TAX REVENUE AND THE NIGERIAN ECONOMY: AN EMPIRICAL APPROACH, 1995-2020

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ABSTRACT

The study examined the impact of tax revenue on the Nigerian economy. The study used gross domestic product as the dependent variable and the tax revenue – company gains tax, customs and import duties, companies' income tax, petroleum profit tax, and value added tax as independent variables. The results of the ordinary least squares show the positive and the negative insignificant impact of the independent variables on the dependent variable. The coefficient of determination, R^2 (0.966598) shows that the estimated model has predictive power and the Durbin-Watson statistics (i.e. 1.700733, approximately 2) indicate the absence of serial autocorrelation in the estimated model. The Pairwise Granger causality test shows that there is the unidirectional causal relationship between all the tax revenue and the Nigerian economy. The study, therefore, concludes that tax revenue is a source of income to fill the gap for non-tax revenue in the long-run.

Keywords: Nigerian Economy, Nigerian Government, Ordinary Least Square, Tax Revenue.

INTRODUCTION

The nexus between tax revenue and a nation's economy, especially the emerging economies of the world have continued to attract empirical debates. Taxation is a redistribution of wealth and revenue from the private sector to the public sector in order to accomplish some of the nation's economic and social goals, rather than a straightforward trade of goods and/or services (Okpe, 2000; Ojong et al., 2016). High levels of employment, stable prices, rapid growth in the gross domestic product, a favourable balance of payments position, promotion of a free market economy, satisfaction of collective demands, equitable income redistribution, promotion of infant industries, encouragement of priority sectors, encouragement of balanced population development, and promotion of labour and capital can be examples of such objectives (Onoh, 2013).

The nagging question is whether or not the revenues from taxation in African countries are being used to grow infrastructures and capital goods needs of the economy. This becomes critical in view of the falling prices of oil and other commodities.

Nigeria in recent years has intensified efforts at revamping her tax revenues because of the dwindling revenue from her oil production to finance her budget. Value Added Tax (VAT) was introduced in December, 1993 at 5% of the total value of goods or services purchased, but currently at 7.5% (Revenue Statistics in Africa, 2016). These have increased revenue for the government at the various tiers.

The same can be said of other taxes, like the Personal Income Tax - Pay-As-You-Earn (PAYE), Petroleum Profit Tax (PPT), Companies Income Tax (CIT), Customs and Import Duties

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(CID), Withholding Tax (WHT), Stamp Duties (SD), Capital Gains Tax (CGT), National Information Technology Development Levy (NITDL), and Tertiary Education Tax (EDT).

Paradoxically, many infrastructures and amnesties are still in the state of disrepair and not been attended to by the government with these taxes. Even, government is still turning to borrowing, grants and other similar sources to finance such repairs and constructions. Good examples of these are the floating of *"sukuk"* bond for the repairs and construction of new roads across the federation, borrowing from the Chinese government for the construction of railway lines etc.

Theoretically, taxes are levied to bridge the gap between revenues from natural endowments and trade. The case of Nigeria is different, despite all the huge revenues obtained from the various taxes, the government borrowing is endless. The question now is that do the revenues from taxes contribute to the economy. To answer this question, the research study is organised into five sections. Section one is the introduction – background to the study, a statement of the problem, objective of the study, research questions, research hypotheses, the scope of the study, and significance of the study. Section two is the literature review – conceptual review, theoretical review, theoretical underpin, and empirical review. Section three is the methodology – research design, method of data collection and analysis, and model specification. Section four is the result of data analysis – statistical properties of the variables (descriptive statistics), Augmented Dickey-Fuller (ADF) unit root test, Johansen co-integration test, Granger causality test, correlation matrix test, Ordinary Least Square (OLS), and validation of hypotheses. Section five is the summary of findings, conclusion and recommendations.

The empirical literatures depict different and disaggregated findings. Adegbie et al. (2020), Egbunike et al. (2018), Onakoya et al. (2016), for instance, indicated a positive relationship between taxation and economic growth. On the other hand, a negative nexus was reported in the works of Maganya (2020), Saibu (2015) and Keho (2013), opined that progressive taxation dampens investment, risk taking, and entrepreneurial activity due to the fact that a disproportionately large share of these activities is done by high income earners; contrary to this, some studies still find no significant relationship between the variables.

When Hungerford (2012) looked at the history of the United States from 1945 to 2011, he found support for the position that taxes had little effect on economic development. According to Osundina & Olanrewaju (2013), the impact of taxation on national growth was insignificant in 18 OECD countries. Although successful consumption taxes increase investment, overall tax burdens have little impact on investment or economic development, according to Uzoka & Chiedu (2018), tax revenue has a substantial and insignificant relationship with Nigeria's economy.

The contradictory results on the relationship between tax revenue and the economy necessitate this research, which aims to better understand both the short and the long run dynamism of these variables in Nigeria. The research extends twenty-six years, from 1995 to 2020.

The main objective of this research study is to examine the impact of tax revenue on the economy of Nigeria. The specific objectives are to: Scrutinise the impact of CGT on the economy of Nigeria, Assess the impact of CID on the economy of Nigeria, Examine the impact of CIT on the economy of Nigeria, Ascertain the influence of PPT on the economy of Nigeria, and Determine the impact of VAT on the economy of Nigeria.

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LITERATURE REVIEW

This section is in four parts: the conceptual review, the theoretical review, the theoretical underpinning the study, and the empirical review. Conceptually, gross domestic product (GDP) at purchaser's prices is the amount of gross value added by all resident producers in the economy, plus any product taxes, minus any subsidies not included in the product value. It is measured without taking into account depreciation of manufactured assets or natural resource depletion and degradation.

In Nigeria, various types of taxes are levied for the purpose of government raising revenue for the financing of her yearly budget. Some of these tax revenue types are explained below. The Capital Gains Tax Act, Cap C1 LFN 2004, regulates CGT (as amended). It is a tax levied on the positive difference between an asset's selling price and its original purchase price. Capital Gains Tax is imposed on all chargeable assets, with the exception of those expressly exempted by the act, and it is levied at a flat rate of 10% on all chargeable gains. The payment and reporting procedures are identical to those for Corporations Income Tax.

Customs and Import Duties (CID)

CIT is one of the most common forms of taxes collected by the Internal Revenue Service by the Nigerian government – Federal Inland Revenue Service (FIRS). Profits earned by companies registered in Nigeria are subject to a 30% levy. This comprises the company's entire revenue stream. Profits from business practices outside of Nigeria, however, are excluded from CIT. CIT must be charged to the Federal Inland Revenue Service (FIRS) within three months of the beginning of each assessment year, according to the Act. New businesses must file returns within eighteen (18) months of their incorporation date or within six (6) months of the end of their accounting period, whichever comes first. Existing businesses, likewise, must file returns within six (6) months of the end of the fiscal year. A company is charged minimum tax when they make a loss, have no tax payable or the tax payable is less than minimum tax.

PPT is regulated by the Petroleum Benefit Tax Act, Cap P13 Laws of the Federation of Nigeria (LFN) 2004 (as amended) (as amended). It is levied on the profits of companies engaged in upstream petroleum operations. It is also worth remembering that businesses that pay petroleum income tax are excluded from paying Companies Income Tax on the same profits. In the first five years of service, joint projects had a 65.75 percent success rate. Joint projects that have been in business for more than five years, on the other hand, are responsible for 85 percent of chargeable profit. In addition, firms that are part of a revenue sharing contract are responsible for 50% of the chargeable profit. The returns for each accounting period must be submitted no later than two months after the accounting period starts. In addition, final returns for each accounting period are required to be submitted within five months of the accounting period's end. Failure to file returns on time faces a penalty of N10,000 for the first month and N2,000 for each day the failure continues.

Value Added Tax (VAT) is a consumption tax paid for purchasing products or rendered services. Actually, the burden of VAT is borne by the final consumer. Unlike CIT, VAT is chargeable on goods produced both within and outside Nigeria. However, there are goods that are specifically exempted from VAT payment by the VAT Act, e.g. non-oil exports. Usually, the standard rate for VAT is 5%. Every taxable business owner is expected to file for their VAT monthly returns not later than the 21st day following the month of the transaction.

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In theory, tax revenues are maximized for social welfare and economic development, has been at the core of the literature. Taxation, according to Adam Smith, is a way of maintaining the nation. Ricardo offered justification for capital tax, which is necessary (in part) to finance government operations and meet the needs of people as part of the factors of production (labour and capital).

Taxation, as part of its administrative role, provides a framework for redistribution of national income. Taxation acts as a catalyst for economic development by increasing the value of successful demand, stimulating investment, and fostering economic growth. The decentralization theorem, which deals with the division of public sector functions and finances among different tiers of government, is one of many theories that underpin the principle of taxation (Ozo-Eson, 2005).

Value Theory of Taxation argues that taxes should be levied on people based on the benefit they earn (Cooper, 1994). In effect, the more benefits an individual receives from the government's activities, the more he should pay to the government, implying that a *"quid pro quo"* exists. However, due to the complexity of measuring the sum of government benefits, including diffuse benefits such as military security earned by each resident and non-resident taxpayer, it is impossible to implement precisely.

The *'Cost of service'* theory of taxation is the polar opposite of the profit theory, arguing that the government should tax people based on the cost of service rendered. The tax that a person should pay should be equal to the cost of the profit received, or cost-benefit analysis. Pigou (1920) *"Ability to Pay"* principle argues that each person should pay taxes in proportion to his or her ability to pay in order to cover the cost of government spending. The concept of equality or justice in taxation is synonymous with the ability to pay theory of taxation. People with higher incomes can pay more taxes than people with lower incomes, implying that there is no *'quid pro quo'*. Taxes should be assessed on the basis of an individual's taxable power, which seems to be more fair and just. The concept of one's willingness to pay is one of the theory's main flaws.

Makinya (2000) sacrifice theory seeks to assess the burden that a person faces as a result of paying taxes, as well as how much of his or her income remains for his or her own survival. According to this theory, paying taxes is a personal contribution made in order to benefit the nation. According to Islahi (2006), Ibn Khaldun's (1332–1406) theory of taxation describes two distinct effects: the mathematics and the economic effects that tax rates have on revenues. If the prices are raised or decreased, the two factors have opposing revenue effects.

According to the arithmetic effect, lowering tax rates lowers tax revenues by the amount of the rate reduction, and vice versa. Lower tax rates, on the other hand, are thought to have a positive impact on work, output, and jobs. The optimum tax theory proposed by Mirrlees (1971) validates Ibn Khaldun's assertion. This principle aims to determine a tax rate at which a given amount of government revenue can be collected with the least amount of economic distortion. This is critical in order to achieve social efficiency by a more equitable distribution of income or an increase in welfare. These theories take into account the numerous interconnections that exist between taxation, economic growth, and development. As a consequence, this research study was framed on Ibn Khaldun's theory.

Various empirical studies have looked at the impact of taxes on economic development on the ground level. The results are far from definitive, as they differ between countries, methodologies, and fiscal variables. Previous empirical research from African countries and the United States of America is examined in this research study (Sekou, 2015).

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Ofoegbu et al. (2016) investigated the impact of tax revenue on Nigerian economic growth, as well as whether there is a difference in establishing the relationship using HDI or GDP. The results also show that using HDI to measure the impact of tax revenue on economic development yields a lower relationship than using GDP, meaning that using GDP to measure the relationship between tax revenue and economic development in Nigeria produces a distorted image. Uzoka & Chiedu (2018) investigated the impact of tax revenue on Nigerian economic growth from 1997 to 2016, finding that CGT and EDT have no significant impact on growth, while PPT, CIT, VAT, and CED have a significant impact.

Maganya (2020) used the recently established technique of autoregressive distributed lag model (ARDL) bounds testing procedure to investigate the impact of taxation on economic growth in Tanzania from 1996 to 2019. The results revealed that domestic goods and services (TGS) taxes are positively linked to GDP growth and are statistically significant at the 1% level. On the other hand, income taxes were discovered to be negatively linked to GDP growth and statistically important at the 5% stage. At the 1% significance stage, the pairwise Granger causality results revealed bidirectional Granger causality between TGS and GDP growth.

The effect of tax revenue on the Nigerian economy was investigated by Ojong et al. (2016), who discovered that there is a substantial relationship between petroleum benefit tax and the development of the Nigerian economy. It was discovered that non-oil revenue has a major impact on the Nigerian economy's growth. The findings also revealed that there is no significant correlation between corporate income tax and Nigerian economic development.

From 2004 to 2013, Onakoya et al. (2016) studied the effect of taxation on economic growth in Africa. Their results showed that tax revenue is positively correlated with GDP and encourages African economic growth. At the 5% mark, it was significant. The study concluded that tax revenue has a significant positive relationship with Gross Domestic Product. This was backed up by (Egbunike et al., 2018). They looked at the effect of tax revenue on Nigerian and Ghanaian economic development. Multiple regressions were used to analyse the data in this report. The report supports previous research by finding a positive effect of tax revenue on Nigeria's and Ghana's gross domestic product. The work of Adegbie et al. (2020) in which they investigated tax revenue volatility on economic growth in Nigeria, using inflation and exchange rates as moderating variables. Their study concluded that tax revenue volatility affects economic growth in Nigeria followed the same.

Chigbu et al. (2011), Ogbonna & Appah (2012), and Confidence & Ebipanipre (2014) all generated similar results using descriptive statistics and econometric models including the White test, Ramsey RESET test, Breusch Godfrey test, Jacque Berra test, Augmented Dickey Fuller test, Johansen test, Granger Causality test, and Ordinary Least Squares (OLS) technique. Tax reform is strong and substantially linked to economic development in Nigeria, according to the findings. It is not irrational to conclude that taxation plays a positive role in Nigeria's economic development and is a driving force behind it.

When Hungerford (2012) looked at the history of the United States from 1945 to 2011, he found support for the position that taxes had little effect on economic development. According to Osundina & Olanrewaju (2013), the impact of taxation on national growth was insignificant in 18 OECD countries. In contrast to the aforementioned results, Keho (2010) concludes that higher taxes are closely associated with lower economic growth in Cote d'Ivoire, using the Scully and quadratic regression models. Saibu (2015) found a similar negative relationship between tax burden and economic growth rate in Nigeria and South Africa. The rationale for this study is

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further accentuated by the disparity in the findings. The methodology is discussed in the next section.

METHODOLOGY

This study employs an ex-post-facto research design. This research design demonstrates the significant impact of the independent variables on the dependent variable. Also, it shows the causal relationship between the dependent variable and the independent variables. This design is suitable for this kind of study because it does not allow for manipulations.

This study will cover the financial reforms and industrial sector output in Nigeria from 1995 to 2020, a period of 26 years. Data were collected from the Central Bank of Nigeria (CBN) (2019) Statistical Bulletin and Organisation for Economic Co-operation and Development (OECD, 2019).

The study employs the Descriptive Statistics to analyse the statistical properties of the variables, Augmented Dickey-Fuller (ADF) test of unit root test for stationarity, Johansen Co-integration test for long-run equilibrium relationship among the variables, Granger Causality test for directions of the dependent and independent variables and OLS-Ordinary Least Squares (i.e. NLS-Nonlinear Least Square and ARMA-Autoregressive-Moving-Average) to estimate the variables. All statistical techniques are employed using E-views. The choice of these statistical techniques is that they are relevant to this study.

Based on the above, Ojong et al. (2016) econometric equation: $GDP = a_0 + a_1 PPT + a_2 CIT + a_3 NOR + e_t$ (where: GDP = Gross Domestic Product, PPT = Petroleum Profit Tax, CIT = Company Income Tax, NOR = Non oil Revenue, e_t = Stochastic error) was adopted to capture the impact of tax revenue on the Nigerian economy with the removal of NOR and introduction of Company Gain Tax (CGT), Customs and Import Duties (CID), and Value Added Tax (VAT) to arrive at the following model:

$$GDP = f\ (CGT, CID, CIT, PPT, VAT)\text{.....Model 1}$$

The linear expression is specified as follow:

$$GDP = \beta_0 + \beta_1 CGT + \beta_2 CID + \beta_3 CIT + \beta_4 PPT + \beta_5 VAT + \mu\text{.....Equation 1}$$

The presumptive a prior signs are

$$\beta_1, \beta_2, \beta_3, \beta_4, \text{ and } \beta_5 \geq 0$$

Where:
GDP = Gross Domestic Product
CGT = Company Gain Tax
CID = Customs and Import Duties
CIT = Companies Income Tax
PPT = Petroleum Profit Tax
VAT = Value Added Tax
μ = stochastic value

RESULT AND DISCUSSION

Statistical Properties of the Variables

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The characteristics of the variables in this study are presented in Table 1, The descriptive statistics include: mean, median, maximum, minimum, kurtosis, Jarque-Beran probability and observations. The mean is the average value of the series; the median is the middle value of the series when the values are arranged from the order of lowest to the highest or the other way round. Maximum and minimum represent the highest value and the lowest value of each of the series. The Jarque-Beran probability is used to confirm the normality of the series while the observations show the number of series.

Table 1
RESULT OF THE DESCRIPTIVE STATISTICS FOR THE MODEL: GDP = ƒ (CGT, CID, CIT,PPT, VAT)

Stat. Tool	GDP	CGT	CID	CIT	PPT	VAT
Mean	50039.77	38677.27	333125.4	303657.3	951763.4	375406
Median	36076.50	31900	257636.5	283255	168447.5	347050
Maximum	144210	81400	721238	738200	3201320	739100
Minimum	2895	1616	37914	21878	44050	20761
Kurtosis	2.016103	1.349873	1.725525	1.581455	2.237025	1.273681
Jarque-Bera Probability	0.268351	0.219147	0.268731	0.283949	0.159265	0.197687
Observations	26	26	26	26	26	26

Source: Researcher's Computation from E-Views.

GDP shows N2,895 Billion in 1995 as the minimum value and N144,210 Billion as the maximum in 2019. It shows a mean value of N50,039.77 Billion and a median value of N36, 076.50 Billion when dataset is arranged in ascending or descending order and the sum of the two middle elements is divided by two because of the even nature of the data set (i.e. 26 elements in the dataset). The GDP has a Kurtosis that is equal to a mesokurtic curve at 2.016103, which can be approximated to 2 indicating a flatter than a normal distribution. The Jarque-Bera P-value is 0.268351 showing normality at 10%. The fluctuation over the years can be attributed to the reforms in the financial sector, allowing the forces of demand and supply to determine the direction of loans and advances granted by the sector to other sectors of the economy.

CGT shows N1, 616 Million in 1995 as the minimum value and N81, 400 Million as the maximum in 2009. The mean shows N38, 677.27 Million, depicting on the average this value for each year in the observed dataset while the median shows N31, 900 Million. The Kurtosis shows a mesokurtic curve at 1.349873, which can be approximated to 2 indicating a flatter than a normal distribution. The Jarque-Bera P-value is 0.219147 showing normality at 10%. The steady increase, although with fluctuation over the earlier years could be attributed to tax invasion and avoidable.

CID shows N37, 914 Million in 1995 as the minimum value and N721, 238 Million as the maximum in 2018. The mean shows N333, 125.4 Million and the median shows N257, 636.5 Million. The Kurtosis shows a mesokurtic curve at 1.725525 which is approximately 2 indicating a flatter than a normal distribution. The Jarque-Bera P-value is 0.268731 showing normality at 10%. The steady increase, although with fluctuation over the earlier years could be attributed to the activities of smugglers, corruption on the side of government agencies/lack of accountability and the paucity of our border posts.

CIT shows N21, 878 Million in 1995 as the minimum value and N738, 200 Million as the maximum in 2018 with a mean value of N303, 657.30 Million and a median value of N283, 255 Million. The CIT has a Kurtosis (1.581455) that is equal to a mesokurtic curve at 2 indicating a flatter than a normal distribution. The Jarque-Bera P-value is 0.283949 showing normality at

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10%. The rise in figures over the years can be attributed to the increase in the number of companies' compliance and drive of the government.

PPT shows N44, 050 Million in 1998 as the minimum value and N3, 201,320 Million as the maximum in 2012 while the mean value shows N951, 763.40 Million and a median value of N168, 447.50 Million. The PPT has a Kurtosis that is equal to the mesokurtic curve at 2.237025, approximated to 2 indicating a flatter than a normal distribution. The Jarque-Bera P-value is 0.159265 showing normality at 10%. The fluctuation over the years can be attributed to the various changes in government – Nigerian National Petroleum Corporation (NNPC) in the Joint Venture Agreement, improper assessment of the profits of the oil companies operating in the country, corruption and lack of accountability, tax invasion and avoidance etc.

VAT shows N20,761 Million in 1995 as the minimum value and N739,100 Million as the maximum in 2017 with a mean value of N375,406 Million and a median value of N347,050 Million. The VAT has a Kurtosis (1.273681) that is equal to a mesokurtic curve, a flatter than a normal distribution. The Jarque-Bera P-value is 0.197687 showing normality at 10%. The rise in figures over the years can be attributed to the tremendous effort of government and the high compliance of payers and the increase in the percentage charged.

Augmented Dickey-Fuller (ADF) Unit Root Test

An Augmented Dickey-Fuller (ADF) unit root test was utilised to test the stationarity of the variables. The ADF tests were done at levels. The decision rule is to reject stationary if ADF statistics are less than the critical values at 1%, 5% and 10% in absolute terms or accept stationary if ADF statistics are greater than the critical values at 1%, 5% and 10% in absolute terms. The results of the ADF test are presented in Tables 2 as follows.

Table 2
RESULT OF THE ADF UNIT ROOT TEST FOR THE MODEL: GDP = ƒ (CGT, CID, CIT, PPT, VAT)

Variable	ADF Statistics	1% Critical Value	5% Critical Value	10% Critical Value	Order of Integration	Level of Significance
GDP	-5.190027	-3.808546	-3.020686	-2.650413	1(2)	0.0005 (5%)
CGT	-3.913954	-3.737853	-2.991878	-2.635542	1(1)	0.0067 (5%)
CID	-4.193859	-3.737853	-2.991878	-2.635542	1(1)	0.0035 (5%)
CIT	-5.423772	-3.737853	-2.991878	-2.635542	1(1)	0.0002 (5%)
PPT	-4.679929	-3.831511	-3.029970	-2.655194	1(2)	0.0017 (5%)
VAT	-8.143982	-3.752946	-2.998064	-2.638752	1(2)	0.0000 (5%)

Source: Researcher's Computation from E-Views.

Table 2 shows the Augmented Dickey-Fuller unit root test for stationarity of the variables. The result shows that GDP, CGT, CID, CIT, PPT and VAT have ADF statistics value of -5.190027, -3913954, -4.193859, -5.423772, -4.679929 and -8.143982 respectively that greater less than 1%, 5% and 10% critical level values in absolute term. The result reveals that the variables are not stationary at level. Thus, the ordinary least squares of data estimation can be applied in the analysis of data.

Johansen Co-Integration Test

Johansen co-integration test is directed learning the presence of the long-run relationship among the variables of the model in the study. The Johansen co-coordination test contains two sorts of co-integration tests. These are unrestricted co-integration, rank test (Trace) and

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unrestricted co-integrated, rank test (Maximum Eigenvalue). According to Johansen (1991), the decision rule is to accept the null hypothesis if the likelihood of the critical value is greater than the 5% level of significance. Else, we reject the null hypothesis.

Table 3
RESULT OF THE JOHANSEN CO-INTEGRATION, OF THE MODEL: GDP = Ƒ (CGT, CID, CIT, PPT, VAT)

Hypothesized No of CE(s)	Eigenvalue	Unrestricted Cointegration Rank Test (Trace)			Unrestricted Cointegration Rank Test (Maximum Eigenvalue)		
		Trace Statistics	5% Critical Value	Prob.**	Maximum Eigenvalue Statistics	5% Critical Value	Prob.**
None *	0.945090	230.7421	95.75366	0.0000	69.64964	40.07757	0.0000
At most 1 *	0.918409	161.0924	69.81889	0.0000	60.14496	33.87687	0.0000
At most 2 *	0.878092	100.9475	47.85613	0.0000	50.50763	27.58434	0.0000
At most 3 *	0.635429	50.43983	29.79707	0.0001	24.21680	21.13162	0.0178
At most 4 *	0.538347	26.22304	15.49471	0.0008	18.55058	14.26460	0.0099
At most 5 *	0.273623	7.672460	3.841466	0.0056	7.672460	3.841466	0.0056

Trace test and Max-eigenvalue indicates 6 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: Researcher's Computation from E-Views.

The result of the co-integration is presented in Table 3, in which the long-run relationship between GDP as the dependent variable and tax productivity of CGT, CID, CIT, PPT and VAT as the independent variables in the model are examined. All these were tested for the null hypothesis of no co-integration on the assumption of the linear deterministic trend. The results from the Trace and Maximum-Eigen probability show six (6) co-integration equations respectively. The results are based on the probability of the critical values less than 5% level of significance. The study then indicates that there is co-integration among the variables in the model. This connotes that there is a long-run relationship between the dependent variable and independent variables in Nigeria.

Granger Causality Test

The Granger causality test is carried out to show the direction of the variables in the model formulated. The direction here could be bidirectional, unidirectional or no-direction. The decision rule is to accept the null hypothesis when the F-probability is greater than the 5% level of significance. Otherwise, reject the null hypothesis.

Table 4
RESULT OF THE GRANGER CAUSALITY FOR THE DEPENDENT VARIABLE AND THE INDEPENDENT VARIABLES ONLY FORTHE MODEL: GDP = Ƒ (CGT, CID, CIT, PPT, VAT)

Null Hypothesis:	Obs.	F-Statistic	Prob.	Remark
CGT does not Granger Cause GDP	24	7.12261	0.0049	Unidirectional causality (CGT → GDP)
GDP does not Granger Cause CGT		0.45693	0.6400	No direction
CID does not Granger Cause GDP	24	6.88683	0.0056	Unidirectional causality (CID → GDP)
GDP does not Granger Cause CID		0.80950	0.4599	No direction
CIT does not Granger Cause GDP	24	22.9812	8.E-06	Unidirectional causality

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				(CIT → GDP)
GDP does not Granger Cause CIT		0.60114	0.5583	No direction
PPT does not Granger Cause GDP	24	4.54543	0.0244	Unidirectional causality (PPT → GDP)
GDP does not Granger Cause PPT		1.45519	0.2582	No direction
VAT does not Granger Cause GDP	24	8.36757	0.0025	Unidirectional causality (VAT → GDP)
GDP does not Granger Cause VAT		0.19163	0.8272	No direction

Source: Researcher's Computation from E-Views.

Table 4 shows the pair-wise Granger causality test for the model formulated for the study with the explanation of the causal relationship between the dependent variable and the independent variables only excluding the causality between the independent variables. Based on the decision rule, five (5) unidirectional causalities were revealed. All flowing from tax productivity to GDP: (CGT → GDP), (CID → GDP), (CIT → GDP), (PPT → GDP), and (VAT → GDP).

Thus, the study concluded that there is no causality flowing from the dependent variable to the independent variables in Nigeria.

Ordinary Least Square (OLS) Estimation

The result of the OLS of the model formulated is reported below. The decision rule is that if the E-View Prob. Value is greater than (>) the chosen level f-significance (0.05), we accept the null hypothesis, but if not, we accept the alternative hypothesis.

Table 6
RESULT OF THE OLS FOR THE MODEL: GDP = ƒ (CGT, CID, CIT, PPT, VAT)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7263.936	3699.119	-1.963694	0.0636
CGT	1.027127	0.827927	1.240601	0.2291
CID	0.070231	0.038200	1.838527	0.0809
CIT	0.091362	0.048243	1.893811	0.0728
PPT	-0.000117	0.003038	-0.038610	0.9696
VAT	-0.089103	0.072843	-1.223223	0.2355
R-squared	0.966598	Mean dependent var.		50039.77
Adjusted R-squared	0.958247	S.D. dependent var.		45061.69
S.E. of regression	9207.668	Akaike info criterion		21.29263
Sum squared residual	1.70E+09	Schwarz criterion		21.58296
Log likelihood	-270.8043	Hannan-Quinn criterion		21.37624
F-statistic	115.7528	Durbin-Watson stat.		1.700733
Prob. (F-statistic)	0.000000			

Source: Researcher's Computation from E-Views.

In Table 6 the result of the estimated model based on ordinary least squares (OLS) technique was analysed to show the contribution of each of the independent variables on the dependent variable in Nigeria. The result shows that CGT, CID and CIT have an insignificant positive impact on GDP. PPT and VAT have an insignificant negative impact on GDP.

The coefficient of determination, R-squared (R^2) is 0.958247 and indicates that about 96% of the changes in the GDP are explained by the variation in the model. The F-statistic explains the overall significance of the independent variables on the GDP. The F-statistic is 115.7528 with a probability value of 0.000000 less than a 5% level of significance. Based on the

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F-probability, the study concludes that the independent variables have an overall significant impact on the GDP in Nigeria. The coefficient of Durbin-Watson is 1.700733 and is approximately 2. This shows that the model is free of autocorrelation.

Validation of Hypotheses/Discussion of Findings

The study examined five objectives using the Johansen co-integration test, the Pairwise Granger Causality test, and the Ordinary Least Square test. In this sub-section, the study used the results of the tests above to address the objectives formulated.

1. CGT has an insignificant positive impact on GDP (probability = 0.2291 and coefficient = 1.027127), meaning the study has to reject the alternative hypothesis and accept the null hypothesis because the p-value is greater than the 5% critical value. This result corroborates the findings of (Hungerford, 2012; Osundina & Olanrewaju, 2013; Uzoka & Chiedu, 2018). Contrary to the findings of (Ogbonna & Appah, 2012; Confidence & Ebipanipre, 2014).
2. CID has an insignificant positive impact on GDP (probability = 0.0809 and coefficient = 0.070231). The study, in this case, accepted the null hypothesis and rejects the alternative because the p-value is greater than the 5% critical value. This result corroborates the findings of (Hungerford, 2012; Osundina & Olanrewaju, 2013; Uzoka & Chiedu, 2018). Contrary to the findings of (Ogbonna & Appah, 2012; Confidence & Ebipanipre, 2014).
3. CIT has an insignificant positive impact on GDP (probability = 0.0728 and coefficient = -0.091362). Also, going by the decision rule, the null hypothesis is accepted and the alternative rejected because the p-value is greater than the 5% critical value. This result corroborates the findings of (Hungerford, 2012; Osundina & Olanrewaju, 2013; Uzoka & Chiedu, 2018). Contrary to the findings of (Ogbonna & Appah, 2012; Confidence & Ebipanipre, 2014).
4. PPT has an insignificant negative impact on GDP (probability = 0.9696 and coefficient = -0.000117). Also, going by the decision rule, the null hypothesis is accepted and the alternative rejected because the p-value is greater than the 5% critical value. This result corroborates the findings of (Hungerford, 2012; Osundina & Olanrewaju, 2013; Uzoka & Chiedu, 2018). Contrary to the findings of (Ogbonna & Appah, 2012; Confidence & Ebipanipre, 2014).
5. VAT has an insignificant negative impact on GDP (probability = 0.2355 and coefficient = -0.089103). Finally, here, the null hypothesis is accepted and the alternative rejected because the p-value is greater than the 5% critical value. This result corroborates the findings of (Hungerford, 2012; Osundina & Olanrewaju, 2013; Uzoka & Chiedu, 2018). Contrary to the findings of (Ogbonna & Appah, 2012; Confidence & Ebipanipre, 2014).

CONCLUSION

The study examined the impact of tax revenue on the economy of Nigeria, using a dataset which covered a period of twenty-six years from 1995 to 2020. The Augmented Dickey-Fuller (ADF) unit root test was employed to test the stationary of the variables under study. The test shows that all the variables assume a stationary at level, hence we moved further to check for the existence of a long-run relationship of the variables using Johansen co-integration test. The essence is to establish whether the variables have a long-run relationship between them or assume equilibrium. The test shows that there is a long-run relationship between GDP proxy for Nigeria economy and the variables of tax revenue.

The Granger causality shows that the variables of tax revenue Granger cause the proxy for the economy of Nigeria, Gross Domestic Product (GDP) i.e. a unidirectional causality (Causality flowing from tax revenue to GDP). The study revealed that all variables of tax revenue components have insignificant impact on the economy of Nigeria. Also, the first three independent variables, CGT, CID, and CIT have a positive coefficient while the last two, PPT

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and VAT have a negative coefficient. The Durban Watson (DW) statistics show 1.70073 which is approximately 2, indicating that our data is free from the autocorrelation problem and as such fit for the regression result to be interpreted and result relies on.

The study concludes that tax revenue in Nigeria has contributed to the economy of Nigeria in the long-run if tax policies formulated are implemented vigorously by the Federal Inland Revenue Services (FIRS). Based on the findings, the government should concentrate efforts on growing strategically tax revenue, CGT in the long-run despite the fact that the OLS result shows insignificant. The result of the Johansen co-integration and the Granger causality test should be considered.

Likewise, the government of Nigeria should equally put in concerted efforts in CID tax revenue because in the long-run, as shown by the Johansen Co-integration result and the Granger causality test, this will help to cushion the effect of the shortfall coming from the proceed of oil revenue and help to protect the infant industries in terms of reduction on import of contra bound goods.

Again, the government of Nigeria can reduce her deficit budget and in the same attract multi-national companies through the tax revenue of CIT. This postulation is obtained from the result of the Johansen co-integration and that of the Granger causality test. In addition, the government of Nigeria can reduce her incessant fuel shortage through the tax revenue coming from PPT undermining the fact that the OLS result shows negatively insignificant, but the Johansen co-integration and Gr anger causality shows that there is a long-run relationship and that there is a causal flow from PPT to GDP.

Finally, Nigerian government grows her economy through VAT if the revenue from this tax productivity properly administered and accountability strictly adhered to when received by the various arms of government. This is despite the fact that the result is negative and insignificant, but the Johansen co-integration and Granger causality are clear indication of the above postulation. This study is limited in terms of the scope and the data used. However, further studies can be extended to other emerging economies in order to robustly check if the facts presented in this study also hold factual for them.

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