

## VALUE ADDED TAX AND GROSS DOMESTIC PRODUCT IN NIGERIA

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### ABSTRACT

*This study assessed the effect of value added tax on gross domestic product in Nigeria for a period of eighteen years spanning from 2005 to 2022. Based on the objectives of the study, four hypotheses were formulated. Ex-Post facto research design was adopted. The time series data were obtained from Federal Inland Revenue Services, Central Bank of Nigeria, National Bureau of Statistics and the World Bank Publications. As a preliminary step in testing, the study employed the Augmented Dickey Fully Unit root test to confirm the order of integration of the time series variables. The study employed inferential statistics using Ordinary Least Square (OLS) regression analysis, Pair-wise Granger Causality test, Johansen Co-integration test, and Error Correction Model. Specifically, the study found that value added tax has a positive and significant effect on gross domestic product (GDP) in Nigeria at 5% level of significance ( $\beta_1 = 3785.152$ ;  $P\text{-value} = 0.0335$ ). It was recommended that government should diversify the economy for more development in order to increase the overall tax revenue base.*

### 1. INTRODUCTION

Nigeria is a nation with federal political structure that adheres strictly to the same principles of fiscal regime and this system has serious implications on how the tax system is managed. It is characterized by unnecessary complex, distortion and largely inequitable taxation laws that have limited application in the formal sector that dominates the economy. Tax is an essential source of government revenue that defrays the expenditures incurred by government by making it mandatory on tax payers. Tax is a valuable instrument of public finance whose magnitude affects the level of economic activity of an economy and is utilized not only for raising revenue of government to finance its programmes but also regulates the direction of economic performance of the economy (Aniefor & Amahalu, 2022). The Nigerian Tax

System is dynamic and is continually changing to meet the needs of the constituents of the society.

Tax is a system of raising money from individual person or corporate body for the purposes of government developmental programmes. It is rather a compulsory contribution imposed by the government on tax payers in return to identifiable benefit of living in a relatively educated, healthy and safe society. Taxes are imposed to regulate the production of certain goods and services, protection of infant or certain key industries as well as means of curbing inflation and meeting up the operational costs of governance. Taxes in Nigeria are imposed to regulate certain economic activities such as to influence economic activities in the country, bridge the inequality gap between the rich and the poor, to curtail consumption of undesirable goods and services, to correct a country's balance of payment and tax is used to attract investors (Amahalu, Obi, Okudo & Okafor, 2022; Nwoye, Obiorah & Chidiebere, 2023). In an attempt to realize these and other tax objectives, government encompasses different types of taxes such as personal income tax, company income tax, petroleum profits tax, value-added tax, education tax, capital gains tax, customs and excise duties amongst others. Nigeria is governed by a federal system, hence its fiscal operations also adhere to the same principle, a fact which has serious implications on how the tax system is managed. The country's tax system is lopsided, and dominated by oil revenue ((Bennee, Okoye & Ndubuisi, 2021a). It is also characterized by unnecessarily complex, distortionary and largely inequitable taxation laws that have limited application in the formal sector that dominates the economy.

Nigeria experienced its first recession in over two decades in 2016, when the economy contracted by 1.6 percent due to negative oil price and oil production shocks, which spilled over to the non-oil sectors. Oil GDP shrank by 14.4 percent, and non-oil GDP contracted by 0.2 percent in 2021 (Okoye & Nwoye, 2021; Nwoye, Udunwoke, & Nworie, 2023). To date, around 40% of Nigerians live in poverty. The economy is dependent on oil, creating inherent vulnerabilities for supply chain disruptions. Some other factors affecting economic growth in Nigeria include population growth, inflation, foreign direct investment (FDI), interest rates, exports as well as private and public investment (Amahalu & Okafor, 2023). Many researchers have investigated the relationship between value added tax and gross domestic product of Nigeria with different strands of findings. For example, Etoama, Akani and Ogbonna (2023); Okonkwo, Amahalu and Obi (2022) found a negative relationship. On the other hand, Olaoye, Yunus and Opefolu (2023); Ezechukwu, Ndubuisi and Okudo (2022) found a positive relationship between tax revenue and gross domestic product while, a non-

significant relationship was reported by John-Akamelu, Ezeagba and Nzeoma (2023); Okeke, Mbonu & Amahalu (2018a). The inconsistencies in the findings of the reviewed literature led to a gap in literature which this study sought to close.

### **1.1 Objective of the Study**

It is against the backdrop, that this study sought to examine the effect of value added tax and gross domestic product in Nigeria.

### **1.2 Hypothesis**

H<sub>01</sub>: Value Added Tax has no significant effect on Gross Domestic Product (GDP) in Nigeria

## **2. LITERATURE REVIEW**

### **2.1 Conceptual review**

#### **2.1.1 Value Added Tax**

A value-added tax known is a type of tax that is assessed incrementally. It is levied on the price of a product or service at each stage of production, distribution, or sale to the end consumer. VAT is a consumption tax paid on all goods and services provided in or imported into Nigeria. VAT is the tax that is levied on the gross margin at each point in the process of manufacturing, distributing, and selling an item. The tax is assessed and collected at each stage. That is different from a sales tax system, in which the tax is assessed and paid only by the consumer at the very end of the supply chain (Erhirhie, Oraka & Ezejiofor, 2018). Value-added tax (VAT) is the tax government levy on the amount that a business firm adds to the price of a commodity during production and distribution of a good (Okonkwo, Amahalu & Obi, 2022).

#### **2.1.2 Gross Domestic Product**

Gross domestic product (GDP) is a measure used to evaluate the health of a country's economy. It is the total value of the goods and services produced in a country during a specific period of time, usually a year. GDP is used throughout the world as the main measure of output and economic activity. GDP is a broad measure of a country's economic activity, used to estimate the size of an economy and growth rate (Ashiedu, Okafor, Amahalu & Obi, 2022). Gross domestic product (GDP) is the total monetary or market value of all the finished goods and services produced within a country's borders in a specific time period (Fuentes & Vergara, 2021). As a broad measure of overall domestic production, it functions as a comprehensive scorecard of a given country's economic health.

### **2.1.3 Value Added Tax Reforms and Gross Domestic Product (GDP)**

Value Added Tax (VAT) is a consumption tax that is being charged and embraced by many developed and developing countries, which is relatively easy to administer and very difficult to evade. The economic development and growth of any nation depends on government ability to generate adequate revenue in order to effectively provide various infrastructural facilities to satisfy the needs of the population and takes its position among the nations in the global village (Bennee, Okoye & Ndubuisi, 2021a). Tax imposition and its collection mostly depend upon a country's economic structure, its developmental phase, growth of its service sector, extent to which the country has been industrialized, and its employment level. Taxes therefore affect the expenditure size of government, the productivity and level of activities of businesses, the consumption pattern of individuals, the propensity to save and invest as well as the growth path of the economy. The economic growth of any nation depends on the amount of resources generated and under its control to finance its infrastructural need and meet its day-to-day expenditure. The resources needed are believed to be generated from external and internal through a structured tax system. One of the precedence for the introduction of Value Added Tax (VAT) in Nigeria was based on the fact that taxation as an instrument of fiscal policy is vital in generating revenue to finance the activities of government, redistribute income, stabilize the economy as well as stimulate growth and development (Aruna, Oshiole, & Amahalu, 2020).

## **2.2 Theoretical Review**

### **2.2.1 Endogenous Growth Theory**

The endogenous theory which was propounded by Paul Romer in 1990 is a financial theory which argues that financial or economic growth is generated from internal (rather than external such as inflation, interest rates, tax rates, currency exchange rate, saving rates, consumer confidence levels) procedures and inputs. The theory notes that productivity can be improved by the efficiency of a skilled labor force and by rightly using technology. The endogenous growth theory is the concept that economic growth is due to factors that are internal to the economy and not because of external ones. The theory is built on the idea that improvements in innovation, knowledge, and human capital lead to increased productivity, positively affecting the economic outlook. Endogenous growth theory maintains that economic growth is primarily the result of internal forces, rather than external ones. It argues that improvements in productivity can be tied directly to faster innovation and more investments in human capital from governments and private sector institutions.

### **2.3 Empirical Review**

Okeke, Mbonu and Amahalu (2018a) ascertained the relationship between tax revenue and economic development in Nigeria during the period 1994 -2016. Data were obtained from the Central Bank of Nigeria, Office of the Federal Inland Revenue Service and Annual Abstract of statistics of the National Bureau of Statistics. This study was based on time series data. The Augmented Dickey Fuller test, Multiple linear regression, Multicollinearity test, Granger Causality test, Johansen cointegration test and Error correction model were employed in the analysis of the data. The findings of this study showed that tax revenue has a statistically significant relationship with labour force and gross fixed capital formation in Nigeria at 5% level of significance respectively. On the basis of the findings, it was recommended among others that since tax revenue has been proven to contribute to economic development in Nigeria, Government needs to increase its allocation to the priority sectors of the economy such as agriculture and industry in order improve on the welfare of the citizenry.

Etale and Bingilar (2016) analyzed the relationship between taxation and economic growth of Nigeria from 2009-2014. Petroleum profit tax, personal income tax were regressed against gross domestic product using the correlation coefficient, and ordinary least square method to analyze data for a period of fourteen (14) years. The result showed that there was a significant positive relationship between petroleum profit tax, personal income tax and real gross domestic product of Nigeria.

Apere and Durojaiye (2016) investigated the relationship between value added tax, government total revenue and gross domestic product; as a means of assessing the impact of value added tax on government revenue generation and the impact of value added tax on economic performance of the Nigerian economy between 1994 and 2014. Using secondary data obtained from the Central Bank of Nigeria (CBN) statistical bulletin (2014). Relevant econometric techniques were adopted in analysing the data for this study and it was observed that all the variables were stationary at their first differences, using the Phillip-Perron unit root test; Correlation test was also conducted to ascertain the strength of their relationship; the study also conducted the Descriptive Statistic test, then the regression result showing the empirical relationship between the investigating variables and the direction of causality between the variables was ascertained using the Pairwise Granger Causality test. The study revealed that there is a long-run significant positive relationship between value added tax and

each of government total revenue and gross domestic product in Nigeria over the period under review.

**3. MATERIAL AND METHOD**

The study employed *Ex-post facto* research design. Time series data were obtained from the publications of Federal Inland Revenue Service (FIRS) bulletin of various years, Central Bank of Nigeria (CBN) publications, like Statistical Bulletin various years, Annual Reports for various years; National Bureau of Statistics (NBS) and the World Bank Publications for seventeen years (2005-2022) period.

$$GDP_t = \beta_0 + \beta_1 VAT_t + \mu_t \dots \dots \dots \text{eqn 1}$$

Where:

$GDP_t$  = Gross Domestic Product for period t

$VAT_t$  = Change in Value Added Tax for period t

$\mu_t$  = Error term for period t

$\beta_0$  = Constant term

$\beta_1$  = Coefficient of Value Added Tax

t denotes the annual time-period

Table 1 Operationalisation of Model Variables

Variable Type	Indicators	Variable Symbols	Source / Measurement Units
Independent Variable (Tax Revenue)			
	Value Added Tax	VAT	Obtained from Federal Inland Revenue (FIRS) statistical bulletin (various issues).
Dependent Variable			
	Gross Domestic Product	GDP	Consumption + Government Spending + Investment + Net Exports

## 4. RESULT AND DISCUSSIONS

### 4.1 Data Analysis

#### 4.1.1 Test of Reliability

Table 2 ADF (Augmented Dickey Fuller) Unit Root Test Result

Variables	Test Statistic	Test Critical Values			Status	Prob.
		1% level	5% level	10% level		
	ADF				Stationary	
DVAT	-4.470971	-4.004425	-3.098896	-2.690439	1(1)	0.0044

Source: E-Views 10.0 output file, 2024

#### 4.1.1.1 Interpretation

In order to ascertain the stationary state of the time series variables, this study employed the unit root test. The results of the unit root test using Augmented Dickey-Fuller at 1 percent level shows that the time series variable is non-stationary at level 1, but became stationary only after first differencing, hence the variables have an order of integration of one.

## 4.2 Test of Hypotheses

Table 3 Ordinary Least Square regression analysis testing the effect of VAT on GDP in Nigeria

Dependent Variable: DGDP

Method: Least Squares

Date: 01/28/24 Time: 08:15

Sample (adjusted): 2006 2022

Included observations: 17 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.29394	11.09400	1.198300	0.2494
DVAT	3785.152	1617.215	2.340538	0.0335
R-squared	0.267511	Mean dependent var		17.74706
Adjusted R-squared	0.218678	S.D. dependent var		50.98180
S.E. of regression	45.06404	Akaike info criterion		10.56418
Sum squared resid	30461.52	Schwarz criterion		10.66220
Log likelihood	-87.79551	Hannan-Quinn criter.		10.57392

F-statistic	5.478116	Durbin-Watson stat	1.789138
Prob(F-statistic)	0.033488		

Source: E-Views 10.0 Regression Output, 2024

#### 4.2.1 Regression Result

The regressed coefficient correlation result in table 3 shows the existence of a positive relationship between VAT and GDP ( $\beta_1=3785.152$ ). The probability value for the slope coefficient shows that  $P(x_1=0.0335 < 0.05)$ . This implies that VAT has a positive and significant relationship with GDP at 5% significance level.

$$DGDP = 13.29394 - 3785.152DVAT.$$

The deduced inference from the equation is that a unit increase in CIT will make GDP to increase by 3785.152 units. The coefficient of determination obtained is 0.267511 (12%) approximately, which is commonly referred to as the  $R^2$ . The  $R^2$  shows that 26.75% of the systematic variations in the dependent variable (GDP) can be predicted by the independent variable (VAT) while the remaining 73.25% was explained by unknown variables that were not included in the model. The overall significance of the model; F-statistic= 5.478116 with a P-value of 0.033488 is statistically significant at 5%.

##### 4.2.1.1 Decision

There is a positive and significant effect of change in petroleum profit tax revenue on gross domestic product (GDP) of Nigeria at 5% level of significance.

##### 4.2.1.2 Diagnostic Result on Granger Causality Test

Table 4 Granger Causality Test showing the Causality between VAT and GDP of Nigeria

Pairwise Granger Causality Tests

Date: 01/28/24 Time: 08:30

Sample: 2005 2022

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
DVAT does not Granger Cause DGDP	15	7.16639	0.0102
DGDP does not Granger Cause DVAT		3.68617	0.0632

Source: E-Views 10.0 Causality Output, 2024



The result of the Granger causality test in table 4 indicates a uni-directional relationship between GDP and VAT at 5%. It implies that VAT granger causes GDP at the Probability value of 0.0102, the causation runs from VAT to GDP at 5% level of significance and does not run in the reverse sense. The Granger Causality test result reveals evidence of casual relationship between VAT and GDP.

#### 4.2.1.3 Diagnostic Result on Johansen Co-Integration Test

Table 5: Johansen Co-integration Test

Date: 01/28/24 Time: 08:31

Sample (adjusted): 2008 2022

Included observations: 15 after adjustments

Trend assumption: Linear deterministic trend

Series: DGDP DVAT

Lags interval (in first differences): 1 to 1

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#### Unrestricted Cointegration Rank Test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.896772	39.48404	15.49471	0.0000
At most 1 *	0.303338	5.421827	3.841466	0.0199

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

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#### Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.896772	34.06222	14.26460	0.0000
At most 1 *	0.303338	5.421827	3.841466	0.0199

Max-eigenvalue test indicates 2 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: E-views 10.0, 2024

In Table 5, the Johansen co-integration test was used to determine the existence of long-run equilibrium relationship among the variables under study. The Trace Statistic value and Max-Eigen Statistic are shown to be greater than the critical values at 5% levels, thus indicating 2 co-integrating equation at 5% levels. Therefore, it is concluded that there exists a long run equilibrium relationship between the dependent variable (GDP) and independent variable (VAT). This implies that the regression model is not spurious and the conclusion thereof is valid.

#### 4.2.1.4 Vector Error Corrector Model (VECM) Analysis

Table 6 Error Correction Model

Vector Error Correction Estimates

Date: 01/28/24 Time: 08:34

Sample (adjusted): 2007 2022

Included observations: 16 after adjustments

Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1	
DGDP(-1)	1.000000	
DVAT(-1)	-0.429029	
	(2215.85)	
	[-6.44914]	
C	1.294114	
Error Correction:	D(DGDP)	D(DVAT)
CointEq1	-0.069034	8.85E-05
	(0.18809)	(2.2E-05)
	[-0.36703]	[ 3.98229]
C	-0.637500	-0.000625
	(15.9323)	(0.00188)
	[-0.10278]	[-0.33193]

R-squared	0.009530	0.531124
Adj. R-squared	-0.061218	0.497632
Sum sq. resids	56859.40	0.000794
S.E. equation	63.72900	0.007532
F-statistic	0.134708	15.85862
Log likelihood	-88.10900	56.58350
Akaike AIC	11.26363	-6.822938
Schwarz SC	11.36020	-6.726364
Mean dependent	-1.637500	-0.000625
S.D. dependent	61.86356	0.010626
<hr/>		
Determinant resid covariance (dof adj.)	0.136391	
Determinant resid covariance	0.104425	
Log likelihood	-27.33171	
Akaike information criterion	4.166464	
Schwarz criterion	4.456185	
Number of coefficients	6	

Source: E-Views 10.0 Output, 2024

The result of the VECM analysis in table 6 reveals that the value of the error correction coefficient is -0.069034. This indicates that 6.90 of the short run errors of the GDP is corrected each year. In other words, GDP adjusts to its long run equilibrium at a speed of 6.90 %. The VECM analysis indicates that VAT is significant in determining GDP in the long run. 1% increase in VAT leads to a decrease of 63.75% in GDP.

#### 4.2.1.5 Finding

Value added tax has a positive and significant effect on gross domestic product (GDP) in Nigeria at 5% level of significance ( $\beta_1 = 3785.152$ ; P-value = 0.0335).

### CONCLUSION AND RECOMMENDATION

In order to sustain the positive effect of changes in value tax on gross domestic product, government should see that the application of VAT ensures that international trade takes place on a transparent basis and avoids distortions like tax cascading associated with alternative commodity taxes.

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