work and it came into being in the 1980's, Romer (1994). The model opposed the neoclassical growth theory which argued that long run economic growth is been influenced by external influence i.e. technology spillover and population growth. Endogenous growth model is of the view that economic growth is determined by the system governing the production process rather than by forces outside that system, Todaro and Smith (2012). The Endogenous growth theory states that the changes in technology which affects economic growth are a result of education, training and investment in research by private investors vis-à-vis government. Furthermore, the theory explains how government policies encourage incentives to enhance both human and physical capital which often lead to economic growth. Thus the theory explains how changes in government policies can influence output and how innovation via investments in human and physical capital can foster economic growth. Mahir and Azra (2017), state that this theory made fiscal policy a crucial field of study of economic growth by incorporating tax and expenditure as long-run determinate of growth. The model classified tax into distortionary and non-distortionary tax. Distortionary tax are taxes that dissuade investment which consequently reduce economic growth while non-distortionary tax does not discourage investment and therefore has no adverse effect on economic growth.

Model specification

This study patterns its model specification in line with the theoretical framework.

$Y=AK$

(1) Where Y means output, A, means factors that affects technology and K implies both physical and human capital. Introducing the tax variable into the Equation 1 above leads to the model this study uses as specified in Equation 2 below.

$RGDP = f(CIT, PIT, PPT, VAT, SSER, GCF)$.

(2) $RGDP = \beta_0 + \beta_1 CIT + \beta_2 PIT + \beta_3 PPT + \beta_4 VAT + \beta_5 HUC + \beta_6 GCF + \mu_t$

(3)Where: RGDP: Real Gross Domestic Product

CIT: Company Income Tax

PIT: Personal Income Tax

PPT: Petroleum Profit Tax

VAT: Value Added Tax

HUC: Proxy by secondary school enrolment rate

GCF: Gross Capital Formation.

μ_t = error term.

Equation 3 below is the econometrics form of equation 2:

$RGDP_t = \beta_0 + \beta_1 (CIT)_t + \beta_2 (PIT)_t + \beta_3 (PPT)_t + \beta_4 (VAT)_t + \beta_5 (HUC)_t + \beta_6 (GCF)_t + \mu_t$

(4) The variables were log and the logged model is presented below.

(5) $\ln RGDP_t = \beta_0 + \ln \beta_1 (CIT)_t + \ln \beta_2 (PIT)_t + \ln \beta_3 (PPT)_t + \ln \beta_4 (VAT)_t + \ln \beta_5 (HUC)_t + \ln \beta_6 (GCF)_t + \mu_t$

3.3 Apriori expectation

All the variables are expected to have a positive relationship with economic growth.

TABLE 2: SUMMARY OF DESCRIPTIVE ANALYSIS

| Variables | LOG(RGDP) | LOG(CIT) | LOG(GCF) | LOG(PIT) | LOG(PP) | LOG(HUC) | LOG(VAT) |
|--------------|-----------|----------|----------|----------|---------|----------|----------|
| Mean | 10.276 | 3.496 | 7.479 | 4.425 | 5.098 | 3.416 | 3.538 |
| Std. Dev. | 0.573 | 2.804 | 1.889 | 1.783 | 2.626 | 0.311 | 2.498 |
| Skewness | 0.335 | -0.248 | -0.292 | -0.163 | -0.233 | -0.016 | -0.118 |
| Kurtosis | 1.588 | 1.589 | 1.682 | 1.721 | 1.458 | 2.718 | 1.553 |
| Jarque-Bera | 4.071 | 3.728 | 3.462 | 2.902 | 4.325 | 0.135 | 3.579 |
| Probability | 0.131 | 0.155 | 0.177 | 0.234 | 0.115 | 0.935 | 0.167 |
| Observations | 40 | 40 | 40 | 40 | 40 | 40 | 40 |

4.1 Descriptive Analysis

The Table 2 below shows the summary of the descriptive analysis. The estimated mean which is being used to evaluate the pattern of distribution revealed that real gross domestic product recorded the highest with the value of 10.276 while Human Capital recorded the lowest with the value of 3.416. The standard deviation which do reveal the volatility of variables showed that company income tax is the most volatile variable, while Human Capita is the least. The skewness statistics indicated that only real gross domestic product is positively skewed while other variables were negatively skewed. The Kurtosis statistics revealed that all the variables under study are mesokurtic. The Jarque-Bera statistic showed that the null hypothesis of normal distribution was rejected for all the variables at 5% critical value.

4.2 Unit root test

TABLE 3: UNIT ROOT TEST RESULT

| VARIABLE | ADF | | P-P | | LEVEL OF INTEGRATION |
|----------|--------|-------------|--------|-------------|----------------------|
| | Level | First Diff. | Level | First Diff. | |
| LOG(CIT) | -1.255 | -5.575** | -1.403 | -10.294** | I(1) |
| LOG(GCF) | -1.559 | -9.174** | -1.511 | -16.454** | I(1) |
| LOG(PIT) | -0.966 | -4.776** | -0.962 | -4.774** | I(1) |
| LOG(PPT) | -1.391 | -5.542** | -1.679 | -5.584** | I(1) |
| LOG(HUC) | -0.335 | -6.365** | -0.335 | -6.359** | I(1) |
| IN(VAT) | -0.787 | -4.482** | -0.787 | -4.363** | I(1) |
| INRGDP | -0.667 | -3.934* | -0.166 | -3.958* | I(1) |

The

This study conducts Unit Root Test to determine the stationarity of each variable. This is done because most time series data are assumed to be non-stationary and when regression analysis is conducted on a non-stationary variable, it gives spurious or nonsense regression (Gujarati 2011). This study made use of ADF and Philip Peron (P-P) test to conduct the stationarity test. The two methods were used to get a more accurate stationarity of each variable. The summary of the test is presented below in Table 3.

result from both ADF and P-P Unit Root Test as displayed above show that all the time series data being used in this study are integrated of order one I(1). Therefore, this study will make use of Vector Error Correction Model (VECM) estimation technique as the requirement for its usage has been met.

4.3 Lag length selection.

Having established the estimation technique to be used, it is logical to determine the optimum lag length to be used before proceeding to the test. Therefore, lag selection criterion would be conducted to determine the optimum lag length for the model. This study used AIC criterion.

TABLE 4: LAG LENGTH SELECTION RESULT

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|-----|----------|---------|-----------|---------|--------|---------|
| 0 | -106.201 | NA | 1.27e-06 | 6.289 | 6.597 | 6.396 |
| 1 | 99.115 | 319.381 | 3.78e-11 | -2.963 | 0.467* | -3.162 |
| 2 | 158.330 | 73.999* | 4.08e-13* | -5.526* | 1.247 | -9.868* |
| 3 | 253.471 | 71.264 | 3.29e-10 | -2.395 | 1.656 | -1.536 |
| 4 | 436.722 | 69.084 | 2.27e-10 | -1.946 | 2.238 | -1.351 |

TABLE 5: RESULT OF JOHANSEN CO-INTEGRATION TEST

| Hypothesized No. of CE(s) | Eigenvalue | Trace Statistic | 5% Critical Value | Max-Eigen Statistic | 5% Critical Value |
|---------------------------|------------|-----------------|-------------------|---------------------|-------------------|
| None | 0.932 | 293.368* | 125.615 | 99.489* | 46.231 |
| At most 1 | 0.854 | 193.878* | 95.754 | 71.307* | 40.078 |
| At most 2 | 0.762 | 122.571* | 69.819 | 53.057* | 33.877 |
| At most 3 | 0.628 | 69.514* | 47.856 | 36.607* | 27.584 |
| At most 4 | 0.412 | 32.906* | 29.797 | 19.669 | 21.131 |
| At most 5 | 0.229 | 13.237 | 15.494 | 9.667 | 14.264 |
| At most 6 | 0.092 | 3.57 | 3.841 | 3.57 | 3.841 |

*indicates lag order selected by the criterion.

From the above table the optimum lag using AIC criterion is 2, therefore, this study would be using lag 2 in the estimation technique.

4.4 Johansen Co-integration test,

Having identified the optimal lag length, the next thing is to determine if there is cointegration in the model using the Johansen Co-integration test.

The null hypothesis is that there is no co-integration in the model and, where there is asterisk, we shall reject the null hypothesis that the variables are not co-integrated at 5% significant level and accept the alternative hypothesis that there is co-integration. Trace test shows that there is five co-integrating equation while the Maximum Eigenvalue shows that there are four co-integrating

equation. In sum, the test reveals that there is co-integrating relationship in the model and that there is a long-run relationship between economic growth on one hand and company income tax, gross capital formation, personal income tax, petroleum income tax, human resources and value added tax on the other hand.

Due to the normalization process, the normalized co-integration coefficient signs are always being reverse to enable proper interpretation of the model.

TABLE 6: NORMALIZED CO-INTEGRATING COEFFICIENTS

| LOG(RGDP) | LOG(CIT) | LOG(GCF) | LOG(PIT) | LOG(PPT) | LOG(SSER) | LOG(VAT) |
|-----------|----------|----------|----------|----------|-----------|----------|
| 1.000 | -4.346 | 40.061 | 1.719 | -24.004 | 32.389 | -5.029 |
| | (3.538) | (3.432) | (2.663) | (2.392) | (5.909) | (3.766) |

Table 6 shows that company income tax, petroleum profit tax and value added tax positively influence economic growth in Nigeria, while gross capital formation, personal income tax and human capital adversely affects economic growth in Nigeria. 4.6 VECM regression of taxation and economic growth

R-square: 0.678; Adj. R-square: 0.589; SSR: 0.021; SSE: 0.027; F-stat.: 7.619; LL: 88.418; AIC:-4.179; SC: -3.792;

$$\Delta \text{ [LOG(RDGP)] }_{t} = - 0.343 \text{ [ECT] }_{t-1} + \text{ [0.269}\Delta\text{LOG(RDGP)] }_{t-1} - \text{ [0.019}\Delta\text{LOG(CIT)] }_{t-1} + \text{ [0.0403}\Delta\text{LOG(GCF)] }_{t-1} + \text{ [0.062}\Delta\text{LOG(PIT)] }_{t-1} - \text{ [0.012}\Delta\text{LOG(PPT)] }_{t-1} + \text{ [0.117}\Delta\text{LOG(HUC)] }_{t-1} + \text{ [0.002}\Delta\text{LOG(VAT)] }_{t-1} + 0.021$$

The error correction term is well defined as it is negative and significant as the t-statistic is greater than two. The co-efficient is -0.343 which implies that 34.3% previous periods deviation from the long run equilibrium in economic growth is been corrected by GCF, PIT, PPT, SSER

and VAT within one period.

The above result further revealed that company income tax has a negative significant effect on Nigeria economic growth in the short run, i.e. a percent increase in the previous year of CIT would lead to 0.019% decrease in RGDP on the current year.

This implies that, as company income tax increases, the profit after tax, which is supposed to be used to expand the company, declines and this in turn adversely affects economic growth in Nigeria. This is in accordance with the work of Dackehag and Hansson (2012), but does not conform to the apriori expectation.

Conversely, gross capital formation has a positive significant influence on Nigeria economic growth in the short run i.e. a percent increase in the previous year of GCF would lead to 0.0403% increase in RGDP on the current year. This means that that the more fixed assets are being acquired by the country the more the economy grows in Nigeria. This conform to the apriori expectation.

TABLE 7: ERROR CORRECTION MODEL RESULT

| variable | D(LOG(RGDP)) | Standard errors | t-statistics |
|------------------|--------------|-----------------|--------------|
| CointEq | -0.343 | 0.01 | 4.129 |
| D(LOG(RGDP(-1))) | 0.269 | 0.131 | 2.047 |
| D(LOG(CIT(-1))) | -0.019 | 0.009 | -2.107 |
| D(LOG(GCF(-1))) | 0.0403 | 0.008 | 4.733 |
| D(LOG(PIT(-1))) | 0.062 | 0.017 | 3.641 |
| D(LOG(PPT(-1))) | -0.012 | 0.012 | -1.001 |
| D(LOG(HUC(-1))) | 0.117 | 0.557 | 2.109 |
| D(LOG(VAT(-1))) | 0.002 | 0.019 | 0.093 |
| C | 0.021 | 0.008 | 2.396 |

Furthermore, personal income tax has a positive significant influence on Nigerian economic growth in the short run, i.e. a percent increase in the previous year of PIT would lead to 0.062% increase in RGDP in the current year. This implies that, as more revenue are being generated through personal income tax and the revenue are being used for developmental projects, the economic grows. This is in agreement with the work of Tosun and Abizadeh (2005) and conform to the apriori expectation.

Petroleum profit tax had no significant impact on economic growth in Nigeria. This could be because of the volatility in

the oil sector for instance when the expected oil revenue is being used to project government expenditure and there is a shock in the sector the proposed project may not be executed. Therefore, petroleum profit tax is not a reliable source of revenue. This is in agreement with the work of Abomaye-Nimenibo et al. (2018) but does not conform to the apriori expectation.

Human Capital positively and significantly affects economic growth in Nigeria in the long-run, i.e. a percent increase in the previous year of HUC would lead to 0.117% increase in RGDP on the current year. This conform to the apriori expectation.

TABLE 8: PAIRWISE GRANGER CAUSALITY RESULT

| Null Hypothesis | Obs. | F-Statistic | Prob. |
|---|------|-------------|-------|
| LOG(CIT) does not Granger Cause LOG(RGDP) | 39 | 13.019 | 0.001 |
| LOG(RGDP) does not Granger Cause LOG(CIT) | | 1.405 | 0.244 |
| LOG(GCF) does not Granger Cause LOG(RGDP) | 39 | 12.964 | 0.009 |
| LOG(RGDP) does not Granger Cause LOG(GCF) | | 5.108 | 0.030 |
| LOG(PIT) does not Granger Cause LOG(RGDP) | 39 | 0.753 | 0.391 |
| LOG(RGDP) does not Granger Cause LOG(PIT) | | 2.044 | 0.161 |
| LOG(PPT) does not Granger Cause LOG(RGDP) | 39 | 17.167 | 0.002 |
| LOG(RGDP) does not Granger Cause LOG(PPT) | | 6.1E-05 | 0.994 |
| LOG(HUC) does not Granger Cause LOG(RGDP) | 39 | 1.429 | 0.239 |
| LOG(RGDP) does not Granger Cause LOG(HUC) | | 9.741 | 0.004 |
| LOG(VAT) does not Granger Cause LOG(RGDP) | 39 | 18.147 | 0.001 |
| LOG(RGDP) does not Granger Cause LOG(VAT) | | 0.793 | 0.379 |

Lastly, value added tax enhance economic growth in Nigeria in the short run i.e. a percent increase in the previous year of VAT would lead to 0.002% increase in RGDP on the current year. This implies that as more revenue are being realized through VAT, the economic grows. This is in tandem with the work of Uzoka & Chiedu (2018), and conform to the apriori expectation.

4.7 Causality Test

A causality test is conducted to examine causal relationship between two variables. There are different methods of investigating causal relationship, however, this study will make use of the Pairwise Granger

er Causality Test. The null hypothesis is that there is no causal relationship between the two and the alternative hypothesis is that there is causal relationship between the two variables. The null hypothesis would be accepted if the probability value is more than 5%, however, if the probability value is equal or less than 5% we reject the null hypothesis and accept the alternative hypothesis.

The Pairwise Granger causality result is present in the table 6 below. The result reveals the following: (i) there is uni-directional causality from CIT to RGDP, i.e. company income tax affects economic growth in Nigeria. (ii) there is bi-directional causality between GCF and RGDP, i.e. gross capital formation affects economic growth in Nigeria vice-versa. (iii) There is uni-directional causality from PPT to RGDP, i.e. petroleum profit tax significantly affects economic growth in Nigeria. (iv) There is uni-directional causality from RGDP to HUC, i.e. economic growth in Nigeria affects Human capital. (v) There is uni-directional causality from VAT to RGDP, i.e. value added tax has an impact on economic growth in Nigeria.

4.8 Diagnosis Tests

Diagnosis tests or post estimate test were conducted to determine how reliable the estimates results are. This study conducted three diagnosis tests namely: VEC Residual Heteroskedasticity Tests, VEC Residual Normality Tests and VEC Residual Serial Correlation LM Tests.

TABLE 9: DIAGNOSIS TEST RESULT

| | Chi-sq | DF | Prob. |
|--|---------|-----|--------|
| VEC Residual Heteroskedasticity Tests | 474.871 | 448 | 0.1834 |
| VEC Residual Normality Tests: | | | |
| Skewness | 61.807 | 7 | 0.328 |
| Kurtosis | 272.249 | 7 | 0.253 |
| Jarque-Bera | 334.057 | 14 | 0.487 |
| VEC Residual Serial Correlation LM Tests | 38.700 | 49 | 0.854 |

A VEC Residual Serial Correlation LM test was conducted to determine if there is serial correlation in the model. The null hypothesis is that there is no serial correlation in the model and this would be accepted when the probability value is greater than 0.05%, otherwise we accept the alternative hypothesis. The result shows that the probability value is higher than

0.05% therefore we accept the null hypothesis that there is no serial correlation or autocorrelation in the model.

A VEC Residual Normality Tests was conducted using Skewness, Kurtosis and Jarque-Bera to determine if the variables are normally distributed. The null hypothesis

is that the residuals are multivariate normally distributed and this would be accepted when the probability value is greater than 0.05% otherwise we accept the alternative hypothesis. The result shows that the probability value is higher than 0.05% therefore we accept the null

hypothesis that the residual is multivariate normally distributed.

A VEC Residual Heteroskedasticity Test was conducted to determine if the variables are Heteroskedasticity. The null hypothesis is that the residuals are not Heteroskedasticity and this would be accepted when the probability value is greater than 0.05% otherwise we accept the alternative hypothesis. The result shows that the probability value is higher than 0.05% therefore we accept the null hypothesis that the residuals are not Heteroskedasticity rather they are Homoskedastic.

Summary

This study investigated the relationship between tax structures on economic growth in Nigeria between the periods of 1980 - 2019. The study adopted the endogenous growth model as its theoretical framework and specified its model is consistent with the theory. The study made use of the Vector Error Correction Model (VECM) and Granger Causality estimation technique to analysis the data. The result revealed that company income tax and petroleum income tax had an adverse effect on the economy in Nigeria while personal income tax, value added tax, human capital and gross capital formation promotes economic growth in Nigeria. The Granger Causality that shows the direction of causality reveal that company income tax, value added tax and petroleum profit tax affects economic growth in Nigeria, gross capital formation affects economic growth in Nigeria and economic growth affects human capital in Nigeria.

Based on the findings, the study recommends the following policy formulation for economic growth in Nigeria:

1. Government should diversify the econo-

my and focus less on PPT because of the volatility nature of the oil sector and consequent unreliability in using it to project revenue and expenditure.

2. Government should intensify efforts to capture and ensure payment of income tax by the informal sector which employs more than 50% of the total labor force in Nigeria as personal income tax promotes economic growth.

3. Government should focus more on VAT which has no direct negative impact on companies rather enhances economic growth and also gives some concessions to company income tax to reduce its adverse effect on the companies and, in turn, deteriorates economic growth as revealed in the study.

4. Government should formulate policies that would encourage human capital development as it enhances economic growth.

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