Impact of Taxation on Manufacturing Sector Output in Nigeria

Okoli, Uju Victoria[1], Ezeife Agbachukwu Okeife[2], Muoneke Chukwuemeka Vincent[3]

[1]Department of Economics, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria

[2]Department of Entrepreneurship, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria

[3]Department of Political Science, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria

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ABSTRACT

This study explores the impact of taxation on manufacturing sector output in Nigeria from 1994 to 2023, using the Autoregressive Distributed Lag (ARDL) bounds testing approach to uncover both short-run and long-run dynamics. Drawing on secondary data from the Central Bank of Nigeria, National Bureau of Statistics, and the Federal Inland Revenue Service, the analysis focuses on direct and indirect impact of taxation on manufacturing sector output using four key tax types: Petroleum Profit Tax (PPT), Company Income Tax (CIT), Value Added Tax (VAT), and Personal Income Tax (PIT). Anchored in the Laffer curve theorem which suggests a non-linear relationship between tax rates and economic performance, the study examines whether Nigeria's tax policies have supported or hindered manufacturing sector's growth. The findings reveal that PPT significantly boosts manufacturing output in both the short and long run, highlighting the developmental value of resource-based revenues. CIT shows a positive influence in the short run but turns negative and statistically insignificant in the long run, suggesting that prolonged high corporate taxes may discourage industrial growth. VAT and PIT, although showing some long-run influence, were not statistically significant. Based on these insights, the study recommends a rebalancing of tax policy especially optimizing petroleum profit tax utilization, reform corporate tax structure to reduce burdens, reassess the design and administration of value added tax and balancing personal income tax rates to safeguard demand and productivity. By blending empirical evidence with theoretical insight, this research adds to the fiscal policy discourse in developing economies and offers a valuable framework for rethinking Nigeria's tax strategy in support of sustainable industrial development.

Keywords: Petroleum Profit Tax, Company Income Tax, Value Added Tax, Personal Income Tax JEL Classification: H2, H25, H30, L6, L69.

INTRODUCTION

Manufacturing sector of the economy refers to the sector capturing all the business entities engaged in processing, producing and distribution of goods and all types of value addition (Akintoye, 2020). It is a critical component of the Nigerian economy contribution to the country's Gross Domestic Product (GDP) and employment generation (CBN, 2020). Manufacturing sector output is the total value of goods produced by the manufacturing sector of the economy over a period of time. It encompasses the entire range of manufacturing activities measured as the manufacturing sector contribution to the GDP. The Nigerian manufacturing sector is involved in activities aimed at transforming raw materials into partly finished or finished goods. Some see the manufacturing sector as the wealth producing sector of an economy because it provides the necessary material support for national infrastructure. The Manufacturing sector of Nigeria is involved in the production of consumer goods and the capital goods (Aziegbe, 2022). The consumer goods refer to goods produced for immediate consumption such as food, beverages, and clothing while the capital goods are produced to aid further production processes.

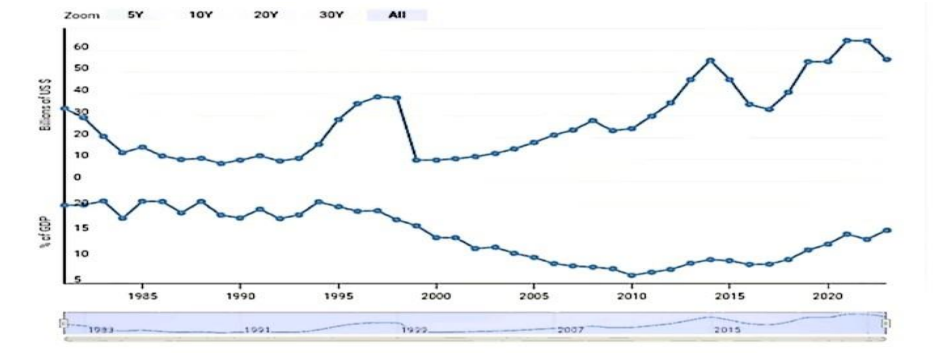
In the works of Adereti, Adesina and Sanni (2019), manufacturing industries creates employment which helps to boost agriculture and diversify the economy thereby helping the nation to increase its foreign exchange earnings. It is an engine of growth of the Nigerian economy (Adefeso, and Adelowo, 2018). The manufacturing

sector is an avenue for increasing production in relation to import replacement and export expansion, creating foreign exchange earning capacity, increasing employment and per capita income which causes unrepeatable consumption pattern. It is categorized into engineering sector, construction sector, electronic sector, chemical sector, energy sector, textile sector, food and beverage sector, metal working sector, plastic sector, transport and telecommunications sector (CBN 2020).

Taxation on the other hand is an essential tool of Fiscal policy that help to generate revenue to finance the activities of government and stimulate growth and development of the economy. It is a tool that allows communities of people to contribute in a predetermined amount and manners for the administration and advancement of society. Taxation is classified into two and this includes: direct and indirect taxes. Direct taxes are levied on individual's income, earnings, profit of corporate bodies and institutions and it includes Petroleum profit tax, personal income tax, corporate profit tax, capital gain tax etc while that of indirect taxes includes value added taxes, excise duties etc in which the final consumers of goods and services bears the ultimate burden of the taxes [Olawunmi, Damilola & Ajayi, (2019); Okeke & Appah, (2018); Ewubare & Ozo-Esan, (2019)]. In general perspective, taxation affects production through public expenditure and the diversion of resources from sectors not productive enough to sectors deemed productive and profitable to both the government and private investors who aim to maximize returns on their investments. What matters for these decisions is not only the level of taxes but also the way in which different tax instruments are designed and combined to generate revenue for the government and encourage productivity (Ogungbadejo, Abdul-Rahmon and Ayinde (2021). The key objective of taxation is stabilization of the economy and increase of national output meaning that taxation is vital as it enables the government to finance public goods and services, redistribute wealth to individuals who are more likely to save their money, therefore encouraging savings and investments in the economy (Eniekezimene, Wodu & Anda-Owei, 2024).

The quest for economic growth has led to several tax reforms implemented by the Nigerian government. These reforms include the introduction of Value Added Tax (VAT) and its adjustment in 2019, which increased the rate from 5% to 7.5% to generate more revenue for the government. Other reforms include the Personal Income Tax (PIT) reform, which provided generous tax relief and allowances to taxpayers. It aimed to increase disposable income and alleviate poverty in the country. The Financial Act of 2019 also brought changes to tax laws, including amendments to the VAT Act, Companies Income Tax Act, and Petroleum Profit Tax Act. Additionally, tax incentives were introduced to encourage investment in the manufacturing sector (FIRS, 2024). These incentives include pioneer status and tax holidays etc. However, while some reforms have promoted investment and competitiveness in the sector, others may have had negative impacts on the sector.

Fig 1: Trend data of the manufacturing sector output and its contribution to the GDP (1981- 2023)



Source: Researcher's Compilation (2026)

The manufacturing sector of the Nigerian economy remains the main driving force of the developmental process. This is because no sustainable development can be achieved without a viable manufacturing sector. A viable manufacturing sector in turn cannot be achieved without effective use of tax revenue to provide an enabling environment via good and quality infrastructure such as good road, electricity, for firms to thrive [Ogundipe, (2022); Okafor, (2015)]. In recent years, manufacturing sector in Nigeria have been experiencing a decline in performance caused largely by inadequate electricity supply, high rate of exchange, increased importation of

foreign foods, trade liberalization and low government expenditure. This is evident in Fig 1. In 2005, manufacturing sector contribution to GDP was about 10.06%. In 2010, the sector's output was $24.05 billion, accounting for 6.55% of the country's GDP. From 2010 to 2014, the sector showed improvement, with output increasing to $55.33 billion in 2014, representing 9.64% contribution to GDP. However, this growth was short-lived, as the sector's output declined to $46.44 billion in 2015. The sector experienced another decline from 2015 to 2017 with output reaching $32.85 billion in 2017, but from 2018 to 2021, the sector's output increased steadily reaching $64.41 billion in 2021 and accounting for 14.61% of GDP. Unfortunately, the sector's output declined again in 2022 and 2023, reaching $55.74 billion which represents a 13.24% decline from 2022 [CBN, (2025); NBS, (2025)] This increases in recent years may be attributed to increase in government expenditure and tax reforms implemented during the period.

The Nigerian government implemented various policies, investments and reforms to promote the manufacturing sector's growth between 2010 and 2020 and remedy the image above. Key policies include the National Industrial Policy (2010), Nigerian Industrial Revolution Plan (NIRP, 2014) which focused on promoting manufacturing, agro processing and other industries. The National Economic Recovery and Growth Plan (NERGP, 2017) which aimed to diversify the economy, promote manufacturing and increase competitiveness. The Executive Order 003 (2017) that mandated government agencies to patronize local manufacturers, and the Finance Act (2020) which introduced tax incentives and exemptions to support manufacturing and other sectors. These policies aimed to promote industrialization, diversify the economy, and increase competitiveness in the manufacturing sector of Nigeria. Additionally, the government also invested in infrastructure development, including Power Sector reforms implemented between 2010 and 2013 through the Electric Power Sector Reforms Act (2005) to improve electricity supply and reduce cost for manufacturing. The transportation infrastructure development overseen by the Federal Ministry of Transportation 2019 to upgrade roads, ports, airports to facilitate trades and commerce, and public-private partnerships (PPPs) facilitated by the Infrastructure Concession Regulatory Commission (ICRC) to encourage private sector investment in infrastructural development including manufacturing [Francis, E.(2024); Ilemona, Nwite & Oyedokun, (2019)]. Despite the government's effort to increase the productivity of the manufacturing sector through series of reforms, investments and policies, Nigeria's economy is yet to come to a sound growth in development due to the low output contribution of the manufacturing sector to the economy.

Not minding its potential to stimulate economic growth, the current tax system falls short due to poor administration, irregularities, and revenue leakages in the tax systems leaving taxation in Nigeria at crossroads. This inadequacy is compounded by the country's infrastructure deficit, characterized by erratic electricity supply, poor road networks and the resulting revenue shortfall has led to exorbitant tax increases for the manufacturing sector, ultimately stifling productivity and hindering economic progress. Also in the literature while some studies states that there is a positive impact of taxation on manufacturing sector output in Nigeria [Olawunmi and Oyedele (2018), Onoh, Ezema & Eneh (2018), Adefeso and Adelowo (2018)], other studies have stated a negative impact of Taxation on Manufacturing sector output in Nigeria. [Ogudu, Ordu & Nwosu (2018), Korgbeelo, (2023); Imoughele & Okoro, (2022)] while some other studies were neutral on the outcome [Adereti, Sanni & Adesina, (2011); Akintoye, Adegbie & Onyeka-Iheme, (2020)]. Based on the nature and importance of the relationship between taxation and manufacturing sector output, this study becomes necessary in Nigeria where output and capacity utilization of the manufacturing sector have suffered rapid fluctuations in recent years. Since government desires to increase its total revenue in the economy with taxation which can either increase or decrease manufacturing sector output or productivity, it is therefore the author's interest to investigate the actual impact of both direct and indirect forms of taxes on the manufacturing sector output of Nigeria given these discrepancies. This is why this research seeks to broadly examine the impact of both direct and indirect forms of taxation on manufacturing sector output in Nigeria by providing further illumination to the following specific objectives:

1. To ascertain the impact of Company Income Tax (CIT) on the manufacturing sector output in Nigeria.
2. To determine the impact of Petroleum Profit Tax (PPT) on the manufacturing sector output in Nigeria.
3. To examine the impact of Value Added Tax (VAT) on the manufacturing sector output in Nigeria.
4. To investigate the effect of Personal income Tax (PIT) on manufacturing sector output in Nigeria.

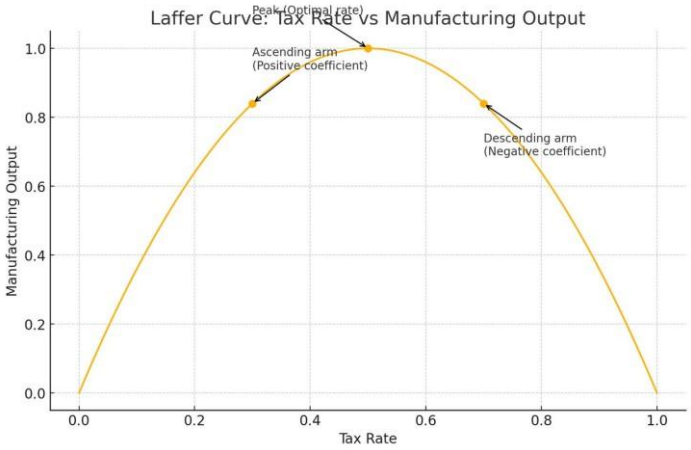
This study on the impact of taxation on the manufacturing sector output in Nigeria is both timely and significant because it will provide valuable insights that will be beneficial to policymakers in government agencies, researchers in the academia, manufacturing firms and entrepreneurs, investors in financial institutions and the general public. The four arising hypotheses for the variables are tested in null form. Thus, the rest of the paper is structured into literature review, research methodology, data analysis and interpretation of results and conclusion and recommendations.

LITERATURE REVIEW

The theory in which this study is built on is the Laffer Curve Concept.

The Laffer Curve Concept associated with the Laffer theory were popularized by economist Arthur Laffer in the 1970s. The theory depicts the relationship between tax revenue of government from various tax rates and economic growth in a given economy. The theory suggests that there is an optimal tax rate that maximizes revenue and beyond this point, increasing tax rates would reduce revenue. The model relies on assumptions such as rational behavior of economic agents, competitive market conditions and measurable responsiveness (elasticity) of income and production to changes in tax. This means that as tax rates change, individuals and businesses adjust their economic behavior, leading to changes in their income. The key idea behind this assumption is that tax rates can influence the incentives for individuals and businesses to work, invest, and engage in economic activities. When tax rates are high, individuals and businesses may be less inclined to work or invest, as they may feel that a significant portion of their income will be taken away in taxes. Furthermore, the Laffer Curve assumes that the elasticity of labor supply is a key factor in determining the responsiveness of income to changes in tax rates. The elasticity of labor supply measures how responsive the quantity of labor supplied is to changes in the wage rate or other economic incentives.

Additionally, the laffer theory assumes a single-peaked, smooth hump-shaped relationship between the statutory rate and economic outcomes (revenue or output). This means that as the statutory rate rises from zero, the associated economic outcome first increases, reaches exactly one maximum point and then steadily declines. In other words, there is one and only one "sweet spot" of tax intensity at which the benefit (revenue or output) is maximized. Before this peak, each incremental rise in the tax rate still yields net gains either by raising funds for public investment or by financing infrastructure that support production. After this peak however, the burden of higher taxes begins to outweigh those benefits, so the economic outcome reverses and falls. Furthermore, it presumed efficient recycling of tax collections into productive public goods e.g roads, power, education, health etc. That directly bolster manufacturing output.



Source: Fig 2 Researcher's Compilation, 2026.

Fig 2 illustrates an example of the Laffer Curve for manufacturing output against tax rates. The figure highlights the ascending arm, peak (optimal rate) and the descending arm. The ascending arm implies that raising the tax rate drives additional output because extra revenue by the government may be used to fund infrastructure or support manufacturing activities. The peak denotes the maximum rate above which additional tax increases cease to be beneficial to manufacturing sector and reduces output. While the descending arm indicates that further

raising of the tax rate subtracts from manufacturing output. For example, at 30% tax rate that is 0.3, the point sits on the left side of the curve where the slope is positive showing that raising tax rate can still increase the manufacturing sector output. Conversely a tax rate at 70% that is 0.7 lies on the right side where the curve is negative indicating that further increases in tax rate reduces manufacturing sector output as higher taxes reduces profit margins and discourage expansion.

The proponent of this theory suggests that there must be at least one rate between 0 to 100% where tax revenue would be at maximum tax rate. This means that if tax rates are too low (near 0%), tax revenue is low. Similarly, if tax rates are too high (near 100%), tax revenue also decreases, as people may be discouraged from working or investing due to high tax burdens so there must be a sweet spot as suggested by Laffer between 0 % and 100 % where revenue is not too low or high. By focusing on key variables such as tax rates, taxable income and behavioral elasticity while assuming rational responses in competitive markets, the theory serves as a valuable framework for understanding the interplay between optimal tax rates and taxpayer behavior. The relationship of this theory to this study lies on the fact that increasing tax rates through CIT, PIT, PPT, VAT, beyond a certain level will make tax payers counterproductive and not willing to pay tax and as such resulting in tax revenue to the government and also leading to decline in manufacturing sector productivity. Consequently, a decline in tax revenue also leads to poor economic growth. Hence, economic effect of CIT, PPT, PIT, VAT on Manufacturing Sector Output recognizes that growth of any economy is consequent to efficient and maximum tax applications.

Empirical Review of Literature

Oladipo and Olayemi, (2020), analyzed the impact of taxes, specifically Corporate Income Tax (CIT) and VAT, on manufacturing sector output in Nigeria. They used secondary time series data from 1980 to 2018 and applied Ordinary Least Squares (OLS) regression and Granger causality tests. The results revealed that both CIT and VAT had a positive relationship with manufacturing output, suggesting that tax increases led to higher output in the sector. The study recommended introducing tax incentives to support manufacturing activities and reforming tax administration to improve efficiency and reduce the burden on manufacturers.

Otekunrin (2023) explored the impact of oil and non-oil tax revenues on manufacturing sector output in Nigeria. The study used time series data from 1981 to 2021 and employed cointegration and error correction models to analyze the effect of tax revenues on growth. The findings indicated that both oil and non-oil tax revenues significantly influenced Nigeria's economic growth, indirectly affecting the manufacturing sector. However, the reliance on oil revenues was detrimental to long-term manufacturing growth. The study recommended diversifying Nigeria's revenue sources, with a particular focus on non-oil taxes, to create a more stable and sustainable economic environment for manufacturing growth.

Korgbeelo (2023) examined the effect of various tax types on manufacturing sector development in Nigeria. Using secondary data from 1996 to 2022, the study applied regression analysis to evaluate the relationship between taxes such as Petroleum Profit Tax (PPT), Corporate Income Tax (CIT), and Value Added Tax (VAT) on manufacturing growth. The study found that while PPT positively affected the manufacturing sector, VAT and corruption had a negative impact. The study recommended enhancing tax administration and improving the efficient utilization of tax revenue to foster infrastructure development, which would further stimulate the growth of the manufacturing sector.

Francis (2024) focused on the impact of selected taxes, including CIT and VAT, on manufacturing sector output in Nigeria. Using data from 1990 to 2020, the study applied Ordinary Least Squares (OLS) regression to examine the relationship between tax policies and manufacturing output. The results indicated that CIT and VAT had significant negative effects on manufacturing output in the long run, while domestic VAT showed a positive relationship. The study recommended revising VAT policies, particularly for essential goods, and introducing tax incentives to boost investment in the manufacturing sector.

Oguejiofor and Ogudu (2024) explored the dynamics of fiscal policy measures, including tax policies, on the growth of the manufacturing sector in Nigeria. Using secondary data from 1981 to 2021 and applying regression analysis, they found that taxes such as CIT and import tariffs negatively impacted manufacturing sector growth. However, government spending on infrastructure was found to have a positive effect. The study recommended

reducing tax burdens on manufacturers, particularly through CIT and import tariffs, and increasing government expenditure on infrastructure to boost manufacturing sector growth.

THEORETICAL FRAMEWORK

This study is anchored on the Laffer Curve Concept and the modified empirical model of Oladipo and Olayemi, (2020) which specifies as follows:

MSO = f (CIT, PPT, VAT, PIT)

The above model is expressed mathematically as

MSO = CIT + PPT + VAT + PIT

Given the functional form for this study, the following econometric model is therefore derived

$MSO = \beta_0 + \beta_1 CIT + \beta_2 PPT + \beta_3 VAT + \beta_4 PIT + \mu$

Where;

MSO = Manufacturing sector output

CIT = Company income tax

PPT = Petroleum profit tax

VAT = Value added tax PIT = Personal income tax μ = Stochastic disturbance/error term

Result Presentation, Analysis, and Discussion of Results

This section centers on the presentation and analysis of data used, interpretation of the result and discussion of the findings from the analysis conducted.

Unit root Test analysis

Summary of Augmented Dickey-Fuller (ADF) Unit root test Results

Variables	ADF Test Statistic (@ level)	Test Critical Value (@level)	ADF test Statistic (@ first difference)	Test Critical Value (@ first difference)	Integration
LMSO	1.418870	-2.981038	-4.277518	-2.981038	1(1)
LCIT	-0.163135	-2.967767	-15.25643	-2.971853	1(1)
LPPT	-2.239045	-2.967767	-6.782693	-2.971853	1(1)
LVAT	-0.922891	-2.971853	-4.139045	-2.971853	1(1)
LPIT	-2.264416	-2.967767	-6.122554	-2.971853	1(1)

Source: Researcher's Computation (2026)

Evidence from unit root table above shows that the logs of manufacturing sector output and corporate income tax, petroleum profit tax, value added tax and personal income tax are all stationary at first difference. Since the decision rule is to reject null hypothesis if the ADF statistic value exceeds the critical value at a chosen level of significance (in absolute terms), and accept stationarity when ADF statistics is greater than criteria value. The

results in Table 4.1 shows that within the framework of Augmented-Dickey Fuller Test the logs of manufacturing sector output (LMSO), company income tax (LCIT), petroleum profit tax (LPPT), value added tax (LVAT), and personal income tax (LPIT), are non-stationary at level but become stationary after first difference I (1), we proceed to carrying out a cointegration test to determine the existence of a long-run relationship.

ARDL F-Bound Test

Table 4.2 ARDL F-Bound Test Results

F-Bounds Test		Null Hypothesis: No Levels Relationship		
Test Statistic	Value	Significance.	I(0)	I(1)
F-statistic	8.81217	10%	2.45	3.52
K	4	5%	2.86	4.01
		2.5%	3.25	4.49
		1%	3.74	5.06

Source: Author's Computation (2026)

Since the F-statistics (8.81217) is greater than the upper bound I(1) and lower bound I(0) at 5% level of significance, we reject the null hypothesis and conclude that there exists long run relationship among variables. Given the existence of a long run relationship among the variables in the model, we therefore estimate an error correction model (ECM) to account for the short run dynamics of the model.

Long Run Estimates

Table 4.3: Summary of long run coefficients

Variable	Coefficient	Std. Error	t- statistics	Prob
LCIT	-0.031979	0.087088	-0.367201	0.7186
LPPT	0.119725	0.044127	2,713323	0.0160
LVAT	0.042400	0.093760	0.452212	0.6576
LPIT	-0.057778	0.039798	-1.451793	0.1672

Source: Author's Computation (2026)

Table 4.3 above presents the estimated long run coefficients for the log-log ARDL model. The result indicates that there is no strong evidence of the effect of company income tax, value added tax and personal income tax

i.e lcit, lvat, lpit on the independent variable in the long run at 5% significance level. However, the result suggests that petroleum profit tax (lppt) is statistically significant in explaining variations in the dependent variable in the long run.

The long-run partial coefficient of company income tax (lcit) is -0.031979 implying that a 1% change in corporate income tax on average will lead to a 0.032% decrease in Nigeria's manufacturing sector output in the

long run. Thus, in the long run company income tax is likely to exerts a negative effect on manufacturing sector output. The long-run partial coefficient of petroleum profit tax (lppt) is 0.119725 implying that a 1% change in petroleum profit tax on average will lead to a 0.1197% increase in manufacturing sector output in the long run. This therefore explains that petroleum profit health exerts a positive effect on manufacturing sector output in the long run.

The long-run partial coefficient of value added tax (lvat) is 0.042400 implying that a 1% change in value added tax on average will lead to a 0.042% increase in manufacturing sector output in the long run. This implies that value added tax exerts a positive effect on manufacturing sector output in the long run. Also, the coefficient of personal income tax (lpit) is -0.057778 indicating that a 1 % change in personal income tax on average will lead to 0.057% decrease in manufacturing sector output. Thus, personal income tax exerts a negative effect on manufacturing sector output in the long run.

Short Run Estimates

Table 4.4 Summary of short run coefficients (Error Correction Regression)

Variables	Coefficient	Std.Error	t- statistic	Prob
D(LMSO(-1))	0.069887	0.123990	0.563647	0.5813
D(LMSO(-2))	0.623277	0.115775	5.383508	0.0001
D(LCIT)	0.108438	0.040046	2.707796	0.0162
D(LPPT)	0.035647	0.012493	2.853221	0.0121
D(LPPT(-1))	-0.058463	0.013597	-4.299628	0.0006
CointEq(-1)*	-1.105394	0.147965	-7.470636	0.0000
R squared= 0.799462		Adjusted R Squared= 0.736134		

Source: Author's Computation (2026)

The coefficient of the CointEQ (-1) is -1.105394 which is negative and statistically significant. This confirms the existence of a stable long run relationship between taxation and manufacturing sector output. The ECM result suggests that about 110.5% of the disequilibrium from previous year is corrected in the current year (although the magnitude exceeds -1 suggesting slight overshooting of the equilibrium in the process of adjustment, this is not uncommon in dynamic macro-economic models as the model still adjust to shocks relatively quickly).

The results in table 4.4 shows that the logs of company income tax (LCIT) and petroleum profit tax (LPPT) are statistically significant in explaining the variations in the dependent variable (MSO) in the short run (p-value < 0.05). Since it is observed that the p value obtained is greater than the critical value 0.9538 > 0.05, we accept the null hypothesis that there is no serial correlation in the regression model and reject the alternate hypothesis. Therefore, the variables in the models are reliable for further predictions. Hence, the result of the heteroscedasticity test indicated the presence of homoscedasticity, meaning no heteroscedasticity in the residuals. (F-statistics p-value = 0.5296). Since the p-value of F-test statistic is greater than 0.05 level of significance, we accept H_o and conclude that there is no heteroscedasticity among the residuals Therefore, the study findings and the data is reliable for further prediction. Since the probability value of the residual is 0.3410 > 0.05, we accept the null hypothesis that the residuals are normally distributed and reject the alternate hypothesis that the residuals are not normally distributed.

T Test

The t-test is used to know the statistical significance of the individual parameters. Two-tailed tests at 5% significance level are conducted. The result is shown on table 4.5. Here, the study compares the calculated tstatistic with the tabulated t-statistic at tα/2 = t0.05 = t0.025 (two-tailed test). Degree of freedom (df) = n-k = 30-5=25 So, the study has:

$T_{0.025}$ (25) = 2.060…. … tabulated t-statistic

The study employs a 0.05 level of significance and in doing so, the decision rule is to reject the null hypothesis if the t-value is significant at the chosen level of significance; otherwise, the null hypothesis will be accepted. This is summarized in table 4.5.

The results from the long run

Table 4.5 Summary of t-statistics

Variable	**T calculated (t cal)**	**T tabulated (t tab)**	**CONCLUSION**
LCIT	-0.367201	2.060	Statistically insignificant
LPPT	2.713223	2.060	Statistically significant
LVAT	0.452212	2.060	Statistically insignificant
LPIT	-1.451793	2.060	Statistically insignificant

The results above indicates that the independent variables with exception to the log of petroleum profit tax (LPPT) are statistically insignificant in explaining the variations in the dependent variable (MSO) in the long run (T-cal < T-tab).

Evaluation of Research Hypothesis.

The evaluation of the research hypothesis in this study is based on the long run estimates derived from the ARDL model. The hypotheses are discussed below.

Hypothesis 1

H_0: Company income tax exerts no significant impact on manufacturing sector output in Nigeria.

H_1: Company income tax exerts a significant impact on manufacturing sector output in Nigeria

Decision Rule: If calculated t-value > tabulated t-value, we reject the null hypothesis and accept the alternative hypothesis.

Following the decision rule outlined above, the calculated t-value of -0.367201 is less than the t-tabulated value of 2.060. This leads to us accepting the null hypothesis that company income tax exerts no significant impact on manufacturing sector output in Nigeria at 5% level of significance.

Hypothesis 2

H_0: Petroleum Profit tax has no significant impact on manufacturing sector output in Nigeria

H_1: Petroleum Profit tax has a significant impact on manufacturing sector output in Nigeria

Following the decision rule outlined above, the calculated t value of 2.713223 is greater than the t-tabulated value of 2.060. This leads to us rejecting the null hypothesis that petroleum profit tax has no significant impact of petroleum profit tax on manufacturing sector output in Nigeria and accepting the alternate hypothesis of significant impact.

Hypothesis 3

H_0: Value added tax has no significant impact on manufacturing sector output in Nigeria

H_1: Value added tax has a significant impact on manufacturing sector output in Nigeria

Following the decision rule outlined above, the calculated t-value of 0.452212 is less than the t- tabulated value of 2.060. This leads to accepting the null hypothesis that value added tax has no significant impact on manufacturing sector output in Nigeria.

Hypothesis 4

H_0: Personal income tax has no significant impact on manufacturing sector output in Nigeria

H_1: Personal income tax has no significant impact on manufacturing sector output in Nigeria

Following the decision rule outlined above, the calculated t value of -1.451793 is less than the t- tabulated value of 2.060. This leads to accepting the null hypothesis that personal income tax has no significant impact on manufacturing sector output in Nigeria.

DISCUSSION OF FINDINGS

The purpose of this study is to examine the impact of taxation on manufacturing sector output in Nigeria during the period of 1994-2023. The study adopted the auto-regressive distributed lag technique for the regression analysis, the Error Correction Model was used in the short run to ascertain the extent of the speed of adjustment in the model. The findings of this work revealed that the variables conform to the theoretical expectation and as such exert impacts on the manufacturing sector output in the country.

The study finds out that company income tax in the long run, has a negative impact on manufacturing sector output in Nigeria. The coefficient reveals that for every percentage change in corporate income tax keeping other regressands constant, there would be a 0.032% decrease in manufacturing sector output in Nigeria. This study also reveals that corporate income tax has an insignificant impact on Nigeria's manufacturing sector output, this implies that there's no strong evidence that changes in company income tax have a meaningful impact on manufacturing sector output. This may be attributed to several contextual and structural factors. First, the prevalence of tax evasion and avoidance among corporate entities reduces the effective tax burden on manufacturing firms, thereby weakening the responsiveness of output to changes in CIT. Additionally, the widespread use of tax incentives, exemptions, and pioneer status grants under Nigerian tax laws may further erode the actual tax liability of firms, making the theoretical impact of CIT less observable in practice. Furthermore, the business environment in Nigeria characterized by inadequate infrastructure, erratic power supply, and high input costs suggests that manufacturing performance is more heavily influenced by structural constraints than by direct tax policy. Finally, over the long run, firms may adjust their operations to accommodate prevailing tax structures, rendering their output less sensitive to corporate tax rates. From the laffer curve standpoint, this outcome reflects a potential tipping point beyond which further tax burden yields diminishing returns and eventually reduce productivity. The negative long run effect suggest that Nigeria may be operating beyond the optimal CIT threshold where excessive taxation discourages corporate investment and slow the sector growth.

Also, the study revealed that petroleum profit tax at the long run has a positive impact on manufacturing sector output in Nigeria. The long run coefficient here shows that for every percentage increase in petroleum profit tax keeping every other variables constant there's a 0.1197% increase in Nigeria's manufacturing sector output. This implies that as a major source of government revenue, PPT plays a critical role in shaping fiscal policy and

public investment. Increased collections from petroleum profits can enable higher government spending on infrastructure, energy, and industrial development which are essential to the performance of the manufacturing sector thereby leading to increase in the sector's output in the long run. Hence, within the laffer curve framework, Nigeria's petroleum tax policy on oil related profits seems to be situated on the rising portion of the curve where increases in taxation corresponds with increased economic output. This affirms the strategic potential of resource-based taxes to stimulate broader sectorial performance when efficiently managed.

The findings of this work also showed that value added tax has a positive and insignificant impact on manufacturing sector output in the long run. The coefficient at the long run shows that for every percentage increase in value added tax on the average, there's a 0.042% increase in manufacturing sector output holding other variables constant. VAT being a consumption-based tax, is primarily borne by final consumers thereby having only an indirect effect on producers. Manufacturers may act more as tax collectors than tax payers, which limits the distortionary effect VAT has on their production decisions. Additionally, Nigeria's VAT system has historically suffered from issues such as low compliance rates, weak enforcement mechanisms, and limited coverage, especially in the informal sector where many manufacturing firms operate or source inputs leading to diminishing the impact of VAT on output. Within the framework of the laffer curve, the result suggests that VAT might be positioned near the peak or downward sloping side of the curve, where increasing VAT rates do not translate into proportional increases in economic performance.

In addition, the study revealed that personal income tax at the long run has a negative impact on manufacturing sector output in Nigeria. The long run coefficient here shows that for every percentage increase in personal income tax keeping every other variable constant there will be a 0.0577% decrease in Nigeria's manufacturing sector output but lacks statistical significance. Since PIT primarily targets individual earnings rather than corporate profits or business turnover, its influence on manufacturing output is likely to be indirect, operating through channels such as labor costs or aggregate demand. However, in the Nigerian context, PIT is often poorly administered, with narrow coverage due to the dominance of informal employment and limited tax compliance among workers. As a result, the scale of PIT revenue is relatively small compared to other tax types, reducing its potential to affect macroeconomic variables like industrial output. Furthermore, wage levels in the formal sector constitute a relatively small proportion of total manufacturing cost, and firms may not experience significant tax-induced shifts in labor costs that would influence output. Also, the negative direction PIT resonates with the laffer curve that excessive taxation on labor income can result in behavioral shifts, reduced work hours, evasion, ultimately harming industrial output.

Finally, the model of the study and result also shows that the error correction term is statistically significant at 5% level of significance and is correctly signed with adjustment rate of -1.105394. This suggests that about 110.5% of the disequilibrium from previous year will be corrected in the current year. Also, from the ARDL regression result, the various tests (Coefficient of determination R^2, Adjusted R^2, F-statistic, and p-value) of significance on the model showed good result. The R^2 of approximately 0.79 indicating a good explanatory power of the independent variables. The adjusted R^2 result of 0.73 from the model also supported this fact.

Policy Implications of Findings.

This section discusses the policy relevance of the study's empirical findings, focusing on the influence of tax components such as company income tax, petroleum profit tax, value added tax and personal income tax on manufacturing sector output in Nigeria. The implications are drawn from both short run and long run ARDL results.

First, the positive and statistically significant effect of petroleum profit tax (PPT) on manufacturing sector output in both the short run and long run suggests that revenue generated from petroleum sector when effectively mobilized and transparently allocated, can stimulate manufacturing activities through improved infrastructure, energy supply and industrial incentive. This findings implies that policy makers should prioritize efficient use and reinvestment of petroleum tax revenue into manufacturing enhancing public goods. This finding aligns with Akintoye et al (2020) who observed that petroleum-based tax revenues positively influence broader economic activities especially industrial development in Nigeria.

Also, the findings shows that company income tax has a positive and significant impact in the short run but turns negative and insignificant in the long run suggesting that while CIT can initially generate much needed revenue for public spending that may benefit manufacturers, its long-term burden may deter private investment, reduce profitability or be poorly reinvested into the economy. This implies that the government should consider gradual CIT reforms, including possible rate reductions or introduction of tax credits and incentive for manufacturers especially for small and medium enterprises to sustain long term growth. This aligns with Oladipo and Olayemi (2020) who found that excessive company income tax reduces investment and productivity in the manufacturing sector over time.

Additionally, the result of the findings shows that value added tax has a positive effect on manufacturing output in the long run. Though statistically insignificant, it suggests that VAT may not be inherently harmful to industrial performance, especially if the tax base is broad and the revenue is reinvested. However, the statistical insignificance indicates that VAT alone may not strongly drive off manufacturing output unless complemented by other reforms. Thus, government should focus on improving VAT administration, reducing tax evasion and increasing compliance especially in informal sector. The findings are in line with Adereti et al (2019) who found that VAT revenue contributes to economic growth, but largely on efficient tax administration.

Moreover, the findings from personal income tax (PIT) had a negative but statistically insignificant impact on manufacturing sector output in the long run. This suggests that taxation of individual's income may reduce disposable income and by extension, consumption of manufactured goods especially locally produced goods. However, the lack of significance means the relationship is weak. Policy makers should therefore avoid increasing PIT rates arbitrary particularly for middle and low income earners to maintain a reasonable level of consumer's demand that supports local manufacturing. This result is consistent with Aziegbe (2022) who found that increase in PIT tends to reduce household consumption without generating significant benefits.

Furthermore, the error correction term (ECT) of -1.1054, which is correctly signed and statistically significant indicates that the model converges to long run equilibrium at a high speed, implying that shocks in the short run due to taxation policies are quickly corrected over time. This provides assurance for policy makers that strategic temporary tax interventions can have meaningful long-term benefits if they are well structured and stable thereby leading to larger economic growth.

CONCLUSION AND RECOMMENDATION

From the findings, it is evident that taxation when properly designed and implemented has the potential to either stimulate or distort manufacturing output in Nigeria. The results align with the Laffer curve theorem, which emphasizes the existence of an optimal tax rate beyond which tax burdens become counterproductive. Taxes such as PPT lie within the productive range of the curve, contributing positively to output, while others like CIT and PIT may lie closer to the portion which are not supported by tax reliefs, incentives, or administrative efficiency. Therefore, the study concludes that the composition, rate, and structure of taxation in Nigeria are critical to the performance of the manufacturing sector. A balanced, progressive, and sector-sensitive approach to tax policy can help stimulate industrial growth and economic diversification.

Based on the empirical findings and the implications drawn from the Laffer curve theoretical framework, the following policy recommendations are proposed to enhance the effectiveness of Nigeria's tax system in stimulating growth of the manufacturing sector output:

Optimize Petroleum Profit Tax Utilization: Given the positive and statistically significant effect of petroleum profit tax on manufacturing sector output in both the short and long run, policymakers should sustain and strengthen the productive deployment of petroleum tax revenues. Specifically, a portion of petroleum profit tax proceeds should be earmarked for industrial development such as investments in energy infrastructure, transportation networks, and research and development initiatives that directly support manufacturing operations. Transparency in the allocation and use of these funds will also amplify the growth-enhancing spillovers already observed from the results.

Reform Corporate Income Tax Structure: The findings shows that company income tax has a significant positive effect in the short run but a negative and statistically insignificant impact in the long run suggesting the need for reforms. Government should consider reducing corporate income tax rates or offering targeted tax incentives for manufacturing firms especially in capital-intensive sub-sectors in order to encourage reinvestment, expansion, and long-term sectoral growth. Furthermore, simplifying tax compliance procedures and reducing administrative burdens will make the tax environment more business-friendly and align company income tax policy with the upward-sloping segment of the Laffer curve.

Reassess the design and Administration of Value Added Tax: Though the long run effect of value added tax showed a positive effect on output, it was statistically insignificant, indicating inefficiencies in its current design or implementation. Government should review the value added tax structure to reduce trickling down effects on production inputs, particularly for manufacturers relying on imported raw materials. Introducing more flexible value added tax credits, broadening the tax base, and addressing loopholes can enhance its efficiency and potentially shift its effect to a statistically significant and growth-supportive trajectory.

Balance Personal Income Tax rates to safeguard demand and productivity: The negative though statistically insignificant effect of personal income tax on manufacturing output points to the need for caution in personal income tax policy formulation. Excessive taxation on personal incomes may suppress aggregate demand and indirectly weaken manufacturing sales. Government should focus on creating a progressive personal income tax system that preserves disposable income among middle and low-income earners, while enhancing enforcement among high-income earners. Improved compliance without increasing rates can prevent demand-side constraints on manufacturing output.

These recommendations are in line with the new phase of tax reforms embarked on by the administration of President Bola Ahmed Tinubu. In June 2025, four landmarks tax reform bills were signed into law with proposed implementation by January 2026. The reform consolidate existing statutes into a streamlined framework, reduce the company income tax rate from 30% to 25% in 2026, introduce a unified development levy to replace multiple overlapping levies, exempt small firms with turnover below 100 million naira from key federal taxes. It also restructure personal income tax by exempting annual income up to 800,000 thousand naira while applying progressive tax rates of 25% for higher earners. For the manufacturing sector, these reforms carry significant implications: on one hand, lower corporate tax rates and levy rationalization may ease the cost of doing business and stimulate investment, but on the other, stricter enforcement measures such as expanded reporting obligations could increase compliance costs. While the present study's findings are based on historical data, this passage signals a decisive policy shift that may alter the taxation impact on manufacturing sector in Nigeria. Accordingly, future research should re-examine this relationship in light of the reforms to assess whether they succeed in boosting revenue mobilization without discouraging manufacturing productivity and growth in line with the principles of the Laffer curve especially when implemented eventually.

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