

Reinvestigating the Impact of Taxation on Manufacturing Output in Nigeria.

*Olabimpe Wakilat Akinromade¹, Aliyu Yahaya Aliyu², Akadile Ifeanyi Alexander³,
Halima Haruna Muhammad⁴ & Musa Mujtaba Abdullahi⁵

¹*Economics Section, Department of Arts and Social Sciences Education, Kaduna State University, Kaduna, Nigeria.*

²*Department of Economics and Development Studies, El-Amin University, Minna, Nigeria.*

³*Department of Economics, Airforce Institute of Technology, Kaduna State, Nigeria.*

⁴*Department of Economics, Al-Qalam University, Katsina State, Nigeria.*

⁵*Department of Economics, Nigerian Defence Academy, Kaduna State, Nigeria.*

*Corresponding Author: mmujtaba431@gmail.com

Abstract

Despite being a key determinant in the promotion of industrialisation, job creation and economic diversification, the manufacturing sector has failed to live up to expectations due to its poor performance. This study, however, re-investigated the impact of Company Income Tax and Value Added Tax on manufacturing output in Nigeria, controlling for inflation, using annual time-series data spanning 1986–2023. The study employed the Autoregressive Distributed Lag (ARDL) modelling approach because the variables exhibited a mixed order of integration, as confirmed by the Augmented Dickey–Fuller unit root test. The ARDL bounds test established the existence of a long-run equilibrium relationship among the variables, while the error correction model captured the short-run dynamics. The empirical findings indicate that Company Income Tax (CIT) exerts a positive and statistically significant long-run impact on manufacturing output ($\beta = 0.5555$, $p < 0.01$), suggesting that corporate tax revenue can promote manufacturing output when efficiently utilised for productive public investment. In contrast, Value Added Tax (VAT) has a negative and statistically significant long-run impact ($\beta = -0.3221$, $p < 0.01$), implying that persistent increases in Value Added Tax raise production costs and reduce manufacturing competitiveness. Inflation exhibits a negative but statistically insignificant long-run impact ($\beta = -0.4172$, $p = 0.1396$). Based on the findings, this study recommended strengthening fiscal accountability to ensure that Company Income Tax revenue is efficiently invested in productive infrastructure, restructuring the Value Added Tax system to reduce its burden on manufacturers through targeted tax exemptions, improving tax administration to lower compliance costs, and maintaining macroeconomic stability to foster a more conducive environment for sustainable manufacturing growth.

Keywords: Company Income Tax, Inflation, Manufacturing output, Value Added Tax, ARDL

1. Introduction

The manufacturing sector remains a fundamental driver of economic transformation because of its capacity to stimulate industrialization, generate employment, facilitate technological innovation, and enhance export competitiveness. Beyond its direct

contribution to national income, manufacturing creates extensive backward and forward linkages with agriculture, mining, services, and other productive sectors, thereby promoting productivity growth, structural transformation, and

long-term economic growth (Kaldor, 1967; Szirmai, 2012).

For developing economies such as Nigeria, a vibrant manufacturing sector is particularly important for achieving economic diversification and reducing excessive dependence on crude oil revenues. Despite its strategic importance, Nigeria's manufacturing sector continues to underperform, contributing only a modest share to gross domestic product (GDP) compared with rapidly industrializing economies in Asia and other emerging markets (World Bank, 2023).

Among the numerous factors influencing manufacturing output, taxation occupies a central position because it directly affects firms' production decisions, investment behaviour, and overall competitiveness. Taxation is not merely a fiscal instrument for generating government revenue; it also serves as an important policy tool for resource allocation, macroeconomic stabilization, income redistribution, and industrial promotion (Musgrave & Musgrave, 1989). Through appropriately designed tax policies, governments can encourage productive investment, technological upgrading, and manufacturing expansion. Conversely, excessive tax burdens, multiple taxation, and inefficient tax administration may increase production costs, reduce after-tax profits, discourage capital accumulation, and weaken firms' capacity to expand output (Auerbach & Hines, 2002). The relationship between taxation and manufacturing output is therefore multidimensional, reflecting the balance between the government's revenue objectives and the need to maintain a competitive business environment that supports manufacturing output.

In Nigeria, successive governments have implemented several tax reforms aimed at strengthening domestic revenue mobilization and reducing fiscal

dependence on oil receipts. Among the tax instruments with significant implications for manufacturing firms are Company Income Tax (CIT) and Value Added Tax (VAT). Company Income Tax directly affects firms' retained earnings, investment decisions, and capacity for business expansion because it is imposed on corporate profits. Value Added Tax, by contrast, is an indirect tax levied on goods and services throughout the production and distribution process. Although VAT is generally transferred to final consumers, compliance costs, administrative obligations, and possible disruptions to firms' cash flows may influence operational efficiency and competitiveness (Bird & Gendron, 2007). Consequently, understanding the individual impacts of these tax instruments on manufacturing output is essential for designing fiscal policies that promote industrial development without undermining productive activities.

The importance of this relationship has become even more pronounced following recent fiscal reforms in Nigeria. The introduction of successive Finance Acts since 2019 significantly altered the country's tax framework through differentiated Company Income Tax rates based on firm size and an increase in the Value Added Tax rate from 5 percent to 7.5 percent in 2020. These reforms were primarily intended to broaden the tax base, strengthen non-oil revenue generation, and improve fiscal sustainability (Federal Inland Revenue Service [FIRS], 2021). While these objectives are important for public finance, concerns have been expressed by manufacturers regarding the potential consequences of increased tax obligations, multiple taxation, and higher compliance costs on production costs, investment decisions, and industrial competitiveness (Manufacturers Association of Nigeria [MAN], 2023). These developments have renewed interest

in understanding whether existing tax policies promote or constrain manufacturing sector performance.

Besides taxation, the broader macroeconomic environment also shapes manufacturing output. Inflation is particularly important because persistent increases in the general price level raise the costs of raw materials, labour, energy, transportation, and other production inputs. Rising production costs reduce firms' profitability, complicate investment planning, and weaken industrial competitiveness. Inflation also creates uncertainty that discourages long-term investment and limits productive expansion (Friedman, 1977; Fischer, 1993). Given these potential impacts, inflation represents an important macroeconomic factor that should be controlled for when examining the impact of taxation on manufacturing output.

From a theoretical perspective, the impact of taxation on manufacturing output remains unsettled. The Keynesian framework argues that tax revenues can finance productive public expenditure on infrastructure, education, and industrial support programmes, thereby improving the business environment and stimulating manufacturing output (Keynes, 1936). In contrast, neoclassical and supply-side theories maintain that higher tax rates distort market incentives, reduce capital accumulation, discourage private investment, and ultimately constrain productive activities (Barro, 1990; Engen & Skinner, 1996). These competing theoretical perspectives suggest that the direction and magnitude of taxation's impact on manufacturing output depend largely on country-specific institutional arrangements, tax structures, and macroeconomic conditions, making the issue fundamentally empirical.

Empirical evidence on the taxation and manufacturing output nexus in Nigeria likewise remains inconclusive. While

some studies report that tax revenues enhance manufacturing output through improved public infrastructure and economic development, others conclude that taxation discourages industrial growth by increasing production costs and reducing firms' incentives to invest. Beyond these conflicting findings, much of the existing literature relies on aggregate measures of tax revenue, making it difficult to isolate the individual impacts of the Company Income Tax and the Value Added Tax on manufacturing output. Furthermore, many previous studies analyse periods that do not adequately capture the structural changes associated with recent fiscal reforms, particularly the Finance Acts introduced from 2019 onward and the accompanying changes in Nigeria's macroeconomic environment. Consequently, the existing evidence may no longer fully reflect the current tax regime or provide sufficient guidance for contemporary fiscal policy.

These limitations underscore the need to reinvestigate the taxation and manufacturing relationship using updated data and disaggregated tax measures. Reinvestigating this issue is particularly important because recent tax reforms have altered the fiscal landscape within which manufacturing firms operate, while persistent inflationary pressures continue to influence production costs and investment decisions. A fresh empirical assessment is therefore necessary to determine whether Company Income Tax and Value Added Tax support or hinder manufacturing output under the prevailing economic conditions. Such evidence is essential for evaluating the effectiveness of current tax policies and identifying appropriate fiscal strategies for strengthening industrial development.

Against this backdrop, the present study examines the impact of Company Income Tax and Value Added Tax on manufacturing output in Nigeria while

controlling for inflation. By employing updated data and focusing on the individual effects of these major tax instruments, the study contributes to the growing literature on fiscal policy and industrial development in developing economies. More importantly, the findings are expected to provide evidence-based guidance for policymakers on designing tax policies that simultaneously enhance domestic revenue mobilisation and support manufacturing sector growth. The results will also assist fiscal authorities in evaluating the effectiveness of recent tax reforms, improving the efficiency of the tax system, and formulating policies that encourage investment, industrial competitiveness, and sustainable economic diversification.

The study also has important policy implications by providing updated empirical evidence on the impacts of Company Income Tax and Value Added Tax on manufacturing output; the findings will assist policymakers in assessing the effectiveness of Nigeria's current tax regime in promoting manufacturing sector output. The results will inform the design of tax policies that strike an appropriate balance between domestic revenue mobilisation and manufacturing competitiveness. In addition, the study offers useful insights for assessing recent fiscal reforms, improving tax administration, and supporting Nigeria's broader objectives of industrialisation, economic diversification, and sustainable economic growth.

The remainder of this paper is organised as follows. Section Two reviews the relevant theoretical and empirical literature. Section Three describes the methodology. Section Four presents the empirical results. Section Five discusses the findings, while Section Six concludes the study and offers policy recommendations.

2. Literature Review

Theoretical Review

The relationship between taxation and manufacturing output is grounded in several established economic theories that explain how fiscal instruments influence production decisions, investment behaviour, and overall sectoral performance. This study is anchored on key theoretical perspectives, including the Keynesian theory of taxation and public expenditure, the neoclassical (supply-side) theory of taxation, and the endogenous growth theory. These frameworks provide a comprehensive lens through which the effects of Company Income Tax (CIT), Value Added Tax (VAT), and inflation on manufacturing output in Nigeria can be understood.

The Keynesian theory of taxation, as advanced by Keynes (1936), posits that taxation is not merely a revenue-generating tool but also an instrument for macroeconomic stabilization and demand management. According to this perspective, taxes collected by the government are channelled into productive public expenditure such as infrastructure, education, and industrial support services, which in turn stimulate aggregate demand and enhance productive capacity. In the context of the manufacturing sector, this implies that revenues generated from Company Income Tax and Value Added Tax can indirectly foster industrial growth if efficiently allocated toward infrastructure development and business-enabling environments. However, the Keynesian framework also acknowledges that excessive taxation may dampen private consumption and investment, thereby reducing aggregate demand and constraining industrial output.

In contrast, the neoclassical or supply-side theory of taxation emphasizes the distortionary effects of taxes on economic incentives. According to Auerbach and Hines (2002) as well as Engen and Skinner

(1996), high tax burdens reduce the after-tax return on investment, discourage capital accumulation, and lower productive efficiency. Within this framework, Company Income Tax directly reduces firms' retained earnings, thereby limiting reinvestment capacity and expansion in the manufacturing sector. Similarly, although Value Added Tax is an indirect tax, its incidence may ultimately be borne by consumers or producers through higher prices and reduced demand, which can negatively affect output levels. The theory therefore predicts a negative relationship between taxation and manufacturing output, particularly when tax rates are high or tax administration is inefficient.

The endogenous growth theory further provides a dynamic explanation of how fiscal policy influences long-run economic performance. Barro (1990) argues that government policy variables, including taxation, can affect long-term growth by influencing human capital accumulation, innovation, and productivity-enhancing investments. In this framework, taxation can have dual effects: on the one hand, it may reduce private sector incentives by lowering disposable income and profits; on the other hand, if tax revenues are efficiently invested in infrastructure and technological development, they can enhance productivity and stimulate manufacturing growth. Thus, the effect of CIT and VAT on manufacturing output depends largely on the efficiency of public expenditure and the quality of fiscal institutions.

Complementing these perspectives is the structuralist view of industrial development, which emphasizes the role of sectoral transformation and production linkages in economic growth. Kaldor (1967) argues that manufacturing is the engine of growth due to its strong productivity dynamics, increasing returns to scale, and capacity to generate spillover effects across the economy. From this

standpoint, fiscal instruments such as taxation can either facilitate or hinder industrial expansion depending on their impact on production costs, investment incentives, and sectoral competitiveness. High taxation may weaken manufacturing dynamism, while well-structured tax systems can support industrial upgrading through improved revenue mobilisation and reinvestment in productive sectors.

Furthermore, inflation theory provides an important macroeconomic complement to the taxation and manufacturing nexus. Friedman (1977) conceptualizes inflation as a monetary phenomenon that can distort price signals, reduce purchasing power, and create uncertainty in investment planning. Fischer (1993) further emphasizes that macroeconomic instability, including high and volatile inflation, negatively affects long-run growth by discouraging capital formation and productivity improvements. In the manufacturing sector, inflation increases the cost of raw materials, labour, and energy inputs, thereby compressing profit margins and reducing output. Consequently, inflation serves as a critical control variable in this study, as it may independently influence manufacturing performance while also interacting with fiscal variables such as taxation.

Theoretical Underpinning

In summary, the theoretical literature offers contrasting perspectives on the relationship between taxation and manufacturing output, suggesting that the effects of taxation are neither automatic nor unidirectional. While Keynesian and endogenous growth theories contend that taxation can stimulate manufacturing performance by financing productive public investments such as infrastructure, education, and technological development, neoclassical and supply-side theories argue that excessive taxation increases production costs, reduces firms' after-tax profits, discourages capital accumulation,

and weakens private investment. Structuralist theory complements these perspectives by emphasizing that manufacturing serves as the engine of structural transformation and sustained economic growth, implying that fiscal policies should create an enabling environment that enhances industrial productivity and competitiveness. Furthermore, inflation theory highlights the importance of macroeconomic stability, recognizing that persistent inflation raises production costs, creates uncertainty, and may weaken the effectiveness of tax policy in promoting manufacturing growth.

Taken together, these theoretical perspectives suggest that the impact of taxation on manufacturing output depends on the interaction between tax policy design, the efficiency with which tax revenues are utilized, and prevailing macroeconomic conditions. Consequently, no single theoretical framework sufficiently explains the taxation and manufacturing nexus in a developing economy such as Nigeria. Rather, an integrated theoretical approach provides a more comprehensive basis for understanding how Company Income Tax and Value Added Tax may influence manufacturing output directly through firms' investment and production decisions, and indirectly through government expenditure and the broader macroeconomic environment. This theoretical synthesis therefore justifies the inclusion of Company Income Tax and Value Added Tax as the principal explanatory variables and inflation as a control variable in the empirical model. It also provides the conceptual basis for re-investigating the taxation and manufacturing relationship in Nigeria, particularly in light of recent fiscal reforms and evolving macroeconomic conditions.

Empirical Review

Empirical evidence on the relationship between taxation and manufacturing sector performance remains inconclusive, reflecting differences in tax structures, institutional environments, estimation techniques, and model specifications. Recent studies have focused primarily on the effects of Company Income Tax (CIT) and Value Added Tax (VAT), although the reported outcomes differ considerably.

For instance, recent studies employing the Autoregressive Distributed Lag (ARDL) framework report that VAT positively and significantly influences manufacturing output over both the short and long run, with the beneficial effects attributed to improved public investment financed through tax revenue (Samotu et al., 2024; Magaji & Umar, 2025). Similarly, evidence from broader fiscal policy analyses indicates that although government expenditure supported by tax revenue promotes manufacturing growth, excessive corporate taxation may weaken industrial expansion by increasing production costs and discouraging private investment (Oguejiofor et al., 2024). Despite these important contributions, the recent literature remains constrained by several limitations. Most studies examine either Company Income Tax or Value Added Tax in isolation rather than jointly assessing their complementary effects on manufacturing output. Furthermore, limited attention has been given to the role of inflation, despite its significant influence on production costs, firms' investment decisions, and industrial competitiveness. These limitations suggest that the current evidence is still insufficient to fully explain the taxation and manufacturing relationship under Nigeria's evolving fiscal environment, thereby reinforcing the need for a more comprehensive empirical investigation using updated data and an integrated analytical framework.

A dominant strand of the literature suggests that Company Income Tax exerts a contractionary effect on manufacturing performance. Studies by Olaoye et al. (2018), Arowoshegbe et al. (2019), Akinleye and Ekundayo (2023), and Nwanna and Umeh (2023) consistently report that higher corporate tax burdens reduce industrial performance by lowering firms' retained earnings, discouraging investment, and limiting production expansion. These findings are broadly consistent with neoclassical and supply-side theories, which argue that excessive corporate taxation distorts investment incentives and constrains productive activities. However, the magnitude of these effects varies across studies owing to differences in estimation techniques, sample periods, and measures of industrial performance.

In contrast, the empirical evidence regarding Value Added Tax is considerably less consistent. While Ono et al. (2020), Udeh and Agbo (2021), and Akinleye and Ekundayo (2023) report that VAT contributes positively to manufacturing output, particularly over the long run, they argue that the additional government revenue generated through VAT may finance infrastructure and other productive public investments that indirectly stimulate manufacturing activities. Conversely, some evidence suggests that VAT may impose short-run adjustment costs on firms through higher compliance requirements and increased operating expenses, resulting in weak or statistically insignificant effects on manufacturing performance during the adjustment period. The divergent findings indicate that the impact of VAT depends not only on the tax itself but also on how efficiently the associated revenue is utilized to improve the productive environment.

Beyond individual tax instruments, several studies have examined taxation from a

broader fiscal perspective. Egbunike et al. (2018) find that moderate corporate taxation can support manufacturing development by providing governments with resources for infrastructure provision, although excessive taxation eventually becomes detrimental to productive efficiency. Similarly, Ojong et al. (2021) report that aggregate tax revenue positively influences industrial growth in the long run, suggesting that taxation may enhance industrial development when tax proceeds are effectively channelled into productive public expenditure. Likewise, Adebisi and Gbegi (2024) demonstrate that improvements in tax administration strengthen manufacturing performance by enhancing compliance, reducing tax evasion, and increasing the availability of public resources for industrial development. Collectively, these studies imply that the effectiveness of taxation depends not only on the tax burden imposed on firms but also on the quality of tax administration and the productive use of tax revenues.

Despite these valuable contributions, several methodological and contextual limitations remain evident in the existing literature. First, empirical findings remain far from conclusive, particularly regarding the effects of Company Income Tax and Value Added Tax, suggesting that the taxation and manufacturing relationship is sensitive to differences in model specification, estimation procedures, and sample characteristics. Second, a substantial proportion of previous studies rely on aggregate measures of industrial growth or overall economic performance rather than manufacturing output, thereby limiting a more precise understanding of how taxation influences the manufacturing sector specifically. Third, many studies omit key macroeconomic variables, especially inflation, even though persistent inflation directly affects production costs, investment decisions, and industrial

competitiveness. Failure to account for such macroeconomic conditions may introduce omitted variable bias and weaken the reliability of estimated tax effects.

Furthermore, much of the available evidence predates the significant fiscal reforms introduced through Nigeria's successive Finance Acts beginning in 2019, including revisions to Company Income Tax rates and the increase in the Value Added Tax rate from 5 percent to 7.5 percent. These reforms have substantially altered the country's tax environment, potentially changing the way taxation affects manufacturing activities. Consequently, findings based on earlier institutional settings may no longer adequately explain the current taxation–manufacturing relationship.

Taken together, the existing empirical literature shows that although taxation remains an important determinant of manufacturing sector performance, there is no clear consensus on the direction or magnitude of its impacts. The conflicting evidence, the widespread reliance on aggregate industrial indicators, the limited consideration of macroeconomic conditions such as inflation, and the relatively limited incorporation of post-reform fiscal data collectively justify a fresh empirical investigation. Accordingly, this study re-examines the impacts of Company Income Tax and Value Added Tax on manufacturing output in Nigeria, controlling for inflation and using updated data that reflect the country's evolving fiscal environment. By addressing these gaps, the study seeks to provide more robust and policy-relevant evidence on the taxation and manufacturing output nexus.

3. Methodology

Sources of Data

This study relies on secondary time-series data spanning the period 1986 to 2023, sourced from the Central Bank of Nigeria and the Federal Inland Revenue Service. Specifically, data on manufacturing output and inflation were obtained from the Central Bank of Nigeria (CBN), and data on Company Income Tax and Value Added Tax were obtained from the Federal Inland Revenue Service Statistical Bulletins. These sources ensure the reliability, consistency, and comprehensiveness of the dataset employed for empirical analysis.

Model Specification

The functional model of this study is adapted from the study conducted by Onoh et al. (2020) with modifications as follows; $MO = f(CIT, VAT, INF)$

(1)

This indicates that manufacturing output is a function of company income tax, value-added tax, and inflation. The a priori expectation among the variables is expressed as:

Company Income Tax (CIT): Negative ($\beta_1 < 0$). Higher corporate taxation is expected to reduce firms' profitability and investment, thereby lowering manufacturing output. Value Added Tax (VAT): Negative ($\beta_2 < 0$). Higher VAT may increase production costs and reduce demand for manufactured products, negatively affecting manufacturing output. Inflation (INF): Negative ($\beta_3 < 0$). Rising inflation increases production costs and macroeconomic uncertainty, reducing manufacturing output.

Table 1: Definition and Measurement of Variables

| Variable | Measurement | Justification for Inclusion |
|----------------------------------|--|--|
| Manufacturing Output (MO) | The manufacturing output is expressed as the real contribution of the manufacturing industry to GDP (₦ billion) at constant prices. The use of constant prices eliminates the effect of inflation. | Manufacturing output serves as the dependent variable because it reflects the productivity, growth, and overall performance of Nigeria's manufacturing sector. |
| Company Income Tax (CIT) | Company Income Tax is measured as annual Company Income Tax revenue collected by the government, expressed in billions of Naira (₦ billion). Data is sourced from the Federal Inland Revenue Service and the Central Bank of Nigeria Statistical Bulletin. | The CIT is part of the topic since it has a direct influence on the profitability, retained earnings, and investments of the companies. An increase in taxes for corporate income could discourage investment and development in the manufacturing industry due to lower post-tax profit levels, which are available for accumulation and advancement. |
| Value Added Tax (VAT) | Value Added Tax is measured as annual VAT revenue generated by the government, expressed in billions of Naira (₦ billion). The data are obtained from the Federal Inland Revenue Service and the Central Bank of Nigeria Statistical Bulletin. | VAT is included because it affects production costs, consumer purchasing power, and aggregate demand for manufactured goods. Changes in VAT rates or collections may alter firms' sales volumes and profitability. Furthermore, VAT revenue contributes to government expenditure on infrastructure and public services that facilitate manufacturing output. |
| Inflation (INF) | Inflation is measured by the annual percentage change in the Consumer Price Index (CPI). Data are obtained from the National Bureau of Statistics and the Central Bank of Nigeria. | Inflation is incorporated as a control variable because it affects production costs, input prices, wages, interest rates, and consumer demand. High inflation creates uncertainty, increases operating costs, and reduces the purchasing power of consumers, thereby adversely affecting manufacturing output. Controlling for inflation enables the study to isolate the specific impacts of CIT and VAT on manufacturing output. |

Source: Authors' Compilations

The econometric model is expressed in logarithmic form to stabilize variance and mitigate heteroskedasticity thus;

$$LMO_t = \beta_0 + \beta_1 LCIT_t + \beta_2 LVAT_t + \beta_3 LINF_t +$$

μ_t

(2)

Equation (2) can be transformed into an econometric model of the ARDL model as thus:

$$\begin{aligned} \Delta LMO_t = & \alpha_0 + \sum_{i=1}^p \alpha_i \Delta LMO_{t-i} \\ & + \sum_{j=0}^{q1} \beta_{1j} \Delta LCIT_{t-j} \\ & + \sum_{j=0}^{q2} \beta_{2j} \Delta LVAT_{t-j} \\ & + \sum_{j=0}^{q3} \beta_{3j} \Delta LINF_{t-j} + \\ & + \mu_t \end{aligned} \quad (3)$$

ARDL Model in Error Correction form is given as:

$$\begin{aligned} \Delta LMO_t = & \gamma_0 + \sum_{i=1}^p \alpha_i \Delta LMO_{t-i} + \\ & \sum_{j=0}^{q1} \beta_{1j} \Delta LCIT_{t-j} + \\ & \sum_{j=0}^{q2} \beta_{2j} \Delta LVAT_{t-j} + \sum_{j=0}^{q3} \beta_{3j} \Delta LINF_{t-j} + \\ & \lambda ECT_{t-1} + \epsilon_t \end{aligned} \quad (4)$$

Where;

ECT_{t-1} = Lagged error correction term

λ = Speed of adjustment coefficient

4. Result Presentation and Discussion

Table 2: Stationarity Test

| Variable | Augmented Dickey Fuller Test | Critical Value at 5 % | Order of Integration |
|----------|------------------------------|-----------------------|----------------------|
| LMO | -3.3324 | -2.9434 | I(0) |
| LCIT | -5.8895 | -2.9434 | I(1) |
| LVAT | -4.9797 | -2.9434 | I(1) |
| LINF | -4.6599 | -2.9434 | I(0) |

Source: Authors' Computation from Eviews 12 (2026)

The Augmented Dickey-Fuller (ADF) unit root test results indicate that the variables exhibit a mixed order of integration, which is crucial for selecting an appropriate econometric technique. Specifically, manufacturing output (LMO) and inflation (LINF) are stationary at levels, as their ADF statistics (-3.3324 and -4.6599, respectively) are more negative than the 5 per cent critical value of -2.9434, confirming that they are integrated of order zero (I(0)). This implies that both variables revert to their long-run means without requiring differencing, suggesting stability in their stochastic properties. In contrast, Company Income Tax (LCIT) and Value Added Tax (LVAT) are non-stationary at

levels but become stationary after first differencing, with ADF statistics of -5.8895 and -4.9797 respectively, indicating that they are integrated of order one, I(1).

This reflects that the tax variables are influenced by underlying structural changes and policy dynamics over time but achieve stability after differencing. The coexistence of I(0) and I(1) variables confirms a mixed integration framework, which justifies the use of the Autoregressive Distributed Lag (ARDL) model, as it is suitable for estimating relationships among variables with different integration orders provided none is I(2).

Table 3: Long -Run ARDL Bound Test

| F-statistic | 52.241 | 10% | 2.37 | 3.2 |
|-------------|--------|------|------|------|
| K | 3 | 5% | 2.79 | 3.67 |
| | | 2.5% | 3.15 | 4.08 |
| | | 1% | 3.65 | 4.66 |

Source: Authors' Computation from Eviews 12 (2026)

The ARDL bounds test results provide strong evidence of a long-run equilibrium relationship among the variables in the

model. The computed F-statistic of 52.241 is substantially higher than all the reported upper-bound critical values at the 10%,

5%, 2.5%, and 1% significance levels. Specifically, compared with the 5% critical bounds (2.79 lower bound and 3.67 upper bound), the magnitude of the F-statistic provides very strong evidence of cointegration among manufacturing

output, company income tax, value-added tax, and inflation. The F-statistic far exceeds the upper threshold, indicating that the null hypothesis of no long-run relationship is decisively rejected.

Table 4: Short-Run ARDL-Error Correction Model Result

| Variable | Coefficient | T-Stat | P-Value |
|--------------------|-------------|-----------|---------|
| D(LCIT) | 0.007130 | 1.139121 | 0.2725 |
| D(LCIT(-1)) | -0.026288 | -11.62273 | 0.0000 |
| D(LCIT(-2)) | -0.033834 | -15.02171 | 0.0000 |
| D(LCIT(-3)) | -0.025098 | -10.92897 | 0.0000 |
| D(LVAT) | -0.023441 | -3.707796 | 0.0021 |
| D(LINF) | 0.000233 | 0.077271 | 0.9394 |
| D(LINF(-1)) | 0.017618 | 4.266895 | 0.0007 |
| D(LINF(-2)) | 0.000142 | 0.030639 | 0.9760 |
| D(LINF(-3)) | -0.004001 | -0.931375 | 0.3664 |
| CointEq(-1)* | -0.060436 | -42.28201 | 0.0000 |
| R-squared | 0.975095 | | |
| Adjusted R-squared | 0.963297 | | |

Authors' Computation from Eviews 12 (2026)

The short-run ARDL-ECM estimation reveals that Company Income Tax (CIT), Value Added Tax (VAT) and inflation have significant short-run dynamic impacts on the output of manufacturing sector in Nigeria. The coefficient of the error correction term, CointEq(-1), is negative and statistically significant (-0.060436; $p = 0.0000$), which shows a stable long-run equilibrium relationship between the variables, implying that a portion of the deviation in the current period relative to the previous period is adjusted in the current period by 6% per annual cycle. This slow speed of adjustment can be attributable to Nigeria's structural rigidities.

About company income tax (CIT), the present and lagged short-run effect are 0.007130 ($p = 0.2725$) which is positive and not statistically significant, though negative and statistically significant effects are obtained at the 5% level for the first, second and third lags of CIT; D(LCIT(-1)), D(LCIT(-2)) and D(LCIT(-3)) respectively, (-0.012447; $p=0.0415$; -

0.022150; $p=0.0075$ and -0.018880; $p=0.0204$ respectively). This implies that increases in corporate taxation discourage manufacturing sector output over time rather than immediately. This finding is consistent with Olaoye et al. (2018) and Nwanna and Umeh (2023) where CIT has negative short-run and long-run effects on the manufacturing output. It also supports the findings of Arowoshegbe et al. (2019), who show that an increase in taxation rates impacts adversely on firm financial and reinvestment capacity. These results suggest that the taxation effect on the manufacturing sector is delayed. The lagged impact might be as a result of the time lag for corporations to make decisions on reinvestment from reduced retained earnings after being taxed.

However, for value added tax (VAT), the effect of its present value on manufacturing output is negative and statistically significant, as D(LVAT) = -0.023441; $p = 0.0021$, which means an increase in value added tax leads to a reduction in manufacturing activity in the short run.

This could be caused by increase in production costs, decrease in effective demand and increasing compliance costs for tax collectors. This finding conforms with Udeh and Agbo (2021) who reports a negative and significant effect of VAT on Nigerian manufacturing output in the short run, despite a positive long run effect. Similarly, Akinleye and Ekundayo (2023) report a positive long-run but a mixed impact of VAT on manufacturing in Nigeria, possibly as the latter reflects a delayed stimulus from VAT revenues for public spending that can benefit manufacturing, while the former relates to immediate impacts.

With regard to inflation (LINF), the study's results reveal a complex and dynamic impact on the output of the Nigerian manufacturing sector. Although the effect of contemporaneous inflation on manufacturing output is statistically insignificant (0.000233 ; $p = 0.9394$), the first lag of inflation ($D(LINF(-1)) = 0.017618$; $p = 0.0007$) shows a positive and highly significant short-run effect. Subsequent lags ($D(LINF(-2))$) however yield negative results which become statistically insignificant in the following period. This mixed inflation impact is in line with theoretical works by Friedman (1977) and Fischer (1993), that argue that inflation creates distortions in economic decisions making processes and leads to deterioration of real sector in the long run due to the depreciation of real purchasing power and information cost, while suggesting that moderate level of inflation can be beneficial in certain circumstances. This mixed inflation impact might be due to Nigeria's chronic macroeconomic volatilities characterized by moderate level

of inflation, and thus exhibiting both stimulating effect in the very short run as prices adjust to reflect cost-push and inventory stock, and de-stimulatory effect as the real sector cannot fully adjust. Comparing the findings of this research to previous empirical literature, the impact of taxation on manufacturing sector observed in this study conforms strongly to previous empirical literature, where tax, especially company income tax has a negative impact on the manufacturing sector output in Nigeria (Olaoye et al., 2018; Arowoshegbe et al., 2019 and Nwanna and Umeh, 2023). The present result on the impact of VAT on manufacturing sector in the short-run is in line with Udeh and Agbo (2021), though their results suggest a positive long-run effect. Unlike some previous researchers like Ojong et al. (2021) and Egbunike et al. (2018) who argue that taxation can support industrial growth through indirect government expenditure effects, this research concludes that any such multiplier effects are not in immediate run and are not substantial enough in comparison to direct effects that lead to a reduction in the manufacturing output.

In summary, the study's ARDL-ECM results indicate that both Company Income Tax and Value Added Tax have predominantly negative impacts on manufacturing sector output in Nigeria in the short run, whereas the inflation effect is dynamic and conditional on the lag structure. These results lend strong support to literature which indicates the distortionary impact of taxation on manufacturing activity in contrast to the prevailing literature that posit an increase in manufacturing output due to positive multiplier effect from tax.

Table 5: ARDL Long-Run Result

| Variables | Coeff. | T-Stat. | P-Value |
|-----------|-----------|-----------|---------|
| LCIT | 0.555520 | 7.543883 | 0.0000 |
| LVAT | -0.322129 | -3.044715 | 0.0082 |
| LINF | -0.417184 | -1.559983 | 0.1396 |
| C | 8.545894 | 6.588896 | 0.0000 |

Source: Authors' Computation from Eviews 12

The long-run ARDL results provide robust evidence on the sustained impacts of taxation and inflation on manufacturing output in Nigeria. The findings reveal a mixed but structurally significant relationship between fiscal variables and industrial performance. Specifically, Company Income Tax (CIT) exhibits a positive and statistically significant long-run effect on manufacturing output ($\beta = 0.555520$; $p = 0.0000$), suggesting that, over time, increases in CIT are associated with improved manufacturing output. This outcome implies that CIT may contribute positively through enhanced government revenue, which potentially finances infrastructure development and industrial support systems that improve the business environment for manufacturers.

This result partially aligns with the findings of Ojong et al. (2021), who report that tax revenue positively influences manufacturing output in the long run, emphasising the developmental role of fiscal resources when efficiently utilised. Similarly, Adebisi and Gbegi (2024) support the view that improved fiscal structures and tax administration enhance manufacturing productivity through better revenue mobilization and infrastructural investment.

However, the present finding contradicts several firm-level and macro-level studies such as Olaoye et al. (2018), Arowoshegbe et al. (2019), and Nwanna and Umeh (2023), all of which document a negative relationship between CIT and industrial or manufacturing performance. These studies argue that corporate taxation reduces retained earnings, discourages reinvestment, and weakens production

capacity. The divergence suggests that while CIT may be distortionary at the firm level or in inefficient fiscal environments, its aggregate long-run effect may become growth-enhancing when revenue is effectively transformed into productive public expenditure, as observed in the present study.

In contrast, Value Added Tax (VAT) demonstrates a negative and statistically significant long-run effect on manufacturing output ($\beta = -0.322129$; $p = 0.0082$), indicating that sustained increases in VAT reduce industrial performance in Nigeria. This result is consistent with the cost-push argument in the empirical literature, where indirect taxation increases production costs and reduces consumer demand, thereby compressing manufacturing output. The finding strongly aligns with Arowoshegbe et al. (2019), who report that tax burdens reduce firm profitability and operational efficiency, and with Nwanna and Umeh (2023), who also document a weak or adverse effect of VAT on productive activity. Similarly, Olaoye et al. (2018) indirectly support this outcome by showing that taxation can discourage industrial expansion when it becomes excessive or poorly structured.

However, the result contradicts Udeh and Agbo (2021) and Akinleye and Ekundayo (2023), who find that VAT has a positive long-run effect on manufacturing output. These studies argue that VAT enhances government revenue, which in turn supports infrastructure development and stimulates industrial productivity. The inconsistency may be explained by differences in model specification,

institutional efficiency, and the extent to which VAT revenue is productively reinvested. The present finding suggests that in the Nigerian context, the distortionary effects of VAT, such as increased production costs and reduced demand, may outweigh its potential long-run fiscal benefits.

Inflation (LINF), on the other hand, shows a negative but statistically insignificant long-run effect on manufacturing output ($\beta = -0.417184$; $p = 0.1396$). Although the direction of the relationship aligns with theoretical expectations that inflation reduces purchasing power and increases production uncertainty, its lack of statistical significance suggests that inflation may not independently drive manufacturing performance in the long run once fiscal variables are controlled for. This finding partially aligns with Akinleye and Ekundayo (2023), who emphasize that macroeconomic instability can distort fiscal transmission mechanisms, although their results suggest stronger inflation effects than observed in this study. The insignificance may also indicate that inflation's impact is indirectly transmitted through taxation channels or absorbed by structural constraints within the Nigerian manufacturing sector.

Overall, the long-run evidence presents a detailed picture when compared with existing empirical studies. While CIT

exhibits a growth-enhancing effect consistent with some macro-level fiscal studies (Ojong et al., 2021; Adebisi & Gbegi, 2024), it contrasts sharply with firm-level and earlier macro studies that emphasize its distortionary impact (Olaoye et al., 2018; Arowoshegbe et al., 2019). Conversely, VAT demonstrates a consistently negative long-run influence in this study, reinforcing the cost-push narrative supported by several Nigerian-based studies, but contradicting findings that highlight its revenue-led growth benefits (Udeh & Agbo, 2021; Akinleye & Ekundayo, 2023). Inflation remains weakly influential in the long run, suggesting that fiscal variables exert stronger explanatory power over manufacturing output than macroeconomic price instability in the Nigerian context.

These mixed but theoretically coherent outcomes reinforce the argument that the taxation–manufacturing nexus is highly context-dependent, shaped by institutional efficiency, fiscal discipline, and the effectiveness of public expenditure management. They also underscore the importance of distinguishing between tax types, as CIT and VAT exhibit fundamentally different transmission mechanisms and long-run implications for manufacturing sector performance in Nigeria.

Table 6: Diagnostic Test/Post Estimation Test

| Test | P-Value | Implication |
|-------------------------|----------------|-------------------------------|
| Heteroskedasticity | 0.5823 | Absence of Heteroskedasticity |
| Normality Test | 0.3049 | Residuals are normal |
| Serial Correlation Test | 0.0644 | Absence of serial correlation |

Source: Authors' Computation from Eviews 12 (2026)

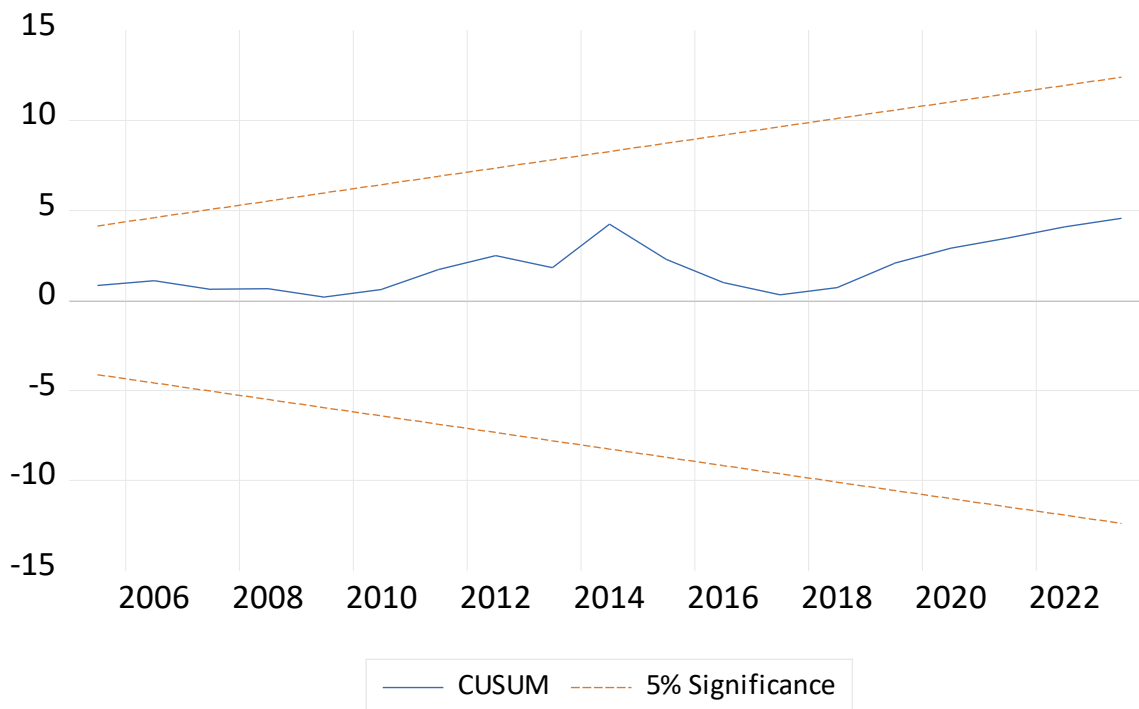


Figure 1 presents the CUSUM stability test. The plot indicates that the cumulative sum of recursive residuals remains within the 5 percent critical bounds throughout the sample period, confirming the stability of the estimated ARDL model.

The results of the diagnostic test suggest the absence of heteroskedasticity and serial correlation. It further reveals that the residuals are normally distributed and are stable based on the normality test and the stability tests, respectively. Hence, the study's results are valid and suitable for policy recommendations and formulation.

5. Conclusion

The researchers studied the long-run dynamics between taxation, inflation and manufacturing output in Nigeria by employing an ARDL framework and drawing on the prescriptions of the Keynesian, neoclassical (supply-side), endogenous growth, structuralist and inflation theories. The findings suggest a mixed but economically sensible pattern whereby fiscal tools are endowed with different impacts on manufacturing output. First, CIT exhibits a positive and

significant impact on manufacturing output in the long run, thus suggesting that in the long-run company income tax revenue can contribute positively to the expansion of the Nigerian manufacturing base. This is supported by the Keynesian, structural and endogenous growth hypotheses that resources from tax revenue collection could stimulate productive capacity.

Second, VAT leads a significantly negative impact on the manufacturing sector in the long run, meaning that a steady increase in indirect tax could dampen manufacturing sector output due to increased costs of production and weak aggregate demand, and in this sense conforms with supply-side and structuralist arguments that taxes often introduce distortions in productive processes. On the other hand, inflation affects manufacturing output negatively and insignificantly, and the study infers that this impact may operate indirectly and through other channels of the macroeconomy. In essence, the study concluded that the impact of taxation on the manufacturing sector of Nigeria is not unidimensional.

These conclusions point to the need for the authorities to enhance CIT revenue in the

right direction, reform the value-added tax to one that is more growth-conducive (giving exemptions to manufacturers), and maintain a stable macroeconomic policy that promotes a healthy environment for manufacturing-led growth.

Recommendations

Based on the findings, this study recommended that;

- i) Policymakers should improve compliance while maintaining incentives for productive investment. Strengthening accountability mechanisms in fiscal management would enhance CIT's growth potential and reinforce its positive long-run contribution to manufacturing output.
- ii) There is a need to reassess the structure and implementation of Value Added Tax to minimise its distortionary impacts on production and

consumption within the manufacturing sector. This may involve targeted exemptions for essential industrial inputs or the adoption of a more differentiated VAT framework that reduces cost pressures on the manufacturing sector.

iii) Furthermore, Federal Inland Revenue Service should consider complementary measures that mitigate the cost burden of indirect taxation on manufacturers, such as improved tax administration efficiency and incentives for reinvestment.

iv) Although inflation was not statistically significant in the long run, maintaining macroeconomic stability remains essential, as persistent price instability can still weaken investment confidence and manufacturing output.

References

- Adebisi, J. F., & Gbegi, D. O. (2024). Tax administration and manufacturing sector development in Nigeria. *Journal of Accounting and Taxation*, 16(1), 15–29.
- Akinleye, G. T., & Ekundayo, O. T. (2023). Tax policy reforms and manufacturing sector performance in Nigeria. *African Journal of Economic Review*, 11(2), 87–105.
- Arowoshegbe, A. O., Uniamikogbo, E., & Aigienohuwa, O. O. (2019). Taxation and the performance of manufacturing firms in Nigeria. *International Journal of Advanced Academic Research*, 5(4), 44–60.
- Auerbach, A. J., & Hines, J. R. (2002). Taxation and economic efficiency. In A. J. Auerbach & M. Feldstein (Eds.), *Handbook of public economics* (Vol. 3, pp. 1347–1421). Elsevier.
- Barro, R. J. (1990). Government spending in a simple model of endogenous growth. *Journal of Political Economy*, 98(5), S103–S125.
- Bird, R. M., & Gendron, P. P. (2007). *The VAT in developing and transitional countries*. Cambridge University Press.
- Egbunike, F. C., Emudainohwo, O. B., & Gunardi, A. (2018). Corporate taxation and manufacturing sector development in Sub-Saharan Africa. *Academy of Accounting and Financial Studies Journal*, 22(4), 1–12.
- Engen, E. M., & Skinner, J. (1996). Taxation and economic growth. *National Tax Journal*, 49(4), 617–642.
- Federal Inland Revenue Service. (2021). *Tax expenditure statement and economic review*. Federal Inland Revenue Service.
- Fischer, S. (1993). The role of macroeconomic factors in growth. *Journal of Monetary Economics*, 32(3), 485–512.

- Friedman, M. (1977). Nobel lecture: Inflation and unemployment. *Journal of Political Economy*, 85(3), 451–472.
- Kaldor, N. (1967). *Strategic factors in economic development*. Cornell University Press.
- Keynes, J. M. (1936). *The general theory of employment, interest and money*. Macmillan.
- Magaji, J. I., & Umar, M. R. (2025). Evaluating the productivity effects of value-added tax in Nigeria's manufacturing sector: Evidence from ARDL modeling. *POLAC International Journal of Economics & Management Science*, 12(3), 47–63.
- Manufacturers Association of Nigeria. (2023). *MAN economic review and outlook report*. Manufacturers Association of Nigeria.
- Musgrave, R. A., & Musgrave, P. B. (1989). *Public finance in theory and practice* (5th ed.). McGraw-Hill.
- Nwanna, I. O., & Umeh, G. N. (2023). Taxation and industrial growth in Nigeria: An empirical assessment. *Nigerian Journal of Economic and Social Studies*, 65(2), 101–120.
- Oguejiofor, U. H., Obansa, S. A. J., Ihuoma, A., & Olushola, T. (2024). The dynamics of fiscal policy measures on manufacturing sector growth: Evidence from Nigerian economy. *International Journal of Research in Social Science and Humanities*, 5(5), 14–35. <https://doi.org/10.47505/IJRSS.2024.5.2>
- Ojong, C. M., Ogar, A., & Arikpo, O. F. (2021). Tax revenue and industrial sector growth in Nigeria. *International Journal of Economics, Commerce and Management*, 9(5), 45–63.
- Olaoye, C. O., Ogundipe, A. A., & Oluwadare, O. E. (2018). Corporate taxation and industrial growth in Nigeria. *Journal of Economics and Sustainable Development*, 9(12), 45–56.
- Onoh, A., Ezema, I.C., Ezech, S.C., & Eneh, C.A. (2020). Impact of Value Added Tax on Manufacturing Sector Performance in Nigeria. *Technoscience Review*, 1(2), 4-45.
- Samotu, I. A., Salawudeen, A., & Ibrahim, T. R. (2024). *Value Added Tax (VAT) and manufacturing output in Nigeria: An empirical analysis*. *International Journal of Governance and Development Studies (IJOGDES)*, 11(1), 27–44.
- Szirmai, A. (2012). Industrialisation as an engine of growth in developing countries, 1950–2005. *Structural Change and Economic Dynamics*, 23(4), 406–420.
- World Bank. (2023). *World development indicators 2023*. World Bank.