



## Effect of Value-Added Tax on Revenue Generation Growth in Nigeria Economic

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DOI: 10.5281/zenodo.15718517

Submission Date: 15 May 2025 | Published Date: 23 June 2025

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### Abstract

The objective of study is to investigate the effect of Value-added Tax (VAT) on revenue generation and economic growth in Nigeria. It specifically examined the effect of VAT on Gross Domestic Product (GDP) and the total revenue generated in Nigeria for the period (2013-2023) as well as the trend of VAT in the period under review. Time-series data were employed in the study to run the regression for VAT on total tax revenue and GDP. The vector error correction and autoregression models were used in the regression. VAT, total tax revenue and GDP were included in the data at the end of each year for the period (2013-2023). In order to accommodate the long-run properties of the variables, tests for stationarity and co-integration were carried out. The study finds that VAT has a significant effect on total tax revenue with a two-year lag and it increasingly explains changes in total tax revenue with time. The study also shows that VAT has a significant and negative effect on GDP. The trend in VAT has a positive coefficient, indicating that VAT increases with time. In view of the findings, the study, therefore, recommends that government should critically evaluate the process of VAT collection, eliminate bureaucratic procedures and improve transparency so that economic units can concur their efforts with those of tax authorities.

**Keywords:** Economic growth, GDP, Nigeria, Revenue generation, VAT.

## 1. Introduction

Tax is an obligatory fee ("levied") imposed by the government on a certain goods, services or activity. A direct tax is one that is imposed directly on an individual's or business's revenue; an indirect tax is one that is imposed on the cost of a good or service. Taxes are levied to pay for government spending, guarantee the supply of essential services, and provide defense against outside threats. Ariyo (2013) asserts that developing nations must collect taxes totaling more than 10–15% of their GDP. One important tool for increasing public sector performance potential, funding the social insurance program, and repaying public debt is taxation. The main factor influencing a nation's ability to generate income is its ability to impose higher taxes in both administrative and economic terms.

Many countries throughout the world believe that taxes are a key factor in promoting economic growth and development since they provide support in a variety of domains, including social, political, and economic. According to Asada (2011), taxes assist the government in increasing its revenue, production, and consumption as well as the allocation of national resources and the equitable distribution of income. Because Value Added Tax (VAT) is an indirect tax levied on products and services and is borne by ultimate consumers, it is challenging for taxpayers to avoid paying it. It is also a consumption tax that is very simple to administer. Oraka, Okegbe, and sEzejiofor (2017) define value added tax as a consumption tax that is imposed at every point of the consumption chain and paid for by the final customer in the good or service. It took the place of the sales tax in Nigeria in 1994. The VAT rate, which began at 5% and is paid by providers of goods and services until they reach the customers who suffer the final burden, was also implemented by the government in an effort to generate additional money that will support economic development. In Nigeria, it was raised to 7.5% in 2020, though. Regular monthly reforms serve as the foundation for VAT remittance.

Medical and pharmaceutical products, essential food items, educational materials, infant products, agricultural equipment, and veterinary medications are typically among the commodities that are exempt from VAT. Medical services, community services (now known as microfinance banks), people's banks (now known as defunct and mortgage institutions), educational, learning, religious, and export services are among the services that are exempt from VAT. According to Odusola (2000), the Federal, State, and Local Governments each receive 15:50:35 of the VAT proceeds. According to available data, Nigeria's VAT revenue is already a sizable source of income. The state and local governments in Nigeria receive the VAT money that is earned. In contrast, the government has no control over market forces that affect oil revenue. This promotes long-term economic growth and development by lessening the nation's dependency on oil income (Mukolu and Ogodor, 2021).

Crude oil is essential to the economy of Nigeria, an expanding and developing nation. Natural gas, tin, iron ore, coal, limestone, lead, zinc, and arable land are some of her other natural resources (Adebisi & Gbegi, 2013). One way to generate money to support infrastructure development is through the value added tax, or VAT. A consumption tax known as the Value Added Tax (VAT) has been adopted by numerous nations worldwide. For a very long time, income has historically been the primary cause of taxes. However, recent significant tax adjustments in several nations have revealed that consumption has a bigger potential yield and more chances of success than income. As a result, both industrialized and emerging economies now prioritize consumption-based taxes above income-based ones. Once more, when it comes to yield and administrative simplicity, VAT is ranked first among all consumption-based taxes, including import and export levies, sales and purchase taxes, and customs and excise duties.

Food, home appliances, power, water, land and buildings, computers, stationery, and other items are among the goods that are liable to VAT. Commercial services, plumbers, electricians, builders, and professional services like accountants, doctors, and lawyers are among the services that are subject to VAT. VAT is a consumption tax that is paid for by the final customer of the good or service and is imposed at every point in the consumption chain. The taxable person must pay the difference to the government each month if the VAT collected on behalf of the government (output VAT) in a given month exceeds the VAT paid to other individuals (input VAT) in the same month (Adereti, Sanni, & Adesina, 2011).

In order to analyze the short- and long-term relationships between value added tax, revenue generation, and economic growth in Nigeria, as well as to offer logical solutions and recommendations that will be geared toward revealing the benefits of VAT on revenue generation and economic growth in the nation, this study explored value-added tax, revenue generation, and economic growth in Nigeria.

Numerous studies have been done on the topic in the past; however, a review of earlier empirical literature reveals discrepancies in the conclusions of those studies, indicating a research gap. While academics like Chigbu (2014) contended that VAT has a positive and considerable influence on economic growth, Abiola and Asiweh (2012) contended in their study that VAT has no discernible impact on economic development. In an effort to close that gap, this study looks into how VAT affects Nigeria's economic growth and income generation.

Nigeria's reliance on oil revenue, once the cornerstone of its economy, faced a significant downturn due to plummeting oil prices, resulting in a shortfall in government revenue for expenditures. In response, the government turned its focus inward, exploring alternative revenue sources, with taxation emerging as a prominent option. The shift from an oil-centric economy to one reliant on taxation was underscored by the words of Fowler (2016), emphasizing the pivotal role of taxation in funding essential services and future budgets. Taxation not only defines government accountability but also positively shapes society (Osibanjo, 2016), serving as a vital nexus between states and citizens. Despite its importance, tax revenue in Nigeria has historically accounted for a small portion of total government income, with traditional reliance on oil revenues dominating fiscal policy management.

Tax revenue generation plays a pivotal role in driving economic development in Nigeria, constituting a significant portion of the funds paid into the Federation Account. The Treasury Single Account (TSA) has been instrumental in consolidating all government revenue receipts into a single account maintained by the Central Bank of Nigeria since its implementation nine years ago. With the decline in oil revenue, the government sought alternative avenues to boost revenue generation and stimulate economic growth, leading to the introduction of the TSA to curtail revenue leakages and enhance funds from various sources, including taxation. A pilot survey conducted in 2012 revealed substantial savings of approximately ₦500 billion from frivolous spending due to TSA implementation. Amidst budget deficits and high-profile foreign loans, there is a pressing need to evaluate whether the TSA has effectively increased revenue from all sources, especially tax revenue, which holds significant importance.

Problems facing the value added value tax in terms of contributions to the total federal collection revenue, value added tax revenue at the time of inception in 1994 was anticipated to be much larger indicating that Nigeria then may soon join the growing list of developing countries, here VAT contributes at least 20% of total government revenue. While the performance of

VAT as a source of revenue in the sub-Sahara Africa and Nigeria in particular is encouraging, it remains difficult to find attempts to systematically assess the impact, act on the economic (Ajakaiye, 2019). Over the years, revenue derived from taxes has been very low and no physical development actually took place. According to Afubero & Okoye (2014), inadequate tax personnel, fraudulent activities of tax collectors and lack of understanding of the importance to pay tax by tax payers are some of the problems, however since VAT can almost not be avoided, its effect on the overall tax revenue not clear as the forms part of the problem of this study.

The objective of study is to Examining the impact of value-added tax on revenue generation and economic growth in Nigeria is the study's main goal. Its specific goals are to ascertain the trend of growth in VAT revenue in Nigeria, as well as the effects of VAT on revenue generation and economic growth in Nigeria. The following hypotheses were developed in their null form and put to the test in order to meet the study's goals.

**The research hypotheses for this study are stated as follows:**

**H<sub>01</sub>:** There is no significant effect of Value Added Tax (VAT), on the economic growth in Nigeria.

**H<sub>02</sub>:** In Nigeria, there is no significant effect of Value Added Tax (VAT) on Revenue Generation (RG).

**H<sub>03</sub>:** Value added tax has no significant effect on per capital income in Nigeria.

## 2. Literature Review

The conceptual, theoretical, and empirical reviews of VAT in Nigeria were covered in this part.

### Conceptual Review

#### Value Added Tax (VAT)

It is a consumption tax levied by the government on goods and services. One strategy to decrease tax evasion in Nigeria and increase government revenue is the implementation of a value added tax (VAT). Since value is added at every stage of the manufacturing chain, value added tax is consumption tax imposed on a product (Cole, Aroyewun, Soetan, and Akintola, 2021). Oraka, Okegbe, and Ezejiofor (2017) define value added tax as a consumption tax that is imposed at every point of the consumption chain and paid for by the final customer in the good or service.

#### Measurement of Value Added Tax

Personal Income Tax (PIT), Company Income Tax (CIT), Goods and Services Tax (GST), and Consumption Tax (COT) are the methods deemed suitable for measuring Value Added Tax in this study. Below is an explanation of them:

#### Personal Income Tax (PIT)

In contrast to the tax paid on the company's profits, this type of tax is paid on one's personal income. The owners (shareholders) of an incorporated business are required to pay taxes on both their personal income (such as their salary or dividends from the business) and the business's income (profits). Partnerships and sole proprietorships only have to pay taxes on their profits once. Another direct tax imposed on an individual's income is the personal income tax. A "person" is defined as an individual, a sole proprietorship (a non-juristic person), a community, a family, and the executors and trustees (of an undivided estate) for the purposes of personal income tax. The tax is paid on a Pay as You Earn (PAYE) system, meaning that the amount of tax due is determined by the taxpayer's income. In contrast to the commercial sector, which must submit returns for each taxpayer, which is rarely done, civil servants can easily collect taxes because they are taken out of their paychecks by the proper authorities. Depending on the industry in which the taxpayer works, the tax must be paid to both the state and federal boards of internal revenue. The Personal Income Tax Act of 2004 governs the tax (Federal Inland Revenue Service, 2014).

#### Company Income Tax (CIT)

This represents a portion of a business's earnings that are generated in, brought into, or received in Nigeria. The Federal Tax of Inland Revenue is the recipient of this tax. Since the firm becomes a separate legal entity upon incorporation, the tax is justified as a tax on the company, which is a juristic person distinct from its stockholders. The Companies Income Tax Act of 2004 governs the tax. The Companies Income Tax Act (CITA) of 1979 established CIT, which has its origins in the Income Tax Management Act of 1961. It is among the taxes that the Federal Inland Revenue Service (FIRS) administers and collects. The tax makes a substantial contribution to the Service's revenue profile.

#### Goods and Services Tax (GST)

Value Added Tax (VAT), another name for the goods and services tax, is a kind of broad-based consumption tax that is imposed on all economic sectors in some nations. Numerous domestic and foreign products and services are subject to it. From the supplier to the retail stage of production, taxes are applied to the supply of products and services under this system. As a result, sales and goods taxes are only paid when customers use the items. Since the vendors will be collecting the taxes, it is also an indirect tax. Third-party tax collection and payment to the government will be handled by the sellers. This means that end users, not manufacturers or suppliers, will be responsible for paying this type of tax (Jermisittiparsert, 2016; Pinto, 2001; Likitrattanaporn, 2018).

In 1968, it made its debut in France (Kloeden, 1998). Later, additional European nations also implemented this tax (Kloeden, 1998). More than 160 nations worldwide have enacted the GST (RMCD 2018). Nigerian goods and services fell into three categories. The first one is the standard rating, which charges 6% for deliveries of goods and services. This implies that the firm will charge the customer 6% goods and sale tax when they purchase a product that fits within this standard category. Businesses are permitted to claim input tax from the RMCD at the same time. The second category is called "zero-rated supplies," in which the company charged the client 0% but was still able to claim input tax from the government. Finally, exempt supplies are those that businesses are not permitted to claim as input tax credits at the time of purchase. Additionally, the company cannot charge its customers production taxes (Ling, Jusoh & Ishak 2018).

### **Consumption Tax (COT)**

A component of value-added tax, consumption tax is imposed at every point in the consumption chain and is paid for by the product or service's ultimate customer. According to the Value Added Tax Act of 1993 as modified, everyone must charge and collect consumption at a flat rate of 5% on all invoiced amounts for all goods and services that are not exempt from paying consumption tax (Adereti, Sanni & Adesina, 2011). The taxable person must pay the difference to the government each month if the VAT collected on behalf of the government (output VAT) in a given month exceeds the VAT paid to other individuals (input VAT) in the same month (Oserogho and Associates, 2008). In contrast, the taxpayer is entitled to a refund of the extra consumption tax that was paid, or more practically, a tax credit from the government for the excess VAT. For consumption, all exports are zero rated, meaning that no VAT is due on them. Additionally, VAT must be paid in the currency used for the trade of goods or services.

### **Concept of Revenue Generation**

One of the ways to get income is through revenue. Tolls, taxes, rates, fees, fines, rentals, forfeitures, dues, and other government receipts from any source over which the legislature has the authority to appropriate, including the proceeds of loans raised, are all considered revenue, according to Hassan (2001). Income or returns accruing to or derived by the government from government-owned property, any return in the form of interest on loans and dividends regarding shares or interest held by the government in any company or statutory body, incidental sources resulting from a particular environment, permissive sources from regular operations, and statutory sources recognized by the Nigerian constitution are all considered revenue, according to Section 160(9) of the Federal Constitution of 1989 and Section 5, 162(10) of the 1999 Constitution. Revenue control is implemented for a successful revenue production process in order to guarantee timely government revenue collection, the actual collection of the amount owed, and the payment of generated income to the government's coffers.

Nigeria, as with any nation, has a responsibility to provide its citizens with sufficient public goods and services to enhance their living standards. As this standard of living improves, so does the level of economic activity within the country, a phenomenon commonly referred to as economic growth. Economic growth is characterized by a sustained increase in the capacity to provide a diverse array of economic goods and services to its citizens, driven by advancements in technology, institutional frameworks, and ideological adjustments. One key indicator of economic growth is the expansion of a nation's potential Gross Domestic Product (GDP). Government revenue generation plays a pivotal role in fostering economic growth.

Revenue, often defined as income, especially of a substantial nature, serves as the financial backbone for governmental operations. In the context of a state, revenue refers to its annual income used to meet public expenses. Typically, revenue collection is overseen by a government department, encompassing various sources such as taxes and other forms of income. Taxation, a compulsory contribution to state revenue, constitutes a significant portion of government income in Nigeria and is subject to deposit into the Treasury Single Account (TSA) of the Federal Republic of Nigeria.

### **Empirical Review**

#### **Value Added Tax and Economic Growth in Nigeria**

Empirically, each country has a different value added tax (VAT) input. The proportion charged or the desire of taxpayers to comply could be the cause of this. Along with the purpose to purchase products and services, it could also be influenced by the financial and economic standing of the consumers. Denis (2010) looked into the connection between Nigeria's GDP and value added tax (VAT), and the study found that VAT is ineffective as a source of income. This suggests that a sizable portion of GDP, which stands for both total national income and total national spending, is exempt from taxes. Samimi and Abdolahi (2011) examined how the imposition of value-added tax affected exports of products and services in a few chosen nations. Their results from the Mean Statistical Difference test showed that value-added tax had a favorable effect on exporting products and services.

Okafor (2012) investigated the impact of income tax revenue on economic growth in Nigeria. Using data obtained from the CBN on Petroleum Profit Tax (PPT), Company Income Tax (CIT), Customs and Excise Duty (CED), Value-added

Tax (VAT) and GDP (economic growth) from 1981 to 2007, the study employed ordinary least square estimation technique. The study shows a positive relationship between company income tax and economic growth.

Yusuf (2018) examined the causal relationship between value-added tax and economic growth in Nigeria from 1980 to 2016 using a simple linear regression technique to analyze the data that were obtained for the period. The study utilized data from the gross domestic product, value-added tax, domestic investment, degree of openness, corruption index, interest rate and real exchange rate as proxy variables to determine the relationship between value-added tax and economic growth in the country. The findings from the study revealed that value-added tax, domestic investment and degree of openness have significant positive relationships with gross domestic product in Nigeria while the corruption index has a negative significant relationship with gross domestic product in the country. The study, therefore, recommends that tax administrative loopholes should be plugged for tax revenue to contribute to the economic growth of the country. The study also recommends among others that the services of tax professionals should be employed by the government to reduce tax malpractice by taxpayers and other forms of tax evasion.

Okoror and Onatuyeh (2018) carried out a study to investigate the relationship between value-added tax and economic growth in Nigeria from 1994 to 2017 by utilizing gross domestic growth rate, value-added tax, labour force participation, the share of investment in GDP, openness and population growth rate for the study. The study employed the Ordinary Least Square regression technique to estimate the data that were obtained for the period. The study revealed that a negative relationship exists between.

Afolayan and Okoli (2015) stated that the introduction of VAT in Nigeria was based on the fact that taxation as an instrument of fiscal policy will serve as a vital tool in generating the needed revenue to finance government activities, redistribute income, and stabilize the economy as well as stimulating economic growth and development.

Owolabi and Adeghite (2013), stated that VAT replaced sales tax in 1994 because it is applied on a broader range of goods and services, emphasizes employment more than consumption, provides neutral treatment for import and export at the same rate and is viewed as a fiscal tool for control of inflation in the country.

A quick look back at Ajakaiye's (2000) research on the microeconomic impact of value added tax on Nigeria since its establishment showed that VAT money is a major source of funding for the nation. To put it another way, he concluded that VAT revenue had a smajor influence on economic growth. For instance, he estimated that real VAT revenue in 1994 - the year of its inception - was ₦8.19 billion, compared to the expected ₦6 billion. Similar to this, real VAT revenue in 1995 was ₦21 billion, compared to a forecast ₦12 billion. Three fiscal policy possibilities were identified by his findings: active fiscal policy, which involved cascading VAT treatment; passive fiscal policy, which involved non-cascading VAT treatment; and reinjection of VAT monies through higher government spending for active fiscal policy. The scenario of a cascading treatment of VAT with active fiscal policy, according to the study, not only had the worst consequences on the economy but also brought attention to the clear situation in Nigeria.

Additionally, in their study on the value added tax's (VAT) impact to the growth of the Lagos state economy, Owolabi and Okwu (2011) made the empirical claim that the two were positively correlated. According to the report, Lagos's seven strategic economic sectors benefited from VAT collection. Infrastructure, education, the environment, transportation, health, youth, and social development are among the sectors. The study found that the agricultural sector was the only one among all of these that contributed positively to economic growth and development and was statistically significant.

Similarly, Unegbu and Irefin (2011) conducted research on the effect of VAT on the economic development of emerging nations. The Nigerian state of Adamawa was the study's primary focus. According to the analysis, 91.2% of the variations in the state's spending pattern could be explained by VAT allocations alone. Additionally, they had a highly noteworthy influence on economic development and progress. Nonetheless, primary source data showed a minimal VAT impact. However, they suggested that in order to determine the effect of VAT on economic growth and development, comparable study be conducted in other Nigerian states. Once more, Olatunji (2009) conducted study on Nigeria's VAT administration with the primary goal of identifying strategies to increase the government's revenue base in order to boost the country's economy. Among other things, the report suggested that the government should educate the public about the presence of VAT and how it contributes to Nigeria's economic development.

The study by Ekeocha (2010) concentrated on ways to raise the value added tax rate from the current 5% to 15%. This can be because positive economic changes cannot be adequately addressed by the 5%. According to Olatunji (2009), several IMF reports suggested that Mauritius and Nigeria are the only two African nations with the lowest VAT rates, at 5%. Malawi and Kenya are at 85% and 75%, respectively. Sanni (2012) upheld the intention to revise the VAT rate upward from a legal standpoint. The value added tax (Amendment) Act of 2007 is the most recent of more than six amendments to the initial value added tax decree of 1993, according to his study on the present legislation and practice of

value added tax in Nigeria. He did point out, nevertheless, that some of the revisions have brought about important changes that have not yet been reflected in the economy or the corpus of current literature.

Adereti, Sanni, and Adesina (2011) conducted an empirical assessment of the role that value added tax (VAT) had in Nigeria's economic expansion from 1994 to 2008. Their average VAT revenue to total tax income, as determined by their time series data of GDP and VAT revenue, was 12.4%, which was regarded as extremely low in comparison to other African nations. Additionally, the analysis found no direct relationship between Nigeria's GDP and VAT collection. According to both findings, Nigeria's economic growth is not significantly impacted by VAT revenue.

However, Umeora's (2013) study on the impact of value added tax (VAT) on economic growth and overall tax income in Nigeria shows that this is not the case. The outcome of his research indicates that VAT significantly affects both overall tax income and economic growth (GDP). Similarly, Onwuchekwa and Aruwa (2014) noted that VAT has a major role in both Nigeria's economic growth and the government's overall tax revenue. Their research focused on Nigeria's economic growth and value-added tax.

Awe (2018) examined VAT in Nigeria and the study focused on its effect on economic growth for the period 1994 to 2016. OLS was employed by the study to analyze data from secondary source and found that VAT, custom and excise duties had no significant effect on economic growth. In addition, the study showed absence of causality among the variables. Adegbite (2018) used data obtained from CBN statistical bulletin to examine VAT and its effect on Nigeria economy for the period of 1994 to 2010. The multiple regression analysis output from the study revealed a negative effect between income and aggregate consumption because the rise in the VAT rate led to decreased in people's dispensable income. In addition, it was found by the study that a change in the VAT rate has a substitution effect in reducing the income tax rate and offset the decrease in people's income as a result of rises in the rate of VAT and changes in aggregate consumption.

Between the period 1999 and 2013, the study by Oraka, Okegbe, and Ezejiofor (2017) collected data and examined VAT effect on the Nigerian economy. The data were collected from the CBN Statistical bulletin, Federal Inland Revenue Service, Federal Ministry of finance and were analyzed using simple regression analysis. The study found that VAT revenue and total government revenue was having 92% variations in the GDP, and thus suggesting VAT revenue having significant effect on Nigeria economic development.

Between the period 1994 and 2014, Nasiru, Haruna and Abdullahi (2016) collected data from CBN, National bureau of statistics and examined VAT effect on the Nigeria economic growth. The data were analyzed by the study using Johansen (1988) co-integration test and found that VAT had significant effect on the growth of Nigerian economy.

Secondary data were used by Oseni (2016) to examine VAT effect on profile of government's revenue generation in Nigeria. Based on the result of the analysis, the study found that VAT had positive effect on the profile of government revenue generation in Nigeria economic growth and development.

Simple linear regression was used by Adegbie, Folajimi, Jayeoba, and Kwabai (2016) to test the VAT effect on the growth and development of Nigeria economy. According to the result of the analysis from the study, it was observed that VAT has significant effect on the growth of Nigeria economy. Contribution to growth also affects the development of the economy.

The regression results in the study by Afolayan and Okoli (2015) indicated that the annual revenue generated is insufficient to reflect economic growth due to VAT administration issues and that the income generated from VAT together with other sources of income was not utilized as expected.

The study by Izedonmi and Jonathan (2014) found a significant effect between the roles of VAT and economic growth of Nigeria. Secondary data were used by the study and regression approach provided the result in the study.

## Theoretical Review

While VAT is a part of Nigeria's whole tax system, it is crucial to understand the fundamental theories of taxes. The following are some of the VAT theories discussed in this work: Socio Political theory, Expediency theory, Benefit received theory and Faculty theory.

Socio political theory: According to this taxation theory, the primary considerations in taxing should be social and political purposes. The notion proposes that a tax system should not be designed to benefit individuals, but rather to address the problems that plague society as a whole. Wagner, a proponent of this idea, argues that each economic problem should be examined in the context of its social political setting, and a suitable solution should be developed as a result.

**Expediency theory:** This idea contends that any tax proposal must satisfy the test of practicability, with the authorities' decision being based only on this factor. According to Bhartia (2009), the state's economic and social aims should be considered as a result of the tax system's relevance, not the other way around.

**Benefit received theory:** It is argued by this theory that there is essentially an exchange relationship between payers of tax and the state. The state produces certain goods and services to the public according to Bhartia (2009) and they added to the cost of the supplies in relation to the benefits received. In contention to this view, Anyanfo (1996) stated that taxes should be related to the benefits received from government expenditure.

**Faculty theory:** It is argued by this theory according to Anyanfo (1996), that tax should be imposed based on the individual ability to pay, thus this attempt in maximizing a clear value judgement about the distributive effects of taxes. However, this was contended by Bhartia (2009) that the individual relative payment capacity is determined by his ability to pay and his relative share in the total tax burden. Hence, out of all the theories highlighted above, benefit received theory tends to show a link between VAT and economic growth and this study is anchored on this theory.

### 3. Methodology

An ex-post facto research approach was adopted for this study because the data obtained are already in existence and cannot be manipulated or altered. The study collects data covering 1994 to 2018 and examines VAT and PCI effects on Nigerian economy. This study made use of secondary data which were collected from CBN statistical bulletin, FIRS reports, Federal office of statistics and federal ministry of finance and ordinary least square analysis was employed by the study to analyze the data.

#### Model Specification

##### Research Design

As a model of logical sequence, the research design adopted for this study is the time serial data analysis research design. The choice of this design is hinged on the nature of our study. With this design, the researchers collect data that are used to investigate the impact of VAT on economic growth using data collected from the annual bulletin of CBN and IFRS.

##### Model Specification

In the light of the methodological knowledge gathered and empirical literature in our previous chapters, we specify a panel data multiple regression model. By definition, a time serial data multiple regression model is one that seeks to explain change or variation in the value of one variable (PCI) on the basis of changes in other variables known as the independent or explanatory variables using simple series data. The assumption of serial data regression is that the dependent variable is a linear function of the independent variables with  $PCI = f(VAT \text{ and } OTR)$  consideration to the homogeneity in the pooled variables. To accurately measure the impact of the independent (VAT), we attempted to review its impact on the total tax revenue collected by government and its relationship to PCI. Therefore, as stated above two models were developed to measure the relation between VAT and total tax revenue and also the impact on VAT on GDP as defined below. The model for the study was neither adopted nor modified but was specifically developed for the purpose of the study. The models applied in this study were used to analyze the impact of VAT on total tax revenue and its impact on PCI. Consequently, our model is shown thus:

The econometric model that was employed in this study is a multiple regression model. A multiple regression model is that which seeks to express relationships between dependent variable and the independent variables. This model was neither adopted nor modified from any other study. The models were specified in this study and were purposively developed for study. Consequently, the model is expressed below in functional and empirical form:

$PCI = f(VAT \text{ and } OTR)$

$$GDP_{it} = \alpha_i + \beta_1 VAT_{it} + \beta_2 OTR_{it} + \varepsilon_{it} \dots\dots\dots (I)$$

$$TR_{it} = \alpha_i + \beta_1 VAT_{it} + \varepsilon_{it} \dots\dots\dots (II)$$

Where:

$PCI_{it}$  = Per Capital Income at year end

$VAT_{it}$  = Value Added Tax at year end

$OTR_{it}$  = Total tax revenue less VAT a

$TR_{it}$  = Total tax revenue at year end

$\beta$  = Coefficient

$\varepsilon$  = Error term over cross section and time.

#### 4. Expected Results and Discussion

Based on the above regression equation model, the focus was on the independent variable VAT (Value Added Tax). The panel regression, was run with both fixed effect and random effect, based on the outcome of Hausman test, random effect was preferred by the software, the value of chi 2 obtained by the Hausman test was 0.043 which is more than 0.005 and hence we take the result of the random effect.

According to the outcome of the random effect result, the overall model has a quite good fit, with the  $R^2$  values as within = 0.500, between = 0.092 and overall = 0.534. This explains the level to which the independent variable associates with the dependent variable. It goes further to show that the independent variable accounted for only 53.1% of variance in the dependent variable, 9.2% within, and 52.3% overall variance in the dependent variable. The remaining 0.477% was due to the other untested and unexplained factors such as government interventions or general economic conditions that affect manufacturing enterprise. Below is the summary table of the random effect result.

#### Data Analysis, Results and Discussion of Findings

Dependent Variable: PCI

Method: Least Square

Included observations: 10

**Table 2**

Variable	coefficient	Std error	t-statistic	Prob
C	65.0	230	0.29	0.80
VAT	0.01	0.00	10.5	0.60
R. Square	0.90	Average		
Adjusted R. square	0.89	S.D		
S.E	480		150	
Sum of square resid	96.4			
Log likelihood	112	Hannan quin		
F. statistic	5.00	Durbin watson	15.0	
Prob			1.50	

**Source:** researcher's output, 2024.

The above result shows the regression result between PCI, VAT and OTR (and TR as shown in table 2). The  $R^2$  shows that VAT and OTR explains about 90% of the systematic variations in PCI. After adjusting for degree of freedom, the variables explain about 89.% of the systematic variation in PCI (89 of TR). Based on the F-statistics and associated probability, the explanatory power of the model is sound as the probability value of the F-statistics of 70 (112) is less than 0.05. Thus, the model is able to specific the linear relationship between PCI, VAT and OTR (TR and VAT). With respect to the t-statistics, the table reveals that the variables have a significant positive impact on GDP at 5% level of significance.

The F-statistics and the associated probability values of 1.40 (1.50 table 2) shows that a significant linear relationship between the dependent and the independent variables. The Durbin Watson Statistics of 0.60 (and 1.50 table 2) is substantially close to 2.00 and signifies the absence of auto correlation in the regression variables.

The variable of (VAT) revealed a positive coefficient of 0.50 (and 0.01 table above) and a statistically significant t-square of 4.00 (and 10.5 table above) which means that VAT impacted significantly on Nigeria economy and the total revenue, which is the value added tax increased Gross Domestic product of Nigeria and her tax revenue. The associated probability values of 0.02 (0.60) is substantially less than  $p=0.05$  and signifies the presence of positive relationship between PCI and VAT.

The variable of OTR was positive with a positive coefficient of 0.04. This means PCI increase the variables of OTR the increase is statistically significant as the variable reported a significant t-value of 1.20 and a probability value of 0.31.

#### Summary of Findings

Following the result of the investigation, it was found out that:

1. Total tax revenue had a significant and a positive relationship with per capital income. Therefore, the study rejects the null hypothesis which said total tax revenue has no with gross domestic product.
2. Value added tax contribution had a positive significant relationship with the total tax revenue. Judging from the outcome of the study, the VAT enhances economy growth in Nigeria.

3. VAT contribution had a positive significant relationship with per capital income (PCI) since the coefficient of VAT passes the one percent significant test. This result suggests that value added tax increases per capital income.

## 5. Recommendations

Based on the above findings the following recommendations were proffered:

1. Value added tax has a fixed rate which means there is an element of inequality in the tax system due to the adoption of flat rate in every level of income. This has resulted in a situation where every level of income earner pay the same amount of value added tax. Therefore, the study recommends that variable tax rate that will take more for high income earners.
2. The study also recommend that Nigeria tax system should be structure to increase the level of information generation and accessibility.

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#### CITATION

Shehu A., & Ibrahim S. N. (2025). Effect of Value-Added Tax on Revenue Generation Growth in Nigeria Economic. In *Global Journal of Research in Business Management* (Vol. 5, Number 3, pp. 123–132). <https://doi.org/10.5281/zenodo.15718517>