

Taxation and Manufacturing Sector Output in Nigeria

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Abstract: - The study investigated the relationship between taxation and manufacturing output in Nigeria from 1985 to 2018. This is premise on the argument taxation causes disincentive to investment and entrepreneurship. Data were gathered from the published reports of the Central Bank of Nigeria, Federal Inland Revenue Service and National Bureau of Statistics covering the period of the study; ex-post facto research design was adopted. Collected data on manufacturing output, companies' income tax, personal income tax, value added tax and petroleum profit tax were analysed using ordinary least square technique. The results show the t-statistics (CIT = -0.9025, PIT = 3.4047; VAT = -0.2090; PPT = 1.9113) and p-values (CIT = 0.3775; PIT = 0.0028; VAT = 0.8366; PPT = 0.0701) implying CIT and VAT not statistically significant while PIT and PPT were statistically significant with positive relationship with manufacturing output affirming the theoretical conception that companies' income tax discourage entrepreneurship. Taking the model as a whole, it was concluded that there is a significant relationship between the variables of study. It was recommended that government should grant more tax incentives to manufacturing sector operators and reform of the tax administrative system.

Keywords: Taxation, manufacturing output, entrepreneurship, tax incentives.

I. INTRODUCTION

Theoretically, it is believed that tax have a negative correlation with investment and economic growth because taxes causes distortions in the economy. Thus, the believe tax policy discourage new investment and entrepreneurship; by discouraging work effort and acquisition of skills by individuals, cause misallocation or deform resource allocation through their impact on saving and corporate investment.

A critical review of the effects of taxation can be most usefully explained through an argument of the diverse channels through which tax policy can affect the economy. For instance, while company income tax is statutorily levied on an incorporated business, the incidence and burden of the tax is generally seen to be distributed in the entire economy among participants in the production value chain. At the one end, the key relationship is that the burden of company income tax is shared between the returns to capital in the form of investor profits and the return to labour in the form of wages paid to employees. If there is a "reduction in company income tax rates, in the form of incentive, companies would accumulate capital, attract inward investment of capital and

incentivize innovation" (Engen and Skinner, 2008), thereby expanding output. At the other end, increase company tax rates are detrimental to investment expansion and distortive to productivity and reducing gross domestic product per capita.

The two extreme views of the impact of taxation on productivity has attracted several debates in both developed and developing economies. More generally, "there is not all the distortionary taxes that have some adverse effects on economic growth at long-term; the net effect depends on the fact that the considered tax is or not used as an instrument to correct negative externalities or other distortions" (Agenor, 2005). Also, taxation as a fiscal policy instrument is a tool for societal development by those entrusted with the social contact to collect taxes and deploy same for the delivery of security and public goods that enhance the society's well-being. But how well this has been achieved in the case of Nigeria has remain a subject of daily debate following the fact public infrastructure such as roads, schools, railways, health care facilities, power, among others are either below required international standard or not available at all. The consequence being poor living standard among the populace and high cost of doing business in the country. This positioning is premise on the basis most countries measure their extent of growth, development and standard of living by the proportion of taxes as a percentage of 50.6% and 45.4% in 2003 'while Australia and United States of America collects 31.6% and 25.6% of their national income as taxes respectively", (OECD, 2008). This similar record for Nigeria is either lacking or relatively below expected standard.

Taxes are of different kinds and affect individuals and organizations in diverse manners and, "in addition, different levels of taxation distort market activities to greater or lesser degree". 'Evidence based on a wide number of countries indicates that a 10% reduction in company tax could have anywhere between a 0.6% and 1.8% effect on economic growth rates. In Ireland, the effect of lowering the corporate tax rate in the business and services was shown to have significantly increased GNP in the years following the change" (O'Connor, 2014).

The treatise of taxation and fiscal activities of government is premise on the logic that taxation and government spending lead to higher growth rates. As argued by Dalibor (2002), 'government redistribution can stimulate

savings and investment by redistributing wealth to individuals with a higher marginal propensity to save (MPS)". In a general perspective, 'higher MPS can be found among people with higher incomes and redistribution stimulating economic growth would thus in reality be a redistribution from the poor to the rich'. This circle of relationship boost output and other economic activities from various sectors of any economy particularly the manufacturing output.

1.1 Statement of the Problem

Taxation is a major component of fiscal policy framework of any nation with a key objective for stabilization of the economy and increasing national output. In a general perspective, taxation affects production through public expenditure, ability to work, save and invest; and diversion of resources from sectors not deem productive to those deem productive and profitable to both the government and private investors who aim to maximize returns on their investment. "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 revenues and encourage productivity".

Although several empirical investigations have been conducted to examine the effects of taxation structures on economic performance particularly using GDP, studies available in extant literature are lacking with particular focus on the manufacturing sector output. Besides, it has always been erroneously assumed that fiscal policy framework and their empirical outcomes are homogeneous for all countries whereas there exists considerable diversity in economic structures among all countries. This study is designed to examine the impact of taxation structures on the manufacturing sector out for Nigeria economy.

1.3 Objective of the Study

The objective of this study is to examine the impact of Company Income Tax (CIT), Personal Income Tax (PIT), Value Added Tax (VAT) and Petroleum Profit Tax (PPT) on manufacturing output in Nigeria using data from 1985 to 2018.

1.4 Research Hypothesis

The research hypothesis for the study is stated as follows:

H₀: Companies Income Tax (CIT), Personal Income Tax (PIT), Value Added Tax (VAT) and Petroleum Profit Tax (PPT) have no significant relationship with manufacturing output in Nigeria.

1.5 Significance of the Study

This study is designed with a view to expanding the knowledge frontier on the impact of taxation policies on the manufacturing sector of the economy which form the hub of industrialization and employment. Policy makers, advisors of government on fiscal policy related issues, the academia,

students and the likes will benefit from the study findings in their further studies and researches.

To the government, this study will help them put more efforts at formulating tax policies that will enhance manufacturing sector output, strengthen the economy through provision of infrastructure and redistribution of income and wealth.

For those in academics, it is added material to existing literature for further studies in the field of accounting, finance, taxation, economics and allied disciplines.

The rest of the paper covers the literature review, methodology, results and discussions, conclusion and recommendations.

II. REVIEW OF RELATED LITERATURE

The review of related literature is done under three sub-headings focusing on conceptual review, theoretical review and empirical studies review.

2.1 Conceptual Review

The main concepts associated with the study are summarily reviewed in this section of the paper.

2.1.1 Concept of Tax and Taxation

Tax is the transfer of payments from the private sector and public sector employees to the public sector. It constitutes the principal source of revenue to finance government expenditure and also acts as an instrument of fiscal policy. It is 'an amount of money paid to the government, usually a percentage (%) of personal income or company profits'. Thus, a good tax has some specific features such as: (i) it is a payment made by tax payer to the government, which is used for the benefit of all citizens; (ii) it is a compulsory contribution imposed by the government on the residents of a country, hence, it is an offence to evade payment, (iii) it is not imposed in return for an equivalent service to the tax payer. This implies that tax payers cannot claim or demand for something equivalent to the tax paid (quid pro quo) from the government.

The two elements of a tax are (i) tax base and (ii) tax rate. The tax base is the object, which is taxed. These are usually incomes, profits, property, among others, while the tax rate is the amount of the tax base, which is paid as tax. It is usually in form of flat rate of percentage (Ajibola, 2005).

Another fact that is clear from the definition of tax is that levying of taxes is within the purview of government. It is not a private concern. The government whether at the local, states or federal level has responsibilities to meet the yearnings of the governed. The need to meet the expectations of good governance in a modern society is the rationale for levying taxes (Soyode and Kajola, 2006).

In what seems to be a general consensus, the reasons for imposing taxes are: (i) revenue generation for financing of

government activities, (ii) provision of ‘merit goods’ – health and education infrastructure, (iii) provision of ‘public goods’ – internal and external security, street lights and roads, (iv) discouraging consumption of “Demerit goods” – harmful products, (v) redistribution of income and wealth – bridging the gap between the rich and poor, (vi) harmonization of economic objectives in line with diverse trade or economic objectives of different countries, (vii) correction of balance of payment abnormally. How well these objectives are achieved depends on the administrative efficiency of the tax system.

Taxation on the other hand has to do with administrative procedures of the tax system. It is the process of formulating tax policies, levying, collection and remittance of taxes collected from taxable persons and organizations to the government for use in carrying out its constitutional mandates.

Taxes may be categorized as either direct or indirect based on the incidence and burden of the tax on the tax payer. Direct tax is levied directly on the person who is expected to bear the incidence and burden of the tax. In Nigeria, examples under this category include personal income tax, Company Tax, Capital Gain Tax, Petroleum Profit Tax, among others. Indirect tax is one in which the incidence and burden may be borne by a person other than the one from which it is initially collected. That is, an indirect tax is a tax that the incidence and burden can be shifted or shared from one person to another. Example in Nigeria is the Value Added Tax (VAT), excise tax on manufactured goods, among others (Etim and Nweze, 2015).

Taxes can also be described as proportional, progressive and regressive. Proportional tax is one for which the percentage tax rate remains the same as tax base increases, as a result, the amount of tax paid is proportional to the tax base. Progressive tax system attempts to preach fairness by requiring the rich to pay more tax than the poor. Under progressive tax system, percentage tax rate increases as the tax base of a person increases, therefore, a person with the higher income pay a greater percentage of tax than a person with a lower income rate. Progressive taxes take an incremental portion as the value of the tax base rises and depends on the class marginal rate of tax. Regressive tax system is one whereby percentage tax rate decreases as the tax base increases, that is, the revenue yield becomes smaller as the value of the income taxed increases. A high-income person pays less tax than low-income person (Etim, Nsima and Daniel, 2020).

2.1.2 Legislative Sources of Taxes used in the Study

The tax system in Nigeria is administered through statutes rather than common law and for the independent variables, the applicable legislative sources are examined.

i. Personal Income Taxation

Personal income taxation is regulated by the personal income tax Act of 1993 as revised to date by the Personal Income Tax

amended Act 2011. It is a tax payable upon income, accruing in Nigeria (Income producing asset), derived from Nigeria (income producing activity) brought into Nigeria (remittances) and received in Nigeria (emoluments). It is charged on profit or gain from trade, business, profession or vocation; remuneration from an employment-salary, wage, fee, allowance or gain or profit from employment including compensations, commission, bonuses, premiums, benefits or other perquisite allowed, given or granted by any person to an employee.

ii. Company Taxation

The taxation of the profit of companies is under the Company Income Tax Act 1990. (CITA '90) which stipulates the nature and type of companies and income to be subjected to the Nigerian tax. A Nigerian company is liable to company income tax on all its profits wherever they arise whether or not they have been brought into or received in Nigeria. Foreign company is also chargeable to tax on profits from any trade or business deemed to be derived from Nigeria to the extent to which such profits are not attributable to any part of the operations of the company carried on outside Nigeria. Thus, the profits of a foreign company are taxed to the extent that they are derived from sources within Nigeria.

iii. Value Added Tax (VAT)

This was introduced in Nigeria in 1993 through VAT Decree 102 of 1993. The tax takes effect on 1st January 1994 and until this year 2020, is charged at 5% on taxable goods and services. Value Added Tax is a consumption tax and has three important attributes of: (i) VAT is a consumption tax; (ii) VAT is a multi-stage tax; and (iii) the incidence of VAT is on the final consumer. This tax replaces the sales tax.

iv. Petroleum Profit Taxation

The need to tax companies involved in petroleum business under separate law apart from the general CITA is because of the peculiar and complicated nature of the oil and gas industry. Companies operating at the upstream sector of the oil and gas sector are taxed under the Petroleum Profit Tax (PPT) Amendment) Act No. 30, 1999 as amended to date. Revenue from petroleum tax is the most significant source of revenue of the Nigerian government, accounting for over 90% of its total foreign exchange earnings.

2.1.3 Manufacturing Output

This is given as the total output measured as the manufacturing sector contribution to the Gross Domestic Product (GDP) of Nigeria over the period of study. 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. It provides important material support for national infrastructure. The manufacturing sector is involved in the production of two categories of goods; consumer goods and capital goods

(Kwode, 2015). The consumer goods refer to goods produced for immediate consumption, while capital goods are goods produced to aid further production processes. Generally, the manufacturing sector is the hop of economic activities. This assertion follows from the fact that it is the sole sector that extracts raw materials and transforms such materials to a usable form. By so doing, the sector provides employment to about 70 percent of the working population and accelerates the productive capacity of the economy (Udoh and Ogbuagu, 2012).

Many studies have used different indicators in evaluating the performance of the manufacturing sector in Nigeria. Some of the indicators previously used include index of manufacturing production and capacity utilization. In this study, we make use of manufacturing sector output as recorded by the Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS) reports. Pool data from 13 activity groups of the sector comprising oil refining; cement; food, beverages and tobacco; textile, apparel and footwear; wood and wood products; pulp, paper and paper products; chemical and pharmaceutical products; basic metal and iron and steel; motor vehicle assembly and other manufacturing (National Bureau of Statistics (NBS) (2019). The aggregate value of output of these subsectors constitute the total manufacturing sector output at any point in time.

Taxation plays a crucial role in promoting economic activities. Through taxation, government ensures that resources are channeled towards important projects in the society, while giving succor to the weak. Adeyemi (2012) stated that in achieving sustainable development in the social and economic sectors of a country, the government must consider the trade-off involved in attracting foreign direct

investment (FDI) in terms of granting tax incentives as this would boost the country's sustainable development.

2.2 Theoretical Review

Taxation theories may derive from the relationship between tax paid and benefits received from the state or from the relationship between public expenditure and social economic development. For the purpose of this study, we anchor our study on the relationship between public expenditure and social economic development, hence Rostow-Musgrave based their explanations of increasing public expenditure on the need to provide social amenities for growth and development. They asserted that at the developmental stage of an economy, some capital projects are needed to accelerate the growth and development of the country such as establishment of schools, hospitals, good road network, power infrastructure, among others. Therefore, government expenditure is a function of the developmental programme of a country and goes a long way to impacting the manufacturing output level in particular and the entire economy activities of a nation. The theory has some elements of the endogenous and exogenous growth hypotheses embedded in it and thus is deem suitable for this study.

2.3 Empirical Literature

As important as taxation and growth and development are in contemporary nations' development, so are empirical studies in that regard both at developed and developing countries context. Here, we summarize some of these studies in a tabular presentation to enable a snap shot of the author(s), year of investigation, topic or main objective, methodology employed and major finding(s).

Table 2.1: Summary of Empirical Literature

S/N	Author(s) and Year	Country of study	Topic	Methodology	Major Findings
1.	Myles (2000)	United Kingdom	Taxation and Economic growth	Econometric modeling	Theoretical models opened a number of channels through which taxation affect growth
2.	Rohac (2007)	Developed and Developing Nations	Taxation And Economic Growth: Reconciling Intuition and theory	Review of exogenous and endogenous theories of growth	Taxation affects growth through various modes.
3.	Engen and Skinner (2008)	United States and other selected countries	Taxation and Economic Growth	Comparative econometric modeling tools	High taxes are bad for economic growth is not necessarily obvious from data analysis
4.	Marire and Sunde (2010)	Zimbabwe	Economic growth and tax structure in Zimbabwe: 1984-2009	Data Envelopment Approach and translog model	Economic growth is inelastic to tax structure
5.	Moranu and Ionita	Romania	The influence of taxation on Economic Growth. Econometric Evidence from Romania	Multiple regression analysis	Distortionary revenues in Romania did not have significant effect on economic growth.
6.	Mashkooor, Yahya and Ali, (2010)	Pakistan	Tax revenue and Economic growth: An Empirical analysis for Pakistan	Multivariate VAR Model	All the coefficient were statistically significant and that taxes cause Real GDP Growth

7.	Mutascu and Danuletiu (2011)	Romania	Taxes and Economic Growth in Romania. A VAR approach	VAR Approach	Tax policy in Romania cannot be taken to extremes due to negative influences
8.	Scarlett (2011)	Jamaica	Tax policy and economic growth in Jamaica.	Granger causality tests.	Increasing revenue through indirect taxes is more conducive to economic growth in the long-run
9.	Chigbu, Akujuobi, and Appah (2012)	Nigeria	An Empirical Study on the causality between Economic growth and taxation	Granger causality test and Johansen co-integration	Taxation affects economic growth and granger cause economic growth in Nigeria.
10	Uaboya and Mgbame (2012)	Nigeria	Indirect tax and economic growth	Engel – Granger test and ARDL.	Results show negative and insignificant relationship between the variables of study.
11.	Okafor (2012)	Nigeria	Tax Revenue generation and Nigerian Economic Development	OLS Regression	Positive and significant relationship between dependent and independent variables studied.
12.	Ihenyen and Mieseigha (2014)	Nigeria	Taxation as an instrument of economic growth (The Nigerian Perspective)	OLS	Taxation is an instrument of economic growth
13.	Gale and Samwick (2014)	Select developed economies	Effects of income tax changes on economic growth	Cross-country comparative studies	Results show both the potential benefits and the potential perils of income tax reform on long term economic growth.
14.	Gustavo, Jorge and Violeta (2013)	America	Taxation and economic growth in Latin America	Vector Auto-regressive techniques	Personal income tax did not have the expected negative effect on economic growth in Latin America.
15.	Abata (2014)	Nigeria	The impact of tax revenue on Nigerian economic (case of Federal of Inland Revenue)	Chi-square statistic and survey design	Tax administrative system significantly affected government revenue in Nigeria.
16.	Ifureleze and Ekezie (2014)	Nigeria	System and economic growth: A time series Analysis	Regression analysis	Linear relationship exist between tax revenue and economic growth.
17.	Gravelle and Marples (2014)	United States	Tax rates and economic growth	Regression analysis	Tax rates have negative effects on economic growth particularly corporation tax.
18.	Sekou (2015)	Mali	Taxation and growth in the economy	OLS	Results shows positive and significant relationship between variables studied.
19.	Lyndon and Paymaster (2016)	Nigeria	Impact of taxation on economic growth of Nigeria 2005-2014	Panel data – OLS	Both company income tax and value Added Tax have positive impact on growth.
20	Udofot and Etim (2017)	Nigeria	The relationship between tax revenue components from SMEs and economic development in Nigeria 1980-2015	Correlation and regression analysis.	Strong positive relationship between variables of study.

Source: Researchers' Review, 2020.

2.4 Gap in the Literature and Rationale for this Study

Empirical studies abound in the literature much as taxation is as important as the survival of any government be it developed or developing country government. Although several studies had been conducted on the relationship, impact or effect of taxation on either economic growth or economic

development, the most commonly adopted proxy had always been GDP or RGDP which do not measure growth as a flow variable. This study uses manufacturing sector output which is deem more appropriate to proxy economic growth and four types of assumed has direct bearing to manufacturing output.

III. METHODOLOGY

The research design, sources of data, model specification and data analysis technique are discussed in this section of the paper.

3.1 Research Design

This study involves the use of data published by federal government agencies in Nigeria. These agencies are the Central Bank of Nigeria (CBN) statistical bulletin, various editions, Federal Inland Revenue Services (FIRS) annual reports and accounts, various years and National Bureau of Statistics (NBS) reports, various years. Thus, ex-post facto research design is applied in the study, because the data already exist and cannot be manipulated by the researcher. This design is appropriate because it assists in determining the effects of taxation on manufacturing output in Nigeria.

3.2 Sources of Data for the Study

The data sources is purely secondary, obtained from published reports of CBN, FIRS and NBA for various years.

3.3 Model Specification

The regression model in it general form is stated as:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \dots + \beta_nX_n + \Sigma_1 \dots \dots \dots \text{model 3.1}$$

Where;

- Y = dependent variable
- β_0 = constant or regression intercept
- $\beta_1 - \beta_n$ = coefficient of independent variables
- $X_1 - X_n$ = independent variables
- Σ_1 = stochastic error term or random variable

Specifically, the model for this study as stated in it generic and econometric form as follows;

$$Mo = f(\text{CIT, PIT, VAT, PPT}) \dots \dots \dots \text{model 3.2}$$

$$\text{Log}Mo = \beta_0 + \beta_1\text{LogCIT} + \beta_2\text{LogPIT} + \beta_3\text{LogVAT} + \beta_4\text{LogPPT} + \mu_1 \dots \dots \dots \text{Model 3.3}$$

Where;

Mo = Log of manufacturing out from the manufacturing sector

- β_0 = Regression intercept or constant
- $\beta_0 - \beta_4$ = Coefficient of independent variables
- LogCIT = log of companies' income tax, being taxes imposed and collected on profits of companies
- LogPIT = Log of personal income taxes imposed and collected from sole individuals
- LogVAT = Log of value Added Tax on consumption of VATable goods and services at 5%
- LogPPT = Log of petroleum profit tax charged on companies engaged on upstream oil and gas sector in Nigeria
- μ_1 = Stochastic error term.

The a priori expectation is $b_0 - b_4 < 0$

3.4 Data Analysis Technique and Decision Rule

To analyse the data obtained for this study, the descriptive statistics will be used to trace the trends in the variables of study and inferential statistics to test the hypothesis using multiple regression model using E-views statistical package.

The decision criteria for the test of hypothesis will be based on t-statistic and F-statistic. If the computed t-statistic is greater than the table value at 5% level of significance and n-k-1 degrees of freedom, null hypothesis will be rejected otherwise, it will be accepted.

IV. RESULTS AND FINDINGS

The data analysis results are presented under descriptive statistics and regression output for test of hypothesis followed by discussion of findings.

4.1 Descriptive Data Analysis

The data collected for this study on manufacturing output (Mo), the dependent variable and independent variables which comprises Companies Income Tax (CIT), Personal Income Tax (PIT), Value Added Tax (VAT) and Petroleum Profit Tax (PPT) are analyse using descriptive statistics as shown on Table 4.1

Table 4.1: Descriptive Statistic Results for the Variables of Study

Variable	MO	CIT	PIT	VAT	PPT
Mean	2872.585	2354.193	48.57147	351.7685	1150.998
Median	1821.574	2154.500	36.4000	230.4000	850.5350
Maximum	6684.218	6330.000	138.1100	1082.209	3070.590
Minimum	1373.662	172.8000	15.80000	7.26100	125.0400
Std. Dev.	1831.158	1596.443	35.25128	325.5498	806.6721

Skewness	1.137728	0.765366	1.131194	0.721335	0.916491
Kurtosis	2.719794	2.986914	3.023235	2.378815	2.658113
Jarque-Bera	7.446310	3.319690	7.251826	2.569964	4.925337
Probability	0.02158	0.190168	0.026625	0.276656	0.085207
Sum	97667.90	80042.56	1651.430	8794.214	39133.92
Sum sq. Dev.	1.11E+08	84104805	41007.54	2543584	21473755
Observations	34	34	34	25	34

Source: *Compilation of the Researcher, (2020) using E-views version 8.0.*

Table 4.1 shows the descriptive statistics for the variables of study. On the data on Manufacturing Output (MO), the mean and median were obtained as N2872.585 billion and N1821.572 billion respectively. Standard deviation was N1373.662 billion, skewness value of 1.1377 indicated positive skewness, showing that the data on manufacturing output (MO) is a moderately skewed distribution. The kurtosis value of 2.719 indicates the absence of heavy tails while the data set passed normality test with a Jarque-Bera probability of 0.0242.

For the independent variables, the mean values for Companies Income Tax (CIT), Personal Income Tax (PIT), Value Added Tax (VAT) and Petroleum Profit Tax (PPT) showed mean values of N2354.193 billion, N48.517 billion, N351.769 billion and N1150.998 billion respectively. The median values obtained were N2154.50 billion, N36.40 billion, N230.40 billion, N230.40 billion and N850.535 billion respectively. Furthermore, the skewness values obtained were 0.7654, 1.131194, 0.721335, and 0.916491 respectively indicating a fairly symmetrical data in all the independent variables of the study. The standard deviation obtained were N1596.443 billion, N35.251 billion, N325.549 billion and N806.6721 billion respectively which shows a fair level of variability in the data set for CIT, PIT, VAT and PPT respectively.

The kurtosis values for CIT, PIT, VAT and PPT obtained are 2.9869, 3.0232, 2.3788 and 2.6581, indicating that the distributions for the distributions for the variables were mesokurtic in some cases which suggests that the data series for the variables do not have heavy outliers or tails. The Jarque-Bera probability values for CIT, PIT, VAT and PPT obtained are 0.1902, 0.0266, 0.2767 and 0.0852 respectively

indicating that the data series for these variables are adjudged not normal given that these probabilities are greater than 0.05 for CIT, VAT and PPT. however, data series on PIT showed normality with a probability value of 0.0266.

In general, though the data series on all the variables had showed fair level of symmetry, variability and the presence of fewer outliers, they all failed the normality test, thus the need for further treatment of the data using logarithm to restore the normality of the data set for further econometric analyses.

4.2 Test of Hypothesis

The hypothesis of the study is tested using the results obtained from the multiple linear regression technique and ordinary least square method as computed using E-views package 8.0 version. The hypothesis stated in null form was as follows:

H₀: There is no significant relationship between Companies Income Tax (CIT), Personal Income Tax (PIT), Value Added Tax (VAT), Petroleum Profit Tax (PPT) and Manufacturing Output in Nigeria.

The results that relates to this hypothesis are shown on the appendix and presented as follows in the ordinary least square (OLS) output form in line with the logarithmic transformation equation.

$$\text{LogMo} = \beta_0 + \beta_1\text{LogCIT} + \beta_2\text{LogPIT} + \beta_3\text{LogVAT} + \beta_4\text{LogPPT} + \mu_1 \dots \text{equation 3.3}$$

The summary of the result and residual statistics is given as follows:

$$\text{Mo} = 382.692 - 087\text{CIT} + 47.261\text{PIT} - 0.342\text{VAT} + 0.392\text{PPT}$$

t-stat =	(0.9659)	(-0.9025)	(3.4047)	(-0.02090)	(1.9134)
S.E =	(396.69)	(0.096)	(13.881)	(1.6334)	(90.2049)
Prob. =	(0.3456)	(0.3775)	(0.0028)	(0.8366)	(0.0701)
t _{tab} =	1.699	S.L = 0.05	R ² = 0.9404	Adj R ² = 0.1291	

Durbin-Watson Stat. = 0.934

F-stat. = 79.684

Prob. (F-stat.) = 0.0000

F_{tab} = 2.701

The result indicates that manufacturing output (MO) in Nigeria will increase by 4.301 units if all the independent variables are held constant. The independent variables are Companies Income Tax (CIT), Personal Income Tax (PIT), Value Added Tax (VAT) and Petroleum Profit Tax (PPT). the implication of the result is that Manufacturing Output (MO) in Nigeria will be boosted by N382.693 billion if there is no level of taxes imposition at a given period in Nigeria (that is $CIT = PIT = VAT = PPT = 0$).

Similarly, a N1 billion increase in the level of Companies Income Tax collected will lead to a decrease of N0.087 billion in manufacturing output; a N2 billion increase in Personal Income Tax will lead to an increase of N47.261 billion in manufacturing output; a N1 billion increase in Value Added Tax collected will also lead to a decline in manufacturing output by N0.342 billion and a N1 billion increase in the amount collected as Petroleum Profit Tax will also lead to increase manufacturing output by N0.392 billion.

In terms of the degree of relationship between the dependent and independent variables, the coefficient of determination (R^2) value of 0.9409 indicates a high positive correlation between manufacturing output (MO) and the independent variables of the study. This also implies that 94.09% of the variations in manufacturing output (MO) have

been explained by CIT, PIT, VAT and PPT. the remaining 5.19% of the variations is accounted for by other variables which are not considered in this model and are captured by the standard error (S.E) of the regression. The Durbin-Watson statistic indicates the presence or otherwise of autocorrelation in the variables. Apply a rule of thumb, variables with a Durbin-Watson statistic value of between 1 and 3, is considered free from auto correlation and the regression results are relevant and not spurious. The Durbin-Watson statistic value of 0.934 indicates the absence of serial correlation in the variables used in the study, given that this value is approximately close to 1.

In determining the statistical significance of the independent variables, the computed t-statistic values of the independent variables is compared to the tabulated or critical value of t-statistic at 5% level of significance and n-k-1 degrees of freedom; where n is equal to the number of years covered in the study and k is the number of independent variables in the study. Also, the probability of the t-statistic for the independent variables is expected to be less than 5%. From the t-statistic table, the critical value of t-statistic at 5% significance level and 29 degrees of freedom (-34-4-1) was obtained as 1.699. the statistical significance of the independent variables with respect to manufacturing output is presented on Table 4.2.

Table 4.2: Statistical Significance of Independent Variables in the Hypothesis

Variables	Computed t-statistic	Critical value of t-stat @ 5% SL	Probability	Decision
CIT	-0.9025	1.699	0.3775	Not-significant
PIT	3.4047	1.699	0.0028	Significant
VAT	0.2090	1.699	0.8366	Not-significant
PPT	1.9113	1.699	0.0701	Significant

Source: Researchers' compilation from E-views output, 2020

Table 4.2 shows that Personal Income Tax and Petroleum Profit Tax have statistically significant relationship with manufacturing output (MO). This is because the respective computed t-statistic values of PIT and PPT are greater than the critical value of t-statistic. Also, their respective probabilities of t-statistic values are also within the acceptable 0.05 region. The remaining two independent variables which are Companies Income Tax and Value Added Tax and no statistically significant relationship with manufacturing output in Nigeria. This is because, their respective absolute values of computed t-statistic are found to be less than the critical value of t-statistic and their respective probabilities of the t-statistic values are not within the 0.05 acceptable region.

Finally, the computed F-statistic value of 79.684 indicates that the model for the hypothesis is a good fit to explain the changes in manufacturing output (MO). The calculated F-statistic value of 72.08 is greater than the critical F-statistic value of 2.701, and the probability of the F-statistic is less than 0.05, the null hypothesis is hereby rejected. Therefore, there is a significant relationship between Companies Income Tax, Personal Income Tax, Value Added

Tax, Petroleum Profit Tax and Manufacturing Output in Nigeria.

4.3 Discussion of Findings

From the data analysis, Companies Income Tax and Value Added Tax showed an inverse and non-significant relationship with manufacturing output in Nigeria. This implies that increased level of tax paid by corporate organizations in Nigeria will lead to a decrease in the manufacturing output. Also, Personal Income Tax and Petroleum Profit Tax showed direct and statistically significant relationship with manufacturing output. This shows that taxes such as Personal Income Tax and Petroleum Profit Tax can be utilized in the provision of infrastructures which will support more expansion in the manufacturing sector and thus lead to increase in manufacturing output and capacity utilization in Nigeria.

V. SUMMARY, CONCLUSION AND RECOMMENDATIONS

The study was designed to examine the impact of companies Income Tax (CIT), Personal Income Tax (PIT),

Value Added Tax (VAT), Petroleum Profit Tax (PPT) and Manufacturing Output in Nigeria using data sourced from the Central Bank of Nigeria, Federal Inland Revenue Service and National Bureau of Statistic. From the analysis, the findings are summarized as follows:

- i. There is an inverse and non-significant relationship between Companies Income Tax, Value Added Tax and Manufacturing Output in Nigeria.
- ii. There is a positive and significant relationship between Personal Income Tax and Manufacturing Output in Nigeria. This contradicts the theoretical and apriori expectations and the findings of Mutasau and Danuletui (2011) who recorded negative results.
- iii. There exist an inverse and significant relationship between Petroleum Profits Tax and Manufacturing Output in Nigeria. This is in line with theoretical foundations and general expectations.

From the findings, it is recommended that:

- i. More tax incentives should be granted to companies as a way of fostering and encouraging the operators of the sector so as the reverse the current trends
- ii. The Nigeria tax system should be reformed both in terms of legal and administrative processes in order to make tax administrative machinery dynamic and in line with global best practices.
- iii. There is need to improve in the collection and utilization of taxation revenues by government in the provision of socio-economic infrastructure to reduce cost of doing business to the manufacturing sector operators.

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Appendix

Dependent Variable: MO

Method: Least Squares

Date: 04/27/20 Time: 06:14

Sample (adjusted): 1994 2018

Included observations: 25 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	392.6929	396.2140	0.965874	0.3456
CIT	-0.086566	0.095921	-0.902474	0.3775
PIT	47.26122	13.88138	3.404649	0.0028
VAT	-0.341505	1.633904	-0.209011	0.8366
PPT	0.392149	0.204954	1.013349	0.0701
R-squared	0.940957	Mean dependent var		3329.225
Adjusted R-squared	0.929148	S.D. dependent var		1944.393
S.E. of regression	517.5589	Akaike info criterion		15.51298
Sum Squared resid	5357343	Schwarz criterion		15.75676
Log likelihood	-188.8123	Hannan-Quinn criter.		15.58059
F-statistic	79.68374	Durbin-Watson stat		0.934223
Prob(F-statistic)	0.000000			

Dependent Variable: LOG(MO)

Method: Least Squares

Date: 04/27/20 Time: 06:16

Sample (adjusted): 1994 2018

Included observations: 25 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.420072	0.800045	6.774710	0.0000
LOG(CIT)	-0.151857	0.094835	-1.601285	0.1250
LOG(PIT)	0.564396	0.155952	3.619035	0.0017
LOG(VAT)	0.052394	0.069467	0.754225	0.4595
LOG(PPT)	0.177792	0.117380	1.514676	0.1455
R-squared	0.909874	Mean dependent var		7.952011
Adjusted R-squared	0.891849	S.D. dependent var		0.568909
S.E. of regression	0.187093	Akaike info criterion		-0.337564
Sum Squared resid	0.700077	Schwarz criterion		-0.093789
Log likelihood	9.219550	Hannan-Quinn criter.		-0.269951
F-statistic	50.47801	Durbin-Watson stat		0.841485
Prob(F-statistic)	0.000000			