

Sectorial Analysis of Value-Added Tax Contribution to Economic Growth of Nigeria

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DOI: <https://dx.doi.org/10.47772/IJRISS.2025.909000634>

Received: 04 October 2025; Accepted: 10 October 2025; Published: 24 October 2025

ABSTRACT

This study examines the sectorial contributions of Value-Added Tax (VAT) to Nigeria's economic growth, with a focus on four key sectors: manufacturing, agriculture, mining and quarrying, and financial services. VAT has emerged as a significant fiscal tool for revenue mobilization, particularly as Nigeria seeks to diversify its economy beyond oil dependence. Using secondary data covering the period Q1 2015–Q4 2024, the study employs an ex-post facto research design and econometric analysis to assess the relationship between VAT revenues and Real Gross Domestic Product (RGDP). Findings reveal that VAT contributions vary across sectors, with manufacturing and financial services providing the largest shares, while agriculture and mining remain underutilized in terms of VAT mobilization. The results suggest that sectorial VAT contributions exert both direct and indirect effects on economic growth, though the magnitude differs by sector. Policy implications highlight the need to broaden Nigeria's VAT base, strengthen compliance in underperforming sectors, and reinvest VAT revenues into productive activities to sustain long-term growth.

Keywords: Value-Added Tax, Sectorial Analysis, Economic Growth, Manufacturing VAT, Agriculture VAT,

INTRODUCTION

All over the world there has been several reforms in the tax system aimed at broadening the tax base and increasing the revenue potential of government. A well-designed tax system help governments especially in developing countries prioritize their spending, build stable institutions, and improve democratic accountability (Kwode & Dania, 2023). According to Afuberon and Okoye, (2014) taxation generates funds to finance public goods, regulates production and consumption of goods and services, controls adverse economic conditions, protects infant industries and reduces income inequality among others. The Value-Added Tax (VAT) is a significant source of tax revenue for many governments, including Nigeria, where it has become increasingly vital for financing public expenditures. The imposition of the Value-Added Tax (VAT) in Nigeria has contributed immensely to the growth of the revenue base of the government. Its operation also has had some impact on the economic activities of various sectors of the economy. Meshari (2020), observed that VAT has been implemented in more than 160 countries around the world as a major revolutionary tax tool in boosting revenue to meet the ever increasing responsibilities. Nigeria introduced Value Added Tax (VAT) among other reforms that brought about changes in the structure of production in the 1990s. The VAT system aimed to capture a broader tax base by taxing the value added at each stage of production and distribution (Agbo & Nwadiolor, 2020). Since its introduction in 1993, VAT has been a key fiscal tool aimed at broadening the tax base and generating more revenue for economic development (Olalekan et al., 2020).

Value Added Tax (VAT) serves as a crucial component of a country's revenue generation system, holding immense significance in funding public services and facilitating socio-economic development (Adefolake & Omodero, 2022). However, as the nation continues to diversify its economy, understanding the sectorial contributions of VAT to economic growth and other key indices is crucial for policymakers. Different sectors, including agriculture, manufacturing, services, financial and oil and gas contribute variably to the VAT pool, influencing their impact on the overall economy (Okoye & Ezejiofor, 2021). Recent studies have shown that VAT collection efficiency and the distribution of VAT revenues across sectors play a pivotal role in driving economic growth and reducing fiscal deficits (Adebayo, 2022). However, there remains a need for a sectorial

analysis to better understand how VAT contributions from various economic sectors translate into growth, and how these contributions can be optimized to enhance Nigeria's economic performance (Udeh & Nwogwugwu, 2023).

The literature on Value Added Tax (VAT) buoyancy, responsiveness, and elasticity analysis has become increasingly important in view of its significance for revenue generation and diversification in Nigeria. The challenges and opportunities associated with dwindling oil prices, the need to grow government revenues, and the need to attract foreign investment make a detailed examination of VAT performance in Nigeria highly relevant. Despite the increasing reliance on VAT revenue, there is a dearth of empirical evidence on how different sectors contribute to VAT and how this, in turn, affects economic growth in Nigeria.

One major challenge is the uneven distribution of VAT contributions across various economic sectors despite government interventions in the sectors. Some sectors, such as telecommunications, financial services, and manufacturing, contribute significantly to VAT revenue, while others, like agriculture and informal trade, contribute minimally due to exemptions, poor compliance, or inadequate tax enforcement. This raises concerns about the sustainability and efficiency of VAT as a revenue source for long-term economic development. The imbalance in sectorial VAT contributions also raises questions about the fairness and effectiveness of Nigeria's tax policies, particularly in ensuring equitable tax burdens across different industries. Hence the study investigated the sectorial contribution of VAT's to the economic growth by focusing on four sectors (Manufacturing, Agriculture, Mining and Quarrying and Financial Services) considered as key to the Nigerian economy.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Value Added Tax and Economic Growth

Nwogwugwu, et al., (2022) defines economic growth as the process whereby the country's real national and per capita income increases over a long period of time. The increase in per capital income is the better measure of economic growth since it reflects increase in the improvement of living standards of masses. Ukpabi (2019) defined economic growth as a shift in the inflation-adjusted market value within economic system's goods and offerings over the years. Conceptually, throughout the globe economic growth can be proxied with real gross domestic product (real GDP). Governments have prioritized economic growth and welfare assistance, which cannot be accomplished without accessible funds in the treasury. Value Added Tax (VAT) is one of Nigeria's primary non-oil revenue sources and a critical tool in diversifying the economy from its dependency on oil. As part of Nigeria's strategy to stabilize government revenues amid fluctuating oil prices, VAT has emerged as a key policy instrument. VAT functions as a catalyst for economic growth in Nigeria, focusing on its revenue-generating potential, impact on public infrastructure and social services, and its role in facilitating sustainable development. Value Added Tax (VAT) serves as a crucial component of a country's revenue generation system, holding immense significance in funding public services and facilitating socio-economic development (Adefolake & Omodero, 2022). VAT has increasingly contributed to Nigeria's revenue streams, particularly after the 2020 rate increase from 5% to 7.5%. The Federal Inland Revenue Service (FIRS) reported that VAT contributed ₦2.07 trillion to federal revenue in 2022, showing consistent growth compared to previous years (FIRS, 2022).

VAT revenue also supports Nigeria's federal fiscal structure by distributing funds to states and local governments. The allocation of these resources has been linked to development projects, including road construction, healthcare facilities, and public utilities, all of which stimulate economic activities and job creation. Olayiwola et al. (2021) highlight the role of VAT in financing capital-intensive projects that are crucial for economic growth and poverty reduction. VAT's contribution to economic growth lies primarily in its ability to generate substantial government revenue for public investment. With improved tax administration and a broader tax base, VAT has enabled the government to spend more on infrastructure development, boosting business activities by reducing transportation costs and improving access to markets. According to Nwaobia *et al.*, (2021), VAT revenue has played a pivotal role in funding large-scale infrastructure projects, including transportation networks, which directly improve business efficiency and contribute to economic expansion.

Moreover, VAT promotes the formalization of businesses, particularly small and medium-sized enterprises (SMEs), by bringing them into the tax net. When properly implemented, VAT can encourage greater compliance from businesses, which further enhances revenue collection and helps reduce the size of the informal economy (Nwaiwu, *et al.*, 2022). This formalization process not only improves government revenue but also provides businesses with greater access to credit and formal markets, driving economic growth.

VAT implementation in Nigeria faces several challenges despite its successes. One significant issue is the low level of compliance, especially within the informal sector, which constitutes a large portion of Nigeria's economy. While the formal sector is relatively well-regulated, the informal sector remains largely outside the tax net, resulting in substantial revenue loss (Aina, 2025). According to Oladipupo and Izedonmi (2008), taxpayers' lack of understanding of the various tax laws may be blamed for the high magnitude of noncompliance with VAT, and as a result, public attitudes toward VAT matters have frequently been negative, resulting in low revenue generation to boost economic growth. Nwaiwu, *et al.*, (2022) noted that improving tax compliance in the informal sector could potentially increase VAT revenue by 20-30%. Additionally, VAT administration in Nigeria still suffers from inefficiencies such as weak enforcement mechanisms and outdated technology systems. This has resulted in poor tracking of taxable transactions, making it difficult to fully capture VAT revenue. A 2023 World Bank report emphasized the need for Nigeria to invest in digital tax systems to enhance VAT collection efficiency and curb tax evasion (World Bank, 2023).

The regressive nature of VAT is another concern. Being a consumption tax, VAT disproportionately affects low-income households, who spend a higher percentage of their income on essential goods and services. Although the Nigerian government has exempted certain goods such as basic foodstuffs and medicines from VAT to mitigate this effect, the impact on lower-income groups remains significant (Akintoye & Tolu-Kayode, 2022). Akintoye and Tolu-Kayode, (2022) observed that for VAT to fully serve as a catalyst for economic growth, opportunities abound for reform and growth. They emphasized the need to address existing challenges through policy reforms. First, increasing the efficiency of tax collection through digitalization and improved monitoring will enhance revenue. The introduction of electronic invoicing and real-time monitoring systems could drastically reduce VAT evasion and improve compliance. Additionally, expanding the tax base by including a broader range of goods and services, while maintaining exemptions for essential items, could further boost revenue without increasing the tax burden on the poor. Public awareness campaigns on the role of VAT in promoting economic development could also improve voluntary compliance. As businesses and consumers better understand how VAT revenue funds critical public services, compliance is likely to improve. Moreover, a more equitable distribution of VAT revenue between the federal, state, and local governments can promote balanced regional development, ensuring that all parts of the country benefit from VAT-funded projects (Nwaobia *et al.*, 2021).

Agricultural Sector VAT Contributions and Economic Growth in Nigeria

Agricultural value-added tax is a tax imposed on the value added at each stage of agricultural production and this includes activities such as planting, harvesting, and processing of agricultural goods (Onokala & Olajide, 2020). Given its importance, understanding the relationship between Value Added Tax (VAT) contributions from agricultural sector and Nigeria's economic growth is essential. While VAT was introduced in 1993 to diversify revenue sources, agricultural VAT contributions however, is comparatively lower due to tax exemptions on basic agricultural goods. Agricultural sector is pivotal for Nigeria's economy, employing over 30% of the labour force, contributing around 25% to GDP, contributing significantly to food security and export revenues goods. (Ohiomah, *et al.*, 2025). While these exemptions support food security and inflation control, they limit VAT revenue potential from agriculture. According to Agida and Ofoegbu (2022) agriculture is essential to the growth of every developing nation, including Nigeria. Orji *et al.*, (2020) opine that Agriculture value-added tax aims to formalize the agricultural sector, ensuring that it contributes fairly to government revenue. By taxing the value added in agriculture, the government can generate income supporting rural development and agricultural modernization.

The relationship between the agriculture sector and other sectors help to facilitate sustainable economic growth, most especially the value added tax drive. Agriculture is the predominant activity in most of the zones in Nigeria. Increases in agricultural output brought about by increasing land and labour productivity, will make food

cheaper; benefit both rural and urban poor people who spend much of their income on food. Agriculture contributes to economic growth and development through five inter-sectorial linkages. The sectors are linked via: (i) supply of surplus labour to firms in the industrial sector; (ii) provision of market for industrial output; (iii) supply of food for domestic consumption; (iv) supply of foreign exchange from agricultural export earnings to finance import of intermediate and capital goods (v) supply of domestic savings for industrial investment.

Despite limited VAT contributions, the agricultural sector indirectly influences Nigeria's Gross Domestic Product (GDP) growth. For instance, increased productivity in agriculture can reduce food import reliance, thus stabilizing the economy and conserving foreign exchange. According to the National Bureau of Statistics (2023), agriculture contributed approximately 25% of Nigeria's GDP, with indirect VAT contributions stemming from ancillary industries like agro-processing and logistics. Although agricultural VAT contributions are minimal, legislative changes in VAT exclusions and incentives could boost tax revenues while maintaining food security. These modifications could then fund infrastructural improvements, resulting in increased agricultural production and good GDP consequences. Based on the above we hypothesized that VAT contribution from the agriculture sector has no significant effect on economic growth in Nigeria.

Manufacturing Sector VAT Contributions and Economic Growth in Nigeria

The manufacturing industry is a crucial engine of Nigeria's economic development, creating jobs, increasing export revenues, and contributing to industrialization. The Value-Added Tax (VAT), implemented in Nigeria in 1993, is an important source of government revenue. The industrial sector's VAT payments have grown increasingly important as the government strives to diversify its revenue sources away from oil (Ayodele & Nnaji, 2022). According to recent statistics, the manufacturing sector is one of the top VAT contributors, demonstrating its importance in supporting state finances (National Bureau of Statistics [NBS], 2023). These contributions directly supply the government with revenue that may be used to invest in infrastructure, education, and healthcare, all of which are vital for long-term growth. Indirectly, the manufacturing sector promotes linkages with other industries, such as agriculture and services, resulting in multiplier effects that boost GDP growth. According to Adebayo and Salisu (2021), a 1% increase in manufacturing VAT contributions corresponds to a 0.8% increase in GDP, demonstrating the sector's economic importance.

Despite these contributions, the sector is facing challenges. High manufacturing costs, inadequate infrastructure, and intermittent power supply limit its full potential and VAT income generation. Furthermore, tax compliance concerns, particularly among small and medium-sized businesses in the sector, limit potential VAT collection from manufacturing (Eze & Uche, 2020). Tax measures aiming at lowering compliance costs and improving the business environment could boost VAT revenue and accelerate economic growth. Policy solutions include enhancing VAT collection methods and introducing targeted incentives to encourage growth in sub-sectors with high VAT potential, such as food processing and consumer goods manufacturing (Okoro & Bello, 2022). Addressing structural issues and increasing productivity in the manufacturing sector will also result in a larger contribution to GDP, boosting economic resilience. VAT contributions from the industrial sector are critical to Nigeria's economic progress. Effective tax policies, infrastructure upgrades, and a supportive regulatory environment could help to realize the sector's VAT potential, resulting in a more diverse and resilient economy. Hence VAT from manufacturing sector has no significant effect on economic growth in Nigeria.

Mining and Quarrying Sector VAT Contributions and Economic Growth in Nigeria

The mining sector plays a crucial role in Nigeria's economy contributing significantly to the country's Gross Domestic Product (GDP). Despite the dominance of oil, mining is a growing sector offering great potential for further economic diversification. The sector also provides employment opportunities, helping to reduce unemployment and poverty rates. However, the effectiveness of VAT in stimulating economic growth through the mining sector remains a subject of empirical investigation. Recent data from the National Bureau of Statistics (NBS, 2022) and other industry reports indicate that mining and quarrying have become one of the top contributors to VAT revenue in Nigeria, alongside manufacturing and ICT. In Q3 2024, mining and quarrying accounted for 18.90% of total VAT collections, making it the third-largest contributor after manufacturing and ICT. This marks a significant increase compared to previous years, reflecting improved tax administration and sectorial reforms. The mining and quarrying sector remitted ₦78.86 billion in VAT in the first half of 2022,

representing an 11.2% share of total VAT revenue and a 28.3% increase from the previous period (NBS, 2022). Despite these gains, the sector's overall contribution to GDP remains low, at less than 1% in recent years, highlighting the need for further sectorial development and policy attention. Empirical studies consistently find that while VAT revenue from mining has increased, its direct impact on Nigeria's GDP growth is limited.

The sector's small share of GDP (around 0.3–0.77%) in recent years) and persistent under performance are attributed to factors such as inadequate exploration funding, regulatory challenges, and the prevalence of tax exemptions for export-oriented activities (David et al., 2016). Expansionary fiscal policies, including targeted loans and interventions, have been shown to boost mining sector output, but VAT generation remains relatively low compared to sector potential. The government's efforts to revitalize the sector, such as the Mineral Sector Support for Economic Diversification project, aim to increase both output and tax revenue, but results have been modest so far. Policy reforms have extended VAT coverage to the mining sector, but the effectiveness of VAT as a growth stimulant is constrained by sector-specific challenges. The mining sector's VAT contribution is positive but minimal in its effect on economic growth due to the sector's limited size and the structure of Nigeria's economy. While mining is now among the top VAT contributors, the broader economic impact remains muted unless accompanied by structural reforms and improved sector governance. Scholars recommend strengthening tax administration, reducing exemptions, and investing in sectorial infrastructure to enhance the mining sector's role in economic growth. Based on the aforementioned, we test whether VAT from Mining and quarrying has any significant effect on economic growth

Financial Services Sector VAT Contributions and Economic Growth in Nigeria

The financial services sector is an essential engine of economic activity in Nigeria, providing indispensable banking, insurance, and investment services that support individuals and businesses alike. As the sector has developed, its contributions to Nigeria's tax revenue through Value-Added Tax (VAT) have similarly increased, underscoring its critical role in the economy. The VAT derived from financial services transactions constitutes a significant revenue source for the government, which in turn supports infrastructure development and social programs vital for sustainable growth (Olawale & Amadi, 2022).

Recent statistics from the National Bureau of Statistics (2023) indicate that the financial services sector remains one of the leading contributors to VAT in Nigeria, primarily due to substantial transaction volumes and its extensive reach within the population. The revenue generated from VAT allows the government to allocate funds to essential sectors such as infrastructure, healthcare, and education, thereby fostering economic development. Adegoke and Omotayo (2021) assert that a 1% increase in VAT contributions from the financial services sector is associated with a 0.7% growth in Nigeria's GDP, highlighting the sector's critical role in economic advancement.

The financial services sector significantly contributes to indirect economic growth by providing access to capital, promoting financial inclusion, and supporting the advancement of small and medium-sized enterprises (SMEs). Through these activities, the sector not only generates additional VAT revenue but also fortifies the national economy (Bello & Yusuf, 2020). As digital banking and fintech services continue to expand, there is an opportunity for increased VAT contributions as more Nigerians are able to access financial services, especially in regions that have previously lacked such access (Eze & Musa, 2022).

Nonetheless, challenges continue to exist. Significant compliance expenses, regulatory constraints, and the presence of multiple tax systems have been recognized as barriers to effective VAT optimization in the financial sector. In addition, the sector's digital advancement is restricted by poor internet access and insufficient digital literacy in rural areas, thereby limiting the potential for VAT revenue generation (Okon & Salami, 2021). Addressing these challenges through reforms in tax policy, such as streamlining VAT compliance requirements and alleviating sector-specific tax pressures, could lead to enhanced VAT contributions and foster economic growth. VAT contributions from the financial services sector play a vital role in Nigeria's economic progress. By instituting policies that simplify tax procedures and foster financial inclusion, Nigeria can fully leverage the VAT revenue potential of this sector, which will further enhance growth and economic robustness. Hence, we hypothesize that VAT from Financial service sector has no significant effect on economic growth in Nigeria.

Theoretical Underpinning

The study anchors on the Benefit received theory which posits that those who benefit from government services should contribute to tax revenue in proportion to the benefits they receive from public goods and services. This theory supports a fair, equitable and efficient taxation system where tax revenue is reinvested into the economy to enhance economic productivity. This is because different economic sectors (manufacturing, agriculture, oil & gas, telecommunications, and financial services) contribute VAT based on their level of business transactions. The government, in turn, is expected to use VAT revenue to provide essential infrastructure, regulatory support, and economic incentives for these sectors. This theory also aligns with the study's focus on assessing whether VAT contributions from the various sector aligns with higher government support lead to enhanced growth in Nigeria.

Empirical reviews

Ihenyen and Adole (2025) examined the influence of the manufacturing and service sectors on government tax revenue generation in Nigeria from 1992 to 2023. Using secondary data from the Central Bank of Nigeria (CBN) Statistical Bulletin, the study employed multiple regression analysis to assess the influence of sectoral performance on tax revenue. The results revealed that the manufacturing sector had a significant positive impact on tax revenue, indicating that an increase in manufacturing sector performance leads to higher tax revenue. However, the service sector's contribution was statistically insignificant, suggesting that its effect on tax revenue was minimal. Based on these findings, the study recommends that the government strengthen the manufacturing sector through supportive policies such as tax incentives, improved infrastructure, and access to financing to enhance its tax contributions. Bello (2025) investigates the impact of Value Added Tax (VAT) reforms on sectoral financial performance in Nigeria, focusing on how recent changes in VAT policy such as rate increases, digital enforcement, and administrative restructuring have affected key sectors including telecommunications, manufacturing, retail, and agriculture. Drawing on panel data from 2011 to 2020, the research employs a fixed-effects regression approach, incorporating a composite index of VAT reform constructed via principal component analysis. Sectoral financial performance is assessed using return on assets (ROA) and profit margin as key indicators. The results reveal that VAT reforms have a significant but uneven effect on financial performance across sectors. Formal, technology-enabled sectors such as telecommunications and manufacturing experienced improved financial outcomes, driven by stronger compliance and institutional capacity. In contrast, informal and agrarian sectors faced barriers in adapting to the reforms, primarily due to limited digital readiness and compliance constraints. The findings suggest that VAT reforms are not universally effective and must be tailored to sector-specific conditions. Yaska, *et al.* (2024), in their study explores fiscal policies that aim to improve revenue collection and foster economic growth. It specifically investigates the effects of sectoral value-added taxes (VAT) on government revenue in Nigeria from 1990 to 2023, focusing on manufacturing value-added tax (MVAT), agriculture value-added tax (AVAT), and education value-added tax (EVAT). Employing the Autoregressive Distributed Lag (ARDL) model, the long-term results reveal a range of impacts from these taxes on government revenue. MVAT has a negative and insignificant impact on revenue generation at the 5% significance level. Which suggested that changes in MVAT don't significantly affect government revenue over the long haul. On the other hand, AVAT had a positive and insignificant impact on revenue. In contrast, EVAT demonstrated a significant positive effect. This highlights the considerable positive influence of EVAT on long-term revenue generation, suggesting that enhancing EVAT collection could greatly benefit government revenue. The findings emphasize the importance of targeted policy measures to improve VAT compliance in the manufacturing and agricultural sectors while also tapping into the education sector's potential for significant revenue contributions. Nasiru, Haruna and Abdullahi (2016) empirically examined the impact of VAT on the level of economic activities in Nigeria from its inception to 2014. The study used secondary data which was analyzed using Johansen (1988) co-integration test. The quarterly data ranged from 1994 Q4 to 2014 Q4. The study found evidence of a significant positive impact of VAT on economic growth. In the same vein, other government revenues, which include all oil receipts and other receipts into the federation account other than VAT were also found to be positively related to economic growth during the study period.

Obayori and Omekwe (2019) empirically investigated the impact of value added tax (VAT) on economic growth in Nigeria from 1994-2018. The aim of the study was to examine the effect of value added tax on economic growth in Nigeria and determine the impact of other revenues particularly, customs and excise duties on

economic growth in Nigeria. Secondary data on GDP, VAT revenues, custom and excise duty were sourced from CBN statistical bulletin. Also ARDL technique was used to analyse the data. It was concluded that VAT has a direct relationship with economic growth in Nigeria since its inception in 1994 and has contributed to the total revenue of the nation.

Meshari (2020) investigated the impact of value-added tax (VAT) on Saudi banks, through measuring the impact of changes in the banks before and after the implementation of Value Added Tax (VAT), in all of total assets, total liabilities, customer deposits, retained earnings, total operating income, total operating expenses and net operating income. The study assessed the fourth quarter of 2017 (before the implementation of VAT), and the first and second quarters of 2018 (after the implementation of VAT). The study found that there is a slight decline in total assets, total liabilities, customer deposits and current accounts, in addition to a significant decline in retained earnings, total operating expenses after the implementation of VAT. On the other hand, the study found that there is a slight increase in the total income of operations and a significant increase in net operating income after the implementation of value-added tax. Moreover, the study found that there are no statistically significant differences between total assets, total liabilities, customer deposits, current accounts, total operating income, total operating expenses, net operating income before and after the implementation of value-added tax; while there are statistically significant differences between retained profits before and after VAT.

Akpokhio and Ekperiware (2022) investigated the impact of value-added tax on Nigeria's economic growth and development over the period from 1981 to 2021. The research employed both descriptive analysis and the ARDL model. Secondary data was utilized, sourced from the CBN Statistical Bulletin and the Federal Inland Revenue Service. Ultimately, the study revealed that value added tax had a non-significant and negative effect on Nigeria's economic growth and development.

Akintola, *et al.*, (2022) investigated the impact of VAT revenues on Nigeria's economic development. The data for the research were obtained from the CBN statistical bulletin and the World Bank data, covering the period from 2006 to 2019. Employing multiple regression analysis, which incorporated a fusion of time series dimensions, the study revealed that value-added tax had a non-significant and negative effect on Nigeria's gross domestic product (GDP).

Alfred and Haman (2022) utilized secondary data, mostly from the Central Bank of Nigeria and the National Bureau of Statistics, to investigate how value-added taxation (VAT) affected the expansion of Nigeria's economy during a 26-year period, from 1994 to 2020. The investigation sought to determine the statistical significance of VAT and its impact on economic variables using a regression statistical model. The main conclusions showed a strong and favourable correlation between Nigeria's economic growth and VAT. Furthermore, it was discovered that VAT had a favourable effect on federally collected revenue, indicating that it is crucial in determining the government's revenue patterns. The analysis concluded that VAT had an impact on Nigeria's revenue structure and economic growth trajectory.

METHODOLOGY

The study adopted the causal comparative research design using quarterly time series data from statistical bulletins and various National Bureau of Statistic report (NBS) and CBN statistical Report covering the time period of the study. This design examined the cause-and- effect relationship by comparing groups that differ on a particular variable of interest, without manipulating the variables, since the events or conditions have already occurred. This design is important in establishing the possible causal effect of one variable on another. This design is suitable for this study as it evaluates the effect of VAT contributions from the four selected sectors (Independent variable)

Model Specification

The study adapted the model of Kwode and Dania (2023) with an adjustment where the measures of tax revenue (PPT, CIT, CED and VAT) were determinants of economic growth (proxied by GDP). However for the purpose of this research the model is restated in line with the four objectives specified in the study as:

$$RGDPGR = f(MANVAT, AGRICVAT, MINVAT, FINSVAT) \quad (1)$$

In log-linear form equation (1) is stated as

$$RGDPGR = \beta_0 + \beta_1 MANVAT_t + \beta_2 AGRICVAT_t + \beta_3 MINVAT_t + \beta_4 FINSVAT_t + \mu$$

Where:

RGDP = Real Gross Domestic Product

MANVAT = Natural log of VAT from manufacturing sector

AGRICVAT = Natural log of VAT from agricultural sector

FINSVAT = Natural log of VAT from financial services sector

MINVAT= Natural log of VAT from mining and quarrying sector

β_0 = Intercept term

β_1 - β_5 = Slope of coefficients

μ = Residual term

Our a priori expectation is that sectorial Value added tax will have a positive impact on economic growth of Nigeria.

RESULTS

Table 1: Descriptive Statistics

	RGDPGR	MANVAT	AGRIVAT	MINVAT	FINVAT
Mean	6.265641	10.69876	8.872400	8.730485	10.04912
Median	4.640000	10.52754	8.868125	7.769944	9.858420
Maximum	17.06000	11.31164	9.334009	11.24160	10.91673
Minimum	-6.040000	10.33959	8.429024	7.367502	9.516215
Std. Dev.	5.289207	0.326378	0.222753	1.512968	0.437133
Skewness	0.154092	0.640896	0.074959	0.619680	0.745711
Kurtosis	2.482591	1.749693	2.456189	1.470338	2.088599
Jarque-Bera	0.589372	5.210167	0.517085	6.298302	4.964359
Probability	0.744765	0.073897	0.772176	0.042889	0.083561

The table 1 above showed the result of the descriptive statistics or summary statistics of both the dependent variable; Real Gross domestic product growth rate (LOGRGDPGR), and the Independent variables; VAT from Manufacturing sector (MANVAT), Agricultural Sector (AGRICVAT), VAT from Mining and Quarrying (MINVAT) and VAT from financial services sector (FINVAT),VAT. These summary statistics were used to quantify and describe the basic characteristics of the data set and highlight potential relationships between the variables of interest. The basic characteristics as shown by the result are the measures of central tendency, the measures of dispersion and the measures of normality of the data set.

As observed from the result, the average values of RGDPGR, MANVAT, AGRICVAT, MINVAT, and FINVAT, were 6.265641, 10.69876, 8.872400, 8.730485 and 10.04912 respectively. Average growth rate is 6.27%, but with a median of 4.64%, suggesting some likely right-skewed growth in certain periods. AGRICVAT, FINVAT, MANVAT, and MINVAT all show relatively close mean and median values, indicating symmetrical distributions except potentially for MINVAT, which has more spread. MANVAT has the highest

mean (10.70) and AGRICVAT has the lowest variability. The measure of dispersion such as minimum value, maximum value and standard deviation considered how widely spread the data set was from their mean values. RGDPGR showed the greatest variability with a standard deviation of 5.2 and a wide range from -6.04 to 17.06. AGRICVAT, FINVAT and MANVAT have low standard deviations (0.22 to 0.44) indicating these variables are quite stable across observations. MINVAT shows moderate variability (std. Dev. =1.51) with a range from 7.37 to 11.24.

The measures of normality in this study were that of skewness and kurtosis. Values of kurtosis which are between -3 and +3 are considered to be acceptable for asymmetry and prove normal distribution (George & Mallery, 2010). All variables have positive skewness (0.07 to 0.75), their distribution are slightly right-skewed. RGDPGR has the lowest skewness (0.15) indicating near symmetry. Kurtosis value are mostly below or near 3 indicative of a normal distribution kurtosis. Implying that distributions are close to normal but slightly platykurtic (flatter than normal) especially MANVAT and MINVAT. The Jarque-Bera (JB) statistic test measures the difference of the skewness and the kurtosis of the series with those from the normal distribution with a null hypothesis stating that the series is not normally distributed. Given the result in table 4.2 the JB values are 0.589372, 0.517085, 4.964359, 5.210167 and 6.298302 for RGDPGR, AGRICVAT, FINVAT, MANVAT and MINVAT respectively. All the variables with the exception of MINVAT had the p-value of their JB statistics above the threshold of 0.05 level of significance, hence the null hypothesis cannot be sustained and therefore conclude that the variables are normally distributed.

Unit Root Test

Unit root test was carried out on the data set in order to avoid running a spurious regression and to also ascertain the degree of stationarity of the variables under study. The Augmented Dickey –Fuller (ADF) unit root test was employed to do this. The null hypothesis for the unit root test is that the time series has a unit root (i.e it is non stationary) while the alternative hypothesis (H1) is that the series is stationary (no unit root). Where the ADF statistics p-value is larger than 0.05 when compared to the critical value of the selected level of significance, then the null-hypothesis of non stationarity is not sustained and the alternate accepted. The summary of the unit root test for the variables employed in the study is as shown in table 2

Table 2 Summary of Unit Root for all variables

Table: Unit Root Test Results

Variable	t-Statistic	P-value	1% Critical Value	5% Critical Value	10% Critical Value	Order of Integration
RGDPGR	-4.434803	0.0011	-3.615588	-2.941145	-2.609066	I(1)
AGRICVAT	-7.004036	0.0000	-3.626784	-2.945842	-2.611531	I(1)
FINVAT	-5.961449	0.0000	-3.621023	-2.943427	-2.610263	I(1)
MANVAT	-9.098424	0.0000	-3.621023	-2.943427	-2.610263	I(1)
MINVAT	-5.273075	0.0001	-3.621023	-2.943427	-2.610263	I(1)

Note: All variables are stationary at first difference, I(1).

Source: Authors computation from E-views 13

The table 2 reveals the summary of the Augmented Dickey Fuller test for all variables employed in the study. The p-value of the all the variables under study reported a statistically significant value less than the 0.05 significance threshold giving a strong evidence against the null hypothesis. Hence the stationarity of all variables used in the study were confirmed and the study therefore conclude that all the variables of interest in the study are integrated in the first order (1ST difference).

Johansen Cointegration Test

The Johansen test examined whether a group of non-stationary variables share one or more cointegrating relationship that is whether there exist a stable long-run equilibrium relationship inspite of the short –run

fluctuations. The trace test and Max-eigenvalue test statistics were used to test for Cointegration among the variables employed in the study. The null hypothesis in these tests is that the number of cointegrating relationship is at most r while the alternate hypothesis is the number of cointegrating relationship is greater than r . The summary of the results is displayed in table 3a and 3b

Table 3a Trace Test Results

Hypothesis (No of CE(s))	Eigen value	Trace Statistic	5% Critical value	P-value
None	0.480117	58.42922	69.81889	0.2868
At most 1	0.316388	34.22562	47.85613	0.4895
At most 2	0.246396	20.15214	29.79707	0.4126
At most 3	0.226616	9.68526	15.49471	0.3057
At most 4	0.004772	0.177001	3.841465	0.674

Source: Authors Computation from E-views 13

Table 3b Max-Eigen Test Statistics

Hypothesis (No of CE(s))	Eigen value	Trace Statistic	5% Critical value	P-value
None	0.48012	24.2036	33.8769	0.4408
At most 1	0.31639	14.0735	27.5843	0.8175
At most 2	0.2464	10.4669	21.1316	0.7
At most 3	0.22662	9.50826	1426460	0.2463
At most 4	0.00477	0.177	3.84147	0.674

Source: Authors Computation from E-views 13

From table 3a, the trace statistics test as shown does not exceed their critical values at 5% level of significance. Also all the p-value are greater than 0.05, as such we fail to reject the null hypothesis at each step, thus we conclude that the trace test does not indicate any Cointegration among the variables employed in the study. The table 3b which is the Max-Eigen test statistics confirms the findings as shown in the trace test results. Similarly all of the Max-Eigen test statistics do not exceed their critical values at 5% level of significance and The p-values are all greater than 0.05, hence the null hypothesis is sustained and thus conclude that the variables tested in this study are not cointegrated that is there is no long run relationship among the variables.

Since no Cointegration was evidenced, there is no stable long run relationship binding RGDPR, MANVAT, FINVAT, MINVAT and AGRICVAT. Modelling these variables in levels with Cointegration-based models like Vector Error Correction Model (VECM) would not be appropriate, so the Vector Autoregression (VAR) model which takes cognizance of the stationarity of the time series and suitable for analysing the short term dynamic relationship among the variables was used in the study.

Vector Autoregression Analysis

The VAR model captures the dynamic interdependencies among variables. A Vector Autoregression (VAR) treats all variables as endogenous and models each variables as a function of its own past values and the past values of all other variables measured in the study. This allows the researcher to capture dynamic and simultaneous feedback effects among multiple time series variables in the study. To successfully run a VAR model and arrive at a result with statistical viability, it is necessary to determine the optimal lag length to be used in the VAR model in order to avoid a situation of over fitting of the model. To do this, a lag length criterion test was carried out and the summary of the result is shown in table 4.

Table 4 Lag Length Criteria Result

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-89.63148	NA	0.000132	5.257305	5.477238	5.334067
1	21.38390	185.0256*	1.13e-06*	0.478672*	1.798271*	0.939248*
2	42.43486	29.23744	1.53e-06	0.698063	3.117328	1.542452
3	60.08015	19.60587	2.90e-06	1.106659	4.625590	2.334860

Source: Authors Computation From E-vies

* indicates lag order selected by the criterion

Table 4 as shown above indicates that in all criteria tested for the data set employed in the study, the most appropriate lag length was 1 as evidenced by the asterix across all lag length criteria

Table 5: Ordinary Least Square/VAR Result

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.698581	0.104891	6.660087	0.0000
C(2)	5.586130	7.065334	0.790639	0.4303
C(3)	-7.843187	3.754036	-2.089268	0.0382
C(4)	-1.984899	1.335192	-1.486602	0.1390
C(5)	4.267310	3.214484	1.327526	0.1862
C(6)	-13.85410	50.30806	-0.275385	0.7834
C(7)	-0.001070	0.002022	-0.529270	0.5973
C(9)	0.180647	0.072370	2.496161	0.0135
C(10)	0.141992	0.025740	5.516449	0.0000
C(11)	-0.010459	0.061968	-0.168785	0.8662
C(12)	4.955702	0.969833	5.109849	0.0000
C(13)	-0.004875	0.004786	-1.018526	0.3099
C(14)	0.744105	0.321134	2.317117	0.0217
C(15)	0.219254	0.173282	1.265300	0.2076
C(16)	-0.093060	0.060861	-1.529057	0.1282
C(17)	0.066436	0.147103	0.451631	0.6521
C(18)	-0.841181	2.338743	-0.359672	0.7196
C(19)	-0.005499	0.012376	-0.444373	0.6574
C(20)	2.035026	0.833604	2.441238	0.0157
C(21)	-0.042203	0.442920	-0.095284	0.9242
C(22)	0.865908	0.157533	5.496688	0.0000
C(23)	-1.066988	0.379261	-2.813332	0.0055
C(24)	-9.376697	5.935601	-1.579738	0.1161
C(25)	-0.003605	0.006012	-0.599658	0.5496
C(26)	0.365224	0.404937	0.901927	0.3684
C(27)	-0.184446	0.215156	-0.857264	0.3925
C(28)	0.122928	0.076524	1.606388	0.1101
C(29)	0.442010	0.184233	2.399196	0.0176
C(30)	2.327341	2.883318	0.807174	0.4207
Determinant residual covariance	3.41E-07			

Source: Authors Output from Eviews 13

The result displayed in table 5 is the ordinary least square VAR regression visually showing the p- value of the variables employed in the study. Interpreted as equation by equation, focusing on the main equation that is:

$$RGDPGR_t = C(1) * RGDPGR_{t-1} + C(2) * MANVAT_{t-1} + C(3) * AGRIVAT_{t-1} + C(4) * MINVAT_{t-1} + C(5) * FINVAT_{t-1} + C(6)$$

RGDPGR equation where RGDPGR is the dependent variable $R^2 = 0.7432$ (74.32% of variation in GDP growth explained). Based on the strength of this we infer that 74% of the variation in GDP growth is explained by past RGDP and VAT revenues. Furthermore, the significant predictors for the equation showed RDGPGR (-1) = 0.698581 with a p-value (0.0000) which is highly statistically significant and positive. This implies that past GDP growth strongly and positively influences current GDP growth, suggesting persistence in growth performance. MANVAT (-1) reported a coefficient equal to 5.586130 with a p-value (0.4303) showing no statistical significant between VAT from manufacturing sector and economic growth. The lagged value of AGRICVAT (-1) reported a coefficient of -7.843187 and p-value = 0.0382 indicating a negative and significant relationship between VAT from agriculture sector and economic growth. The MINVAT (-1) lagged value reported a coefficient equal to -1.984899 and a p-value of 0.1390 which was not significant while the lagged value of FINVAT (-1) indicated a coefficient value of 4.267310 and a p-value of 0.1862 also not significant.

Other equations as displayed in the results showed where each sector's VAT revenue is also modelled with GDP and other VAT sectors as predictors, that is, where sectorial VAT are dependent variables.

The manufacturing VAT equation (that is where MANVAT is the dependent variable) reported an $R^2 = 0.9767$ suggesting a high explanatory power of the predictor variables on the variations of the dependent variable. This suggest that MANVAT is strongly influenced by its own past values and also by VAT revenue from other sector. The equation where AGRICVAT is the dependent variable show that $R^2 = 0.6977$ approximately 70% suggesting a moderate fit while some cross sectoral effects presents notably significant influence on AGRICVAT. The MINVAT equation reported an $R^2 = 0.9559$ signifying high predictive power of the explanatory variables and suggesting stability but little growth impact. The last equation which had FINVAT as the dependent variable, also reported a good fit with an $R^2 = 0.9291$ but driven mainly by its on past values with weak RGDP growth influence.

Test of Hypothesis

The VAR results reveal the dynamic and lagged relationships between sectorial VAT contributions and Nigeria's real GDP growth rate (RDGPGR). The key variable of interest is how VAT revenue from manufacturing, agriculture, mining & quarrying, and financial services in the previous quarter affects the current quarter's GDP growth rate.

Hypothesis 1

Ho: VAT contributions from the manufacturing sector has no significant effect on Real gross domestic product (RGDP) of Nigeria.

The result from the Ordinary least square VAR output showed that manufacturing VAT reported a coefficient of 5.586130 with a p- value of 0.04303 which is greater than the 0.05 level of significance. We therefore fail to reject the null hypothesis. Hence we conclude that VAT revenue contributions from the manufacturing sector do not have any significant effect on Real Gross Domestic Product of Nigeria within the period under review.

Hypothesis 2

Ho: VAT revenue contributions from the agricultural sector has no significant effect on Real GDP growth in Nigeria.

In the table 4.2.7 AGRICVAT (-1) reported a negative coefficient of -7.843187 with a p-value = 0.0382 which is statistically significant at 5%. The coefficient reported a negative impact meaning an increase in VAT revenue from the agriculture sector reduces RGDP growth in the short run. The null hypothesis cannot be sustained,

hence we reject the null hypothesis and conclude that VAT revenue contributions from the agriculture sector has a significant effect on economic growth in Nigeria.

Hypothesis 3

Ho: There is no significant effect of VAT revenue contributions from mining and quarrying on Real GDP growth of Nigeria.

The lagged value of MINVAT from the table 4.2.7 reported a negative coefficient of $= -1.984899$, with an associated p-value $= 0.1390$ which is greater than 0.05 measure of significance. This show an inverse relationship indicating that every 1% increase in MINVAT bring about 1.99% reduction in RGDP. Mining VAT has a negative but statistically insignificant impact on RGDP growth. This indicates that although the mining sector contributes revenue via VAT, it does not significantly stimulate real economic activity. The null hypothesis is therefore sustained and we conclude that VAT revenues contributions has no significant effect on RGDP of Nigeria.

Hypothesis 4

Ho: VAT revenue contributions from the financial sector has no significant effect on GDP growth rate of Nigeria.

From the results shown in table 4.2.7, the coefficient of VAT revenue from the financial sector revealed a positive relationship with RGDP at a value $= 4.267310$, and p-value $= 0.1862$ (not significant). Although the coefficient is positive, the effect is not statistically significant, meaning financial sector VAT do not have a strong short-run influence on RGDP growth. This could be due to the structure of VAT application in financial services (often limited to fees and commissions, not core banking services) and the sector's nature as a facilitator rather than a direct producer. We therefore sustain the null hypothesis and conclude that VAT revenue contributions from the financial services sector do not have any significant effect on Real Gross Domestic Growth in Nigeria in the period under review.

DISCUSSION

The Vector Autoregression (VAR) short run results provided a detailed examination of the impact of the sectorial VAT revenue contribution on economic growth of Nigeria. The coefficients, standard errors, t-statistics, and probability values offer insights into the significance and direction of these impact. The manufacturing VAT (MANVAT) contributions though positive do not have a statistically significant relationship with economic growth in the short run contrary to the apriori expectation. This result aligns with the findings of Yaska et al (2024) who found out that manufacturing VAT do not significantly influence revenue generation though in the long run. There could be linked to various challenges such as structural inefficiencies, or weak VAT enforcement, increasing cost which hampers productivity limiting the sector's potential to contributing to growth. Ihenyen and Adole (2025), however found out that manufacturing sector significantly affect tax revenue generation. The manufacturing sector no doubt is critical in revenue generation through corporate taxation, value-added tax (VAT), and employment taxes.

A strong manufacturing industry often leads to increased productivity, higher incomes, and greater tax compliance, which ultimately enhances government revenue (Adegoriola *et al.*, 2024). However, challenges such as inadequate infrastructure, inconsistent policies, and illicit financial flows can hinder the sector's potential to contribute effectively to government tax revenues (Ihenyen & Adole, 2025). There is a need to address these challenges through strategic policies that improves business environment for manufacturers. The government should pursue broader reforms to improve productivity and decrease operational costs while also reducing structural inefficiencies in the sector. Provide tax reliefs and enforce VAT compliance in formalized manufacturing to enhance productivity. Without addressing sectorial inefficiencies and tax burdens, manufacturing VAT revenues alone may not translate into growth, limiting the sector's role in economic diversification. This finding did not align with the work of Mukolu and Ogodor (2021) that the value of VAT had a positive significant impact on economic growth (GDP) in Nigeria.

AGRICVAT which is VAT contributions from the agricultural sector has a significant though negative effect on economic growth of Nigeria. This is contrary to the findings of Yaska *et al* (2024) but affirms that by Musa *et al.*, (2023). This counter intuitive result is a reflection of the distortive or disincentivising impact of taxation in a sector that is overly underdeveloped, informal yet crucial for subsistence livelihoods. Agreeing with Ebomuche and Ihugba (2010), the agricultural sector is a vital part of the economy, employing a large portion of the population and contributing significantly to GDP. Agriculture value-added tax aims to formalize the agricultural sector, ensuring that it contributes fairly to government revenue. By taxing the value added in agriculture, the government can generate income supporting rural development and agricultural modernization (Orji *et al.*, 2020).

The findings however Indicates that VAT may be discouraging agricultural output or burdening producers, thereby reducing growth impact. Strengthening VAT collection in agriculture, improving agricultural productivity, and formalizing the sector can enhance revenue and growth. Policies supporting input subsidies, mechanization, and market access will reinforce this effect. Agriculture remains a key growth driver; effective tax policy here can boost government revenue and stimulate broader economic development. Tax policies on agriculture may need reforms or exemptions to avoid unintended economic contraction. Review VAT structure in agriculture, exempt farm inputs and smallholder farmers, while focusing on agro-processing and exports that add real value.

VAT revenue from Mining and Quarrying has no significant effect on the GDP growth rate of Nigeria. Mining and quarrying VAT revenues do not significantly impact GDP growth, possibly due to the sector's volatility, regulatory challenges, and a focus on export-oriented activities often exempt from VAT or subject to different tax regimes. The mining sector in Nigeria has the potential to significantly contribute to economic growth, but currently underperforms due to challenges such as inadequate infrastructure, regulatory inconsistencies and security concerns hindering its growth and investment (David *et al.*, 2016) To harness mining's growth potential, Nigeria should reform tax policies to improve compliance and integrate the sector better into the domestic economy, while addressing governance and environmental concerns. Without effective tax and regulatory reforms, mining's contribution to GDP growth via VAT revenues remains limited. More value-added processing and local content development may be required for the mining sector to positively influence growth. Hence null hypothesis which states that there is no significant effect of VAT revenue contributions from mining and quarrying on GDP growth rate is sustained. Lastly, the financial sector VAT revenue contributions has no significant effect on the economic growth of Nigeria. While the financial sector is crucial for economic transformation, its VAT contributions do not significantly explain real GDP growth.

On the whole, only agriculture VAT showed a statistically significant impact on growth, and it was negative suggesting a need to rethink tax policy in that sector. Other sectors (manufacturing, mining, financial services) showed no significant short-run effects, despite varying positive coefficients indicating limited direct fiscal-growth transmission from these sectors. Reliance on VAT from productive sectors like agriculture may be counterproductive. Manufacturing and mining may not be generating sufficient economic linkages or value to influence GDP via tax contributions. Hence, VAT policy reform is needed to make it growth-enhancing, especially in sensitive or informal sectors. Policymakers should target VAT reforms that balance revenue generation with sectoral productivity and growth support, particularly by addressing informal sector dynamics, over-taxation risks, and structural inefficiencies.

CONCLUSION AND RECOMMENDATIONS

The paper assessed the sectorial contributions of VAT to the economic growth of Nigeria from four key sectors namely, manufacturing, agriculture, mining and quarrying and financial services sectors. Spanning between 2015Q1 to 2024Q4. The findings indicates that the manufacturing sector VAT do not significantly the industrial and service sectors to government tax income in Nigeria from 1992 to 2023. The findings emphasized that the manufacturing, Mining and quarrying and Financial services sectors do not significantly contributes to economic growth in the short run. Conversely, the agriculture sector's contribution was statistically significant though negative, indicating that its effect on growth is evidenced though inverse maybe due underlying factors. The overall model demonstrated a strong explanatory power. Thus the study conclude that Sectoral VAT contributions from agriculture has a significant impact on economic growth while that of manufacturing, mining

and quarrying and financial services have no significant effect on economic growth. Based on the conclusions drawn the following recommendations are suggested

1. Strengthening the Manufacturing Sector: Government should implement policies that support the growth of the manufacturing industry. Provide tax relief, improving infrastructure, ensuring access to affordable financing, and create enabling business environment to boost productivity and revenue contributions. They should enforce VAT compliance in formalized manufacturing to enhance productivity.
2. Tailor VAT policies to Economic realities: given its significant impact on economic growth, government should formalized the sector to enhance VAT compliance and collections. Provide incentives that increase productivity.
3. The mining sector from extant literature holds great potentials for revenue diversification that engenders growth. There is a need for the review of VAT policies in the sector to improve contribution to growth. Government should strengthen regulatory frameworks that enhances transparency by formalizing and regulate artisanal mining, and incentivize investment in solid minerals to raise taxable output.
4. Broaden the VAT Base in the Financial Sector: Government need broaden VAT coverage by exploring feasible ways to include more financial services under VAT while balancing the need to maintain sector growth and affordability of financial products.

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