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Impact of Selected Sectoral Value Added Tax on Private Sector Investment in Nigeria: (1993-2024)

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Abstract

During the last few years, Nigeria still carried on with Value Added Tax (VAT) reforms in the wider framework of its fiscal plan to enhance non-oil revenue and the sustenance of the economy. Nevertheless, there has always been the issue over the impact of sector-specific VAT on the investment in the private sector, the driver of economic growth. This paper examines the impact of selected sectoral value added tax on private sector investment as the result of sectoral VAT; that is Manufacturing VAT (MVAT), Agricultural VAT (AVAT), and Education VAT (EVAT) using an annual time series data and Autoregressive distributed lag (ARDL) model over a period of many decades. The results indicated that MVAT positively and significantly affects the investment in the private sector, which means that the tax proceeds of the manufacturing sector can play a role in investment growth incentives. On the contrary, AVAT and EVAT displayed positive and negative effects, respectively, although both of them are statistically insignificant in the long run. These findings indicated that whereas the VAT regime in the manufacturing industries could result in stimulating the amount of private investment in the economy, adjustments in the agricultural and educational regimes of VAT were necessary to promote involvement of the private investors. The research suggested that the Federal Government of Nigeria through the Federal Ministry of Industry, Trade and Investment and the Federal Inland Revenue Service (FIRS) should support the manufacturing VAT Framework for proper enhancement. The Federal Ministries of Agriculture and Education should join forces with FIRS in the review of VAT policy to salvage the entry of private sectors.

Keywords: *Value Added Tax, Private Sector Investment, ARDL, Sectoral Analysis, Nigeria*

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Background to the Study

Private sector investment is a cornerstone of sustainable economic development, contributing to productivity enhancement, employment generation, and income distribution. Globally, economies that experience high private sector participation often benefit from increased innovation, technological progress, and resilient growth trajectories (World Bank, 2022). As an essential driver of capital formation and entrepreneurship, private investment reflects confidence in a country's macroeconomic environment, policy framework, and institutional quality (OECD, 2023). However, the magnitude and direction of private sector investment are often influenced by fiscal policy instruments, particularly taxation like in Nigeria policies like the National Economic Empowerment and Development Strategy (NEEDS) in 2004, Vision 20:2020 Policy which was Launched in 2009, Economic Recovery and Growth Plan (ERGP) for 2017 to 2020, in 2024, the Finance Act Reforms was implemented 22024 and 2025.

In Nigeria, private sector investment plays a central role in achieving inclusive growth and reducing dependency on public expenditure and oil revenues. According to the Central Bank of Nigeria (CBN, 2025), credit to private sector has grown remarkably over the past three decades, rising from ₦88.82 billion in 1993 to ₦33,085.60 billion in 2023. This upward trend, however, has not always been consistent. For example, between 2017 and 2018, credit to private sector declined from ₦16,193.86 billion to ₦15,438.60 billion, reflecting underlying challenges such as policy uncertainty, inflation volatility, and fiscal pressures.

One critical yet underexplored area influencing private sector credit and investment is the design and administration of Value Added Tax (VAT) across productive sectors. While value added tax remains a significant source of revenue for the Nigerian government, its sectoral applications especially in manufacturing, agriculture, and education can either incentivize or deter investment. For instance, manufacturing value added tax can raise production costs if input credits are delayed or denied (Salawu & Agbo, 2020). Agricultural value added tax, despite sectoral exemptions, suffers from compliance ambiguities, potentially disincentivizing formal sector participation (Okonkwo *et al.,* 2021). Similarly, Value added tax on educational services, particularly in the private sector, has drawn policy debates about its impact on investment and accessibility (Ibrahim & Yusuf, 2022). This paper, therefore, investigates the impact of selected sectoral value added tax like the Manufacturing VAT, Agricultural VAT, and Education VAT-on private sector investment in Nigeria. Furthermore, the null Hypothesis are stated thus below;

H_{01}: Manufacturing value added tax has no significant impact on private sector investment in Nigeria.

H_{02}: Agricultural value added tax has no significant impact on private sector investment in Nigeria.

H_{03}: Education value added tax has no significant impact on private sector investment in Nigeria.

Conceptual Clarification and Literature Review

Conceptual Review

Sectoral Value Added Tax

Sectoral Value Added Tax (VAT) refers to the differential application and impact of VAT across various sectors of an economy, recognizing that tax burdens and economic responses vary by industry. According to Gopakumar *et al.* (2022), sectoral VAT effects capture how specific announcements or implementations of VAT influence individual sectors such as retail, insurance, or manufacturing, especially in terms of returns and risk. Similarly, Omodero and Eriabie (2022) explain that the industrial sector may experience productivity shifts depending on how VAT affects input costs and output pricing, which in turn shapes sectoral performance. Chindengwike (2022) emphasizes that VAT's sectoral impact is particularly significant in developing economies where private domestic investment is sensitive to tax policy. He asserts that sectors with high consumer-facing outputs are more susceptible to VAT-induced distortions.

Abdulkarima and Saidatulakmal (2021) argued that the fiscal tools like VAT have non-neutral effects on sectoral investment decisions, especially in capital-intensive sectors like manufacturing and construction. They underscore the importance of understanding sector-specific responsiveness when designing tax policies. Moreover, Adegbite and Shittu (2017) highlighted that the private sector, particularly in Nigeria, experiences both constraining and incentivizing effects of VAT depending on the sector's elasticity of demand and government tax incentives. These insights reflect that Sectoral VAT is not a one-size-fits-all mechanism but a multifaceted fiscal instrument whose effects depend on the structural characteristics of each sector. Hence, policymakers must tailor VAT design to support productive sectors while minimizing distortions and investment disincentives.

Manufacturing Value Added Tax

Manufacturing Value Added Tax (VAT) is a consumption-based tax levied on the incremental value added at each stage of the manufacturing process. It plays a significant role in shaping the cost structure and pricing in the manufacturing industry. According to Omodero and Eriabie (2022), VAT in the manufacturing sector is collected on both the inputs acquired and the outputs produced, with the difference constituting the taxable value added. This tax design ensures that the burden ultimately falls on the end consumer while maintaining neutrality across sectors. Namanya *et al.* (2021) described Manufacturing VAT as a tool that, if efficiently managed, enhances revenue generation without directly distorting production decisions. However, they caution that delays in VAT refunds can increase the working capital burden for manufacturers. In their study on VAT compliance in Nigeria's manufacturing sector, Okoror *et al.* (2019). emphasized that complex VAT procedures and poor enforcement reduce the sector's tax efficiency and compliance rate. Chindengwike (2022) further argued that the responsiveness of the manufacturing sector to VAT policy is linked to broader fiscal governance and infrastructure support, noting that poorly implemented VAT regimes may hinder industrial expansion. According to the OECD (2023), a well-functioning VAT system should offer credit for input VAT and provide timely refunds to manufacturers to avoid tax cascading and to support competitiveness. Thus, while Manufacturing VAT is a vital fiscal

tool, its effectiveness depends on transparent administration, refund efficiency, and supportive policy frameworks.

Agricultural Value Added Tax

Agricultural Value Added Tax (VAT) referred to the imposition of a consumption-based tax on goods and services derived from the agricultural value chain. Unlike other sectors, agriculture is often treated with special considerations in VAT systems due to its role in food security and rural livelihoods. According to Omodero and Alege (2020), Agricultural VAT encompasses the tax applied to the value-added during production, processing, and distribution of farm produce, although many countries grant exemptions or zero-rating to basic agricultural outputs. JudeEbeledike *et al.* (2023). highlighted that applying VAT to agricultural inputs such as fertilizers, seeds, and machinery without exemptions can increase production costs, ultimately affecting food prices. To mitigate such outcomes, the OECD (2023) recommended targeted VAT exemptions or credits for primary agricultural activities to reduce the tax burden and encourage food production. In examining Nigeria's VAT framework, although agricultural products are generally VAT-exempt at the final consumer level, the taxation of inputs creates a cascading effect, discouraging investment in commercial agriculture. Idris (2024) further emphasized that VAT policies must consider the informal nature of the sector, suggesting that a simplified VAT regime would improve compliance and protect vulnerable farmers. Thus, Agricultural VAT must strike a balance between revenue generation and supporting agricultural development. A well-structured VAT system can improve transparency in the sector without distorting production incentives or food affordability.

Education Value Added Tax

Education Value Added Tax (VAT) refers to the application of VAT principles to educational goods and services, including tuition fees, learning materials, and institutional operations. While many countries exempt education from VAT due to its public good nature, the debate over its scope and structure remains active. According to Babangida (2022), exempting educational services from VAT aligns with international standards and encourages human capital development, especially in developing economies like Nigeria. Osei-Tutu and Boakye (2019) argue that charging VAT on private education services may increase educational inequality by placing an additional financial burden on households. Meanwhile, Mendez and Soto (2022) note that in Latin America, limited VAT exemptions for education have sparked concern over accessibility and affordability for low-income students. The OECD (2023) recommends zero-rating or exempting core educational services while applying VAT to non-essential, profit-generating services offered by institutions, such as boarding and recreational programs. This approach aims to maintain revenue neutrality without compromising access to education. In a broader economic context, Orji (2024) warned that applying VAT indiscriminately in the education sector can discourage investment in private education, reducing supply and quality. Therefore, policymakers must distinguish between public, private, and commercial educational activities when designing VAT policies.

Private Sector Investment

Private Sector Investment refers to capital expenditures made by privately owned businesses or individuals in productive activities with the aim of generating profit, stimulating economic growth, and creating employment. According to Spyromitros and Panagiotidis (2022), private sector investment is a critical engine for economic transformation, particularly in developing countries where public sector resources are limited. UNCTAD (2020) defined private sector investment as the injection of financial resources by domestic or foreign firms into infrastructure, manufacturing, services, or technology with minimal government control. The World Bank (2018) emphasizes that such investments are essential for achieving the Sustainable Development Goals (SDGs), especially in areas like energy, healthcare, and education. Okafor and Adeleye (2021) highlighted that private sector investment increases productivity and fosters innovation, especially when supported by sound regulatory frameworks and macroeconomic stability. Similarly, Zhan *et al.* (2021) argued that the presence of robust institutions and ease of doing business are crucial factors attracting sustained private capital inflows. In Africa, Floyd *et al*. (2020) stressed the role of private sector investment in bridging infrastructure gaps and reducing unemployment. They advocate for policies that reduce investment risk, such as public-private partnerships (PPPs) and tax incentives. Overall, private sector investment remains a cornerstone of economic development, with its effectiveness closely tied to policy transparency, political stability, and access to finance. Governments are therefore urged to create enabling environments to attract and retain long-term private capital.

Empirical Review

Kuyebi and Omodero (2025) examined the relationship between economic and human capital development and Value Added Tax (VAT) and exchange rate in the Nigerian economy between 1994 and 2022. Using Johansen Co-integration, Vector Error Correction and Vector Autoregressive they established the significance of negative relationships between both economic and human capital development and VAT and exchange rate. They highlighted the necessity of implementing policy changes such as the monitoring of VAT funds, investments into education, and the financial security improvement of the population in order to increase the results of development. On the same line of macroeconomic impacts, Ndanusa et al. (2024), followed the determinants of the economic growth in Nigeria in 1990 and 2021 based on the investment in the country on the part of the private sector, and the ARDL method was implemented. Their results showed interest rate, exchange rate and inflation had a negative and significant effect on real GDP and this supported the case to promote both domestic and foreign private investment as a means of accessing economic growth. Omodero and Eriabie (2022) investigated the effect of VAT receipts on the manufacturing output of the economy of Nigeria during the period (201012021). Through Pairwise Granger Causality Tests, the viability of VAT as a growth stimulus in the industrial sector was supported by confirming that the collection of both domestic and aggregate VAT has great and positive causitive influence on production of the manufacturing industry. They suggested that VAT collection mechanisms should be enhanced and leaks reduced to rise in productivity.

Within a cross-regional scope, Gopakumar *et al.* (2022) studied the effectiveness of 19 announcements, relating to VAT, on the performance of listed equity stocks at the Abu Dhabi Stock Exchange (ADX) during 2015-2018. Based on a standard event study approach, the paper evaluated reaction and shift of the sector-wise market contrarily, as well as changes in systematic risk, subsequent to each notice. The results indicated that there is a high level of heterogeneity in terms of abnormal returns across industries with industries including insurance and retail being highly sensitive to policies signals of VAT. It was found that some of the announcements were more influential than others, which suggests that the outcome of fiscal communication on the behavior in the market was heterogeneous. The policy lesson of their study is useful to the Gulf countries that intend to adopt VAT because it focuses on the financial markets especially on the sectoral dimension in responding to taxation reform. At a higher African level, Chindengwike (2022) has evaluated VAT and the relationship with private domestic investment in Tanzania since 1998 to the year 2020. This study implemented time series to discover that in the long term, VAT is negatively correlated with the level of private investment on the basis that high levels of VAT discourage investment on the ground of making operations expensive and decreasing the amount of disposable income. The study demanded a more modern and encouraging VAT regime.

Investigating the aspects of fiscal policy, Abdulkarima and Saidatulakmal (2021) analyzed the influence of taxation and governmental expenditures on the private investment in Nigeria through the ARDL model within the framework of 1980-2017 time series. Their findings indicated that indirect taxes encourage transition towards the promotion of privately invested projects whereas direct taxes and external debt prone discourage the same and the two were recommended to have harmonized tax systems and more capital expenditure to encourage the investment. The study by Adeosun et al. (2021) examined the asymmetric impacts of the public investment on performance of the private sector in Nigeria between 1986 and 2017 by applying nonlinear ARDL and asymmetric Granger causality analysis. They found that positive investment shocks have much significant stimulus effects on long-run performance of the private sector with negative investment shocks surprisingly showing a short-run positive impact. The asymmetry is used to highlighted the usefulness of accounted public investment to influence the possibility of counter-cyclical choices on stabilizing the economic growth of the private sector. Samuel *et al.* (2021) studied the co-integrating and causality correlations between energy consumption and economic development in the three sectors (agriculture, manufacturing, and service) in Nigeria over the period of two decades (2000-2018) converted to quarterly data. Incorporating the ARDL bounds testing and error correction, as well as the method of the analysis of structural breaks, the research has determined that energy deficiencies during the energy distribution which are catalyzed through the predicted billing and demand-supply gaps have an adverse impact on the sectoral energy consumption. Also, it was found that there was bidirectional causality in liquefied natural gas- energy consumption and unidirectional causality was found between economic growth and petroleum oil consumption. As it will be observed, there was no causal relationship between energy consumption and service sector and agricultural sector of the economy thus underscoring the disequilibrium nature of energy consumption in the development of sectors in the economy.

Concentrating on the financial aspect, Okoror *et al.* (2019) investigated what impact VAT in Nigeria has on infrastructural development and determined the effect on the 19942017 range, using the ARDL co-integration method. Their results revealed that the revenue earned through VAT was relatively stable over time, and that the revenue played a very important part in development of infrastructures, where a 1% increment in VAT led to 5.232 percentage increment in infrastructure growth. It recommended that VAT-based models on consumption should be encouraged in order to enhance revenue predictability and budget implementation and monitoring systems should be reformed to deal with inefficiencies in the use of infrastructure to serve the society.

In a similar manner, in a fiscal simulation Aminu (2019) used a recursive dynamic Computable General Equilibrium (CGE) model to estimate the effects of gradually raising the VAT rate in Nigeria to a base of 15 percent on the state and the economy. This showed that a gradual rise of 2.5 per year, after four years provided the most desirable results to GDP growth, investment, consumption and revenue collection compared to sharp jumps of VAT. The conclusion implied that the government can potentially use a gradual and foreseeable VAT policy without causing a disruptive volatility in household and business consumption to boost government revenue. When it comes to finding out key determinants of private investment in Nigeria, Ekpo (2016) has systematically analysed key determinants of the same, which include the inflation, access to credit, the interest rates, fiscal deficit, infrastructure, political stability, and quality of institutions in the country. He stated that the poor performance in these sectors had held up the growth of the private investment. The study suggested that a productivity within the private sector must be encouraged and this could be achieved by improving the mobilization of savings, lowering the rate of lending, lessen accumulation of government borrowing and investing in infrastructures like power, road, education and health among others.

In the article, Adegbite *et al.* (2017) are using the data between 1994 and 2015 to consider the effects of Value Added Tax (VAT) and the primary macroeconomic indicators of interest rate, inflation rate, and exchange rate on the level of the private investment in Nigeria. After Pearson correlation and multiple regression analysis, the study discovered a significant and positive relationship between VAT and private investment, with the performances of adjusted R 2 of 75%, which meant that VAT and the other macroeconomic indicators have a significant role in provoking or stimulating the process of private investment. They urged the government to raise the rate of VAT and any revenue collected be ploughed back to agricultural and infrastructural developments to come up with an environment permitting investment and establishment of more jobs. Likewise, Uwakaeme (2017) examined determinants of non-oil private sector investment in Nigeria (PINVn) over the years 1980-2015 using the Johansen co-integration and error correction modeling. The results indicated that non-oil GDP, foreign direct investment (FDIn) and credit to the private sector (CRPn) were positively related to PINVn but that only FDIn was found to be significant. Conversely, Factors, such as the inflation, exchange rate, maximum lending rate, government credit and others had an effect of lowering and significantly affecting PINVn. The paper has emphasized crowding-out effect of government borrowing, and the lagged effect on investment by macroeconomic shocks, and

this necessitates policies that promote price stability, infrastructural creation and the needs of credit availability in stimulating increased investment in the non-oil industries.

Afolayan and Okoli (2015) also added in the discussions when they addressed the dynamic relationship between VAT revenue and economic growth using Error Correction Model and Granger causality tests. Although VAT and real GDP were found to be positively correlated, however, statistically insignificant, the Granger test indicated that there was a causality running in only one direction; in other words, VAT was causally related to GDP and the impulse was of the order of 4 years lag. This means that in the realization of economic growth, VAT is a reaction but not a direct cause of economic growth and as such policies meant to promote an improvement in economic growth as a whole would also indirectly stimulate an improved performance in VAT performance. To make VAT an effective contributor to the growth, the authors insisted that the loopholes and inefficiency in administration had to be dealt with. Expanding to the bigger picture of tax policy, Nwokoye and Rolle (2015) assessed the investment implication of the tax reforms in Nigeria especially the 2003 reform and the 2012 National Tax Policy. Their results were obtained using time series data in the period between 1981 and 2012, and OLS estimation technique and indicated that the positive effect of tax reforms proxied by VAT and Company Income Tax (CIT) was also significant in investment in Nigeria. They suggested intensifying tax reform efforts as well as abating the adverse results of multiple taxations and excessive tax charges charged on companies which may avert investment activities.

Theoretical Framework

The Laffer Curve Theory, originally propounded by economist Arthur Laffer in 1974, is adopted. The Laffer Curve illustrates the relationship between tax rates and government revenue, positing that there exists an optimal tax rate that maximizes revenue without discouraging productive economic behavior such as investment. According to the theory, as tax rates increase from 0%, revenue also increases up to a point. Beyond that optimal rate, further increases in tax rates lead to a decrease in revenue because higher taxes discourage work effort, production, and investment, potentially driving economic agents to reduce taxable activity or evade taxes entirely (Laffer, 2004). Mathematically, the Laffer Curve is not expressed with a specific formula but is generally captured by the function:

$$R = t \times B(t)$$

Where: *R* is total tax revenue, *t* is the tax rate, *B(t)* is the tax base, which is a function of the tax rate. This implies that as *t* increases, *B(t)* may decrease if higher taxes disincentivize economic activities, thereby reducing *R*. The justification for adopting this theory lies in its relevance to the analysis of sectoral value added tax (such as those on manufacturing, agriculture, and education) and its potential effects on private sector investment proxied by credit to the private sector in this study. Excessive sector-specific value added tax could inadvertently reduce investment by increasing the cost of doing business, especially in sectors sensitive to input costs and policy fluctuations. Conversely, optimal or well-structured value added tax policies may enhance government revenue without eroding investor confidence. Thus, the Laffer Curve provides a theoretical framework for evaluating whether current value added tax

policies in Nigeria's key sectors promote or hinder private sector investment, aiding in the formulation of balanced fiscal strategies.

Methodology

Sources of Data and Method of Analysis

The research design adopted for this study is the ex-post facto research design, the study utilized secondary annual time series data like Manufacturing Value Added Tax (MVAT), Agricultural Value Added Tax (AVAT), Education Value Added Tax (EVAT) and private sector investment in Nigeria, proxied by Credit to the Private Sector (CPS) which spaned from 1985 to 2023, obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin. The selection of these variables is based on their strategic relevance to sector-specific fiscal policies and their potential influence on private sector investment behavior in Nigeria.

Model Specification

This study employs the autoregressive distributed Lag (ARDL) methodology, aligning with the theoretical framework established herein and the study adapted the study by Adegbite *et al.* (2017) on the impact of value added tax on private investment in Nigeria and the model's implicit form is:

$$PINV = f(VATIMP, EXCH, INTR) \quad (1)$$

Where PINV is private investment, VATIMP is Value of inflation rate, EXCH is Exchange Rate, INTR is Interest Rate. Equations 1 was modified based on the research objectives and to establish the functional relationship between selected sectoral value added tax and private sector investment in Nigeria. Thus, the functional form of the model of this study with selected sectoral value added tax on private sector investment indicator incorporated is implicitly expressed as:

$$CPS = f(MVAT, AVAT, EVAT) \quad (2)$$

Specifying equation (2) for in a stochastic (linear regression) form:

$$CPS_t = \beta_0 + \beta_1 MVAT_t + \beta_2 AVAT_t + \beta_3 EVAT_t + \varepsilon_t \quad (3)$$

Where: CPS_t is Credit to Private Sector at time t, $MVAT_t$ is Manufacturing value added tax at time t, $AVAT_t$ is Agricultural value added tax at time t, $EVAT_t$ is Education value added tax at time t at time t, β_0 = Constant term. $\beta_1, \beta_2, \beta_3, \beta_4$ = Coefficients of the independent variables. ε_t = Error term capturing unobserved factors influencing CPS.

Autoregressive Distributed Lagged (ARDL) model that was used in this paper is specified as follows:

$$\Delta CPS_t = \beta_0 + \sum_{i=1}^{q} \beta_1 CPS_{t-1} + \sum_{i=1}^{q} \beta_2 MVAT_{t-1} + \sum_{i=1}^{q} \beta_3 AVAT_{t-1} + \sum_{i=1}^{q} \beta_4 EVAT_{t-1} + \beta_5 \Delta CPS_{t-i} + \beta_6 \Delta MVAT_{t-i} + \beta_7 \Delta AVAT_{t-i} + \beta_8 \Delta EVAT_{t-i} + \varepsilon_t \quad (4)$$

Equation (4) was employed to assess both the short-run and long-run relationships, as well as the impact of selected sectoral value added tax and private sector investment in Nigeria. The Error Correction Model (ECM) was used in this investigation is formulated as follows:

$$\Delta CPS_t = \beta_0 + \sum_{i=1}^{q} \beta_1 CPS_{t-1} + \sum_{i=1}^{q} \beta_2 MVAT_{t-1} + \sum_{i=1}^{q} \beta_3 AVAT_{t-1} + \sum_{i=1}^{q} \beta_4 EVAT_{t-1} + \beta_5 \Delta CPS_{t-i} + \beta_6 \Delta MVAT_{t-i} + \beta_7 \Delta AVAT_{t-i} + \beta_8 \Delta EVAT_{t-i} + ECM \quad (5)$$

Equation (5) was employed to assess both the short-run and long-run relationships, as well as the selected sectoral value added tax and private sector investment in Nigeria.

Variable Description, Measurements and Apriori Expectation

Table 1: Description of the Variables Used for the Model

Variable	Description/Measure	Type	Source	Apriori Expectation
CPS (Credit to the Private Sector)	Measures the financial resources provided to the private sector by financial corporations, proxied in ₦ billions. Serves as a proxy for private sector investment.	Dependent Variable	CBN Statistical Bulletin (2025)	—
MVAT (Manufacturing Value Added Tax)	Government tax revenue collected from manufacturing sector activities. Measured in ₦ billions.	Independent Variable	FIRS (2025)	Positive (+)
AVAT (Agricultural Value Added Tax)	Government tax revenue generated from the agricultural sector. Measured in ₦ billions.	Independent Variable	FIRS (2025)	Positive (+)
EVAT (Education Value Added Tax)	Tax revenue derived from educational institutions and services. Measured in ₦ billions.	Independent Variable	FIRS (2025)	Positive (+)

Source: Author Compilation, 2025

From table 1 the apriori expectation for this paper whose values are measured in Nigeria billion is that the coefficients ($\beta_{1\text{ to }}\beta_4$) of the independent variables the apriori expectation is that Manufacturing Value Added Tax (MVAT), Agricultural Value Added Tax (AVAT), and Education Value Added Tax (EVAT) will each have a positive relationship with Credit to the Private Sector (CPS). This is based on the notion that sector-specific VAT revenues, when effectively utilized, can stimulate growth-supportive investments, infrastructure, and incentives that enhance private sector confidence. Therefore, higher VAT revenue from these sectors is expected to encourage greater private sector investment.

Method of Analysis

The analysis of this paper applied the Autoregressive Distributed Lag (ARDL) method of analysis whose introduction dates back to the late 1990s by Pesaran and Pesaran (Ezie & Ezie,

2021). The ARDL method is ideal in a dynamic study of relationship between variables because it can provide the short run and the long run effects in the same framework.

Data Analysis

Table 2: Descriptive Statistics

	CPS	MVAT	AVAT	EVAT
Mean	9098.778	193.5967	45.93100	181.1687
Median	8498.785	135.6000	25.30000	98.40000
Maximum	33085.60	688.5750	396.8000	705.7000
Minimum	88.82000	2.100000	0.200000	2.000000
Std. Dev.	9136.209	200.4967	75.57071	209.9020
Skewness	0.786360	0.987871	3.360996	1.254931
Kurtosis	2.728843	2.958402	15.73984	3.466825
Jarque-Bera	3.395966	5.207049	276.6515	8.689780
Probability	0.183052	0.074012	0.000000	0.012973
Sum	291160.9	6195.095	1469.792	5797.400
Sum Sq. Dev.	2.590000	1246167.	177038.9	1365825.
Observations	32	32	32	32

Source: Researcher's EViews 12 computations, 2025

Table 2 is the descriptive table. The descriptive statistics for the study variables indicate that the average Credit to the Private Sector (CPS) is ₦9,098.78 billion, with a standard deviation of ₦9,136.21 billion, suggesting high variability over the years. The minimum and maximum values of CPS are ₦88.82 billion and ₦33,085.60 billion respectively, showing a wide range in private sector credit over the study period. For Manufacturing VAT (MVAT), the mean is ₦193.60 billion, with a relatively lower standard deviation of ₦200.50 billion, while values range from ₦2.10 billion to ₦688.58 billion. Agricultural VAT (AVAT) shows a lower average of ₦45.93 billion but with considerable spread (standard deviation of ₦75.57 billion), ranging from ₦0.20 billion to ₦396.80 billion. Education VAT (EVAT) follows a similar pattern, with a mean of ₦181.17 billion and a high variability of ₦209.90 billion, with a minimum of ₦2.00 billion and a maximum of ₦705.70 billion.

The skewness statistics indicate that all variables are positively skewed, with AVAT showing the highest skewness (3.36), suggesting a long right tail and the presence of extreme values. MVAT and EVAT also display moderate positive skewness (0.99 and 1.25 respectively), while CPS shows a relatively mild skewness of 0.79. Regarding the distribution shape, kurtosis values further reveal that AVAT is highly leptokurtic (15.74), indicating a peaked distribution with heavy tails, while EVAT (3.47), MVAT (2.96), and CPS (2.73) are closer to the normal distribution benchmark of 3, though EVAT slightly exceeds it, implying modestly peaked data.

Correlation Analysis

Table 3: Correlation Analysis

Correlation Probability	CPS	MVAT	AVAT	EVAT
CPS	1.000000			

MVAT	0.945494	1.000000		
	0.0000	-----		
AVAT	0.731924	0.713000	1.000000	
	0.0000	0.0000	-----	
EVAT	0.909243	0.949229	0.789620	1.000000
	0.0000	0.0000	0.0000	-----

Source: Researcher's EViews 12 computation, 2025

The correlation analysis result in the table 3 reveals a strong positive relationship between all the variables in the model. Credit to Private Sector Investment (CPS) is highly and positively correlated with MVAT (Manufacturing VAT) at **0.945**, indicating that an increase in manufacturing VAT is strongly associated with a rise in private sector investment. Similarly, CPS is positively correlated with AVAT (Agricultural VAT) and EVAT (Education VAT) at **0.732** and **0.909**, respectively, showing a robust association between these sectoral VATs and private sector investment. Furthermore,

Stationary Tests (Unit Root Tests)

This part of the papers looked at the unit root of each of the variable using the augmented dickey-fuller (ADF) test to ascertain stationarity of the datas specifically at 5%

Table 4: Unit Root Test Result

Variable	Augmented Dickey-Fuller (ADF) Test		
	ADF	Critical Value	Status
CPS	-6.179851	-2.963972	**1(1)**
MVAT	-7.365023	-3.603202	**1(1)**
AVAT	-4.748387	-3.562882	**1(0)**
EVAT	-5.317245	-2.963972	**1(1)**

Significant level is 5% level

Source: Researcher's Computation Using EViews-12 (2025)

Table 4 showed the variables with their stationarity test result which the augmented dickey-fuller (ADF) method was conducted to examine the presence of unit roots in the time series data. The unit root test results showed that CPS, MVAT, and EVAT are stationary at first difference, i.e., integrated of order one [I(1)], as their ADF statistics are more negative than the 5% critical values. AVAT is stationary at level, i.e., integrated of order zero [I(0)]. This indicates a mixed order of integration among the variables. Hence, an Autoregressive Distributed Lag (ARDL) model is appropriate for analysis.

Co-integration of ARDL-Bounds Test
This section shows the ARDL co-integration bounds test of the variables used in this paper.

Table 5: ARDL-Bound Testing

Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	7.376394	3
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.97	3.74
5%	3.38	4.23
2.5%	3.8	4.68
1%	4.3	5.23

Source: Researcher's Computation Using EViews-12 (2025)

Table 5 of the ARDL bound test showed that at 5 per cent level of significant that the F statistics 7.376394 is greater than the lower critical bound 1(0) value of 3.38 and upper critical bound 1(1) value of 4.23 signifying that the overall model has a long run impact.

Presentation and Interpretation of Results
Auto regressive Distributed Lag (ARDL) Regression Results. This part of the paper showed the shortrun, longrun impact ARDL regression analysis, the error correction and the model fit.

Table 6: Autoregressive Distributed Lag (ARDL) Model Results
Dependent Variable: CPS
Error Correction Estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-653.0692	219.8420	-2.970630	0.0095
D(CPS(-1))	0.190284	0.076986	2.471670	0.0259
D(CPS(-2))	-0.791847	0.118342	-6.691177	0.0000
D(MVAT)	-8.627484	3.945365	-2.186739	0.0450
D(AVAT)	21.21207	2.669933	7.944793	0.0000
D(AVAT(-1))	44.80761	2.683859	16.69522	0.0000
D(EVAT)	9.289675	1.859796	4.994997	0.0002
D(EVAT(-1))	-1.119143	1.376207	-0.813208	0.4288
D(EVAT(-2))	16.88892	2.055410	8.216813	0.0000
CointEq(-1)*	-0.396645	0.058031	6.834996	0.0000
R-squared	0.980358			
Adjusted R-squared	0.971054			
F-statistic	105.3693			
Prob(F-statistic)	0.000000			
Durbin-Watson stat	1.696691			
Long Run Coefficients				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
MVAT	76.86693	16.81984	4.570015	0.0004
AVAT	18.09011	18.76388	0.964092	0.3503
EVAT	-9.724018	9.712407	-1.001195	0.3326
@TREND	-479.2406	263.2351	-1.820580	0.0887

Source: Researcher's Computation Using EViews-12 (2025)

The ECM result in table 6 showed a negative and significant error correction term (CointEq(-1) = -0.396645, p = 0.0000), indicating that about 39.7% of the short-run disequilibrium is corrected each period, confirming the presence of a long-run relationship among the variables. The long-run results revealed that Manufacturing Value Added Tax (MVAT) exerted a positive and statistically significant impact on Credit to Private Sector (CPS), with a coefficient of 76.87 and a *p-value* of 0.0004, indicating that increased taxation in the manufacturing sector promotes private sector investment in the long run. Conversely, Agricultural Value Added Tax (AVAT) and Education Value Added Tax (EVAT) both exhibited statistically insignificant impact on Credit to Private Sector (CPS), with *p-values* of 0.3503 and 0.3326, respectively, suggesting that VAT from these sectors does not significantly drive private sector credit expansion. The trend variable is also not statistically significant, implying no autonomous trend in private sector credit beyond the included sectoral VAT variables. Overall, the findings underscored the manufacturing sector's VAT as the key fiscal tool influencing private sector investment in Nigeria over the long term.

The R-squared (0.9804) and adjusted R-squared (0.9711) values suggest that the model explains over 97% of the variation in CPS, indicating a good model fit. The F-statistic is highly significant (p = 0.0000), confirming overall model significance. In the long run, only MVAT

has a positive and statistically significant impact on CPS ($p = 0.0004$), while AVAT and EVAT are not significant, suggesting their impact are not strong predictors of CPS in the long term. Based on the long-run estimation results, the null hypotheses were evaluated using the probability (p-value) associated with each variable. For the first hypothesis (H_{01}), which stated that Manufacturing Value Added Tax (MVAT) has no significant impact on private sector investment in Nigeria, the p-value was 0.0004. Since this value is less than the 0.05 significance level, we reject the null hypothesis and conclude that MVAT has a statistically significant impact on private sector investment. In contrast, for the second hypothesis (H_{02}) concerning Agricultural Value Added Tax (AVAT), the p-value was 0.3503, which is greater than 0.05. Therefore, we fail to reject the null hypothesis and conclude that AVAT does not have a significant effect on private sector investment. Similarly, the third hypothesis (H_{03}), which posited that Education Value Added Tax (EVAT) has no significant impact on private sector investment, recorded a p-value of 0.3326. As this also exceeds the 0.05 threshold, the null hypothesis is not rejected, indicating that EVAT does not significantly influence private sector investment in Nigeria.

Post-Estimation Checks (ARDL Diagnostic Test)

The ARDL result as in table are hereby validated in this section

Table 7: Results of ARDL Diagnostic Checks

Tests		**Outcomes**	
		Coefficient	**Probability**
Breusch-Godfrey-Serial-Correlation Test	F-stat.	0.620622	0.5528
Heteroscedasticity-Breusch-Pagan-Godfrey Test	F-stat.	0.360812	0.9639
Normality Test	Jarque-Bera	14.63743	0.000663

Source: Author's Computation Using EViews-12 (2025)

Table 7 showed post-estimation diagnostic tests which Breusch-Godfrey Serial Correlation Test was employed to assess the presence of serial correlation in the residuals and the F-statistic as ARDL diagnostic checks were conducted to validate the reliability and robustness of the model estimates. The Breusch-Godfrey Serial Correlation Test yielded an F-statistic of 0.6206 with a probability value of 0.5528, which is greater than the 0.05 significance level. This indicates that there is no evidence of serial correlation in the model's residuals. Similarly, the Heteroscedasticity Test (Breusch-Pagan-Godfrey) produced an F-statistic of 0.3608 with a probability value of 0.9639, suggesting the absence of heteroscedasticity. Both outcomes confirm that the model satisfies key assumptions of the classical linear regression model. However, the Jarque-Bera normality test reported a p-value of 0.0007, which is less than 0.05, indicating that the residuals are not normally distributed. Despite this violation, the model's validity remains acceptable as non-normality is often tolerated in large samples due to the Central Limit Theorem.

Discussion of Findings

The findings from this study reveal a nuanced relationship between sectoral Value Added Tax (VAT) components and private sector investment (CPS) in Nigeria. Specifically, the long-run

ARDL estimates show that manufacturing VAT (MVAT) has a significant and positive impact on private sector investment. This suggested that revenues derived from VAT in the manufacturing sector, when properly utilized, may foster infrastructural development, enhance industrial capacity, and encourage investment. This finding agrees with the work of Nwokoye and Rolle (2015), who found that taxation from productive sectors.

In contrast, agricultural VAT (AVAT) displayed a negative and statistically significant impact on private sector investment. This implied that taxation on the agricultural sector may discourage private sector participation and investment, potentially due to the vulnerability of the sector to climatic and policy uncertainties. This outcome contrasted the findings of Okoror *et al.* (2019), who noted that the revenue played a very important part in development of infrastructures. Education VAT (EVAT), however, does not show a statistically significant impact on private sector investment in the long run. This suggested that VAT generated from the education sector is either too marginal to impact private investment or is not effectively reinvested to stimulate private participation in the sector.

Collectively, these findings underscored the importance of sector-sensitive tax policies that recognize the differential impacts of VAT across sectors. While VAT on manufacturing appears to support private sector growth, excessive or poorly targeted VAT on agriculture could be counterproductive. Therefore, policymakers should consider tax incentives or reforms that encourage private investment, particularly in vulnerable but economically vital sectors like agriculture and education.

Conclusion and Recommendations

This study examined the long-run impact of sectoral Value Added Tax (VAT) specifically manufacturing VAT, agricultural VAT, and education VAT on private sector investment in Nigeria using the ARDL estimation technique. The findings revealed that while VAT on manufacturing significantly enhances private sector investment, VAT on agriculture exerts a negative and significant influence. On the other hand, VAT on the education sector was found to have no statistically significant effect on private sector investment.

These results underscored the complex nature of fiscal policy transmission mechanisms and highlighted the importance of tailoring tax policies to the unique dynamics of each economic sector. The manufacturing sector appears to benefit from VAT-induced revenues, possibly due to reinvestment in infrastructure and production-supporting initiatives. In contrast, agriculture often vulnerable to external shocks may be disproportionately burdened by taxation, discouraging private participation. The neutral impact of education VAT suggests that its fiscal channel may be indirect or weakly linked to private investment outcomes in the short to medium term.

Based on these findings, several policy recommendations are proposed:

1. Given that Manufacturing VAT exhibited a strong positive and significant relationship with private sector investment, the Federal Ministry of Industry, Trade and Investment, in collaboration with the Federal Inland Revenue Service (FIRS),

should retain and further strengthen the VAT framework within the manufacturing sector. This could involve providing additional tax incentives, streamlining VAT compliance processes, and supporting local manufacturing firms to scale their operations.

2. On the other hand, since Agricultural VAT has a positive but insignificant relationship with private sector investment, the Federal Ministry of Agriculture and Rural Development, in partnership with FIRS, should revisit the structure of VAT imposed on agricultural activities. Strategies such as reducing the VAT burden on key agricultural inputs or offering conditional exemptions could enhance investment inflow into the sector, improve food security, and boost agribusiness viability.
3. Similarly, the negative and insignificant impact of Education VAT suggest that the current VAT regime may be discouraging private investment in the educational sector. The Federal Ministry of Education, in conjunction with the Federal Ministry of Finance, should consider introducing targeted VAT exemptions or rebates for private educational institutions investing in infrastructure, technology, or quality improvement. Such reforms could make the education sector more attractive to private investors while maintaining adequate government revenue.

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