Effect of Taxation on Manufacturing Sector Output in Nigeria, 1980-2017

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Abstract
The study examined the effect of taxation on manufacturing sector output in Nigeria for the period between 1980-2017. The objectives of the study were to; evaluate the effect of corporate tax, Petroleum profit tax, value added tax and excise duty on the manufacturing sector in Nigeria. Secondary data collected from Central Bank of Nigeria statistical bulletins and National Bureau of Statistics. The variables were subjected to unit root test, Johansen co-integration test and the parsimonious error correction model. The unit root test result showed that all the time series were stationary at order one. Also, the co-integration result showed that there is a long run equilibrium relationship among the variables. Meanwhile, the parsimonious error correction result showed that the R^2 is 74%. The coefficient of corporate income tax showed that a percentage increase in corporate income tax will increase the manufacturing sector output by 0.028585 %. Also, a percentage increase petroleum profit tax will increase the manufacturing sector output by 0.023040 %. But the coefficient of value added tax showed that a percentage increase in value added tax will cause a corresponding decrease in the manufacturing sector output by 0.010024 %. The coefficient of excise duty tax showed that a percentage increase excise duty tax will increase the manufacturing sector output sector by 0.020096%. Conclusively, excise duty, corporate income tax and petroleum profit tax play a significant role in boosting the output of the manufacturing sector and hence economic growth in Nigeria. The study recommended administrative loopholes should be plugged on value added tax revenue to contribute positively and significantly to the output of the manufacturing sector in the short run as well as economic growth in the long run.

Key Words: *Taxation, Corporate income tax, petroleum profit tax, excise duty, value added tax and manufacturing sector output.*

I. Introduction

Taxation is an essential tool of fiscal policy that helps to generate revenue to finance the activities of government and stimulate the development and growth of the economy. The manufacturing sector of the Nigerian economy is the main driving force of the developmental process. This is because no sustainable development can be achieved without viable manufacturing sector but a viable manufacturing sector cannot be achieved without an effective use of tax revenue to provide an enabling environment via good and quality infrastructures such as electricity, good roads for firms to thrive. Taxation is classified into two and this includes direct or indirect tax**.** Direct tax is

levied on individual's income, earnings, profits of corporate bodies and institutions and this includes petroleum profit tax, corporate income tax personal income tax, capital gain tax while that of indirect tax, the final consumers bear the ultimate burden such as value added tax , import and export duties.

In recent time, manufacturing companies in Nigeria have been experiencing a decline in performance of manufacturing sector output in Nigeria as a result of poor electricity supply, high rate of exchange, and illicit importation of foreign goods, trade liberalization and low government expenditure. According to Ogbuagu, & Ewubare, (2017) poor implementation of budget by the government and hindrance in assessing raw materials will continuously lead to the poor performance or turn-over in the manufacturing sector. In addition, high rate of interest had negatively affected the level of growth of the manufacturing sector and it is also the reason for high cost of production of the manufacturing companies in the country (Adebiyi and Babatope, 2004; Rasheed, 2010). Adewuyi (2006) maintained that the decrease in the output of the manufacturing sub-sector was caused by high tax and interest rates, lack of effective utilization of tax to provide infrastructures to make the sector viable, import dependency, low capacity utilization and low output. More so, taxation system in Nigeria had not been fully tapped and maximized and its role in promoting social economic activities is not felt because of its poor administration, irregularities and leakages in the tax system. Also, the dilapidated infrastructural facilities that led to under-industrialization (unreliable electricity, bad roads) of the economy in Nigeria was a result of low tax revenue generation. However, with the problems outlined above, this brought about the need to examine the effect of taxation on manufacturing sector output in Nigeria between 1980 – 2017. This is to determine the effect of corporate income tax, petroleum profit tax, value added tax and excise duty on the manufacturing sector in Nigeria.

Objective of the study

The main objective of this study is to examine the effect of taxation on manufacturing sector output in Nigeria. The specific objectives are to;

i. ascertain the effect of corporate tax on the manufacturing sector in Nigeria
ii. determine the effect of value added tax on the performance of the manufacturing sector within the country
iii. examine the impact of petroleum profit tax on the manufacturing sector in the country
v. evaluate the impact of excise duty on the manufacturing sector in Nigeria

Empirical Review:

In order for government to raise money for public purposes, taxes are imposed on property, Individual and profit of business organizations. In the opinion of Appah (2004), tax is a levy compulsorily imposed on citizens or people's properties by the government in order to provide security, basic social amenities needed for the wellbeing of the society. We can conclude that taxation is the transfer of financial resources from private economic players to public sector to ensure the infrastructural advancement of the society.

Literature however, showed that there have been much studies in taxation in relation to its impact in manufacturing sector output. Uwuigbe, Uwuigbe, Adeyemo and Anowai (2016). Examine the growth of output of manufacturing sector as it relates to tax incentive. They adopted the questionnaire based approach by employing a judgmental sampling techniques to generate data

from 20 small and medium scale manufacturing companies in Ogun State. The outcome was that 20 small and medium scale manufacturing companies in Ogun State were affected by the tax incentive and also an increase in tax incentives led to a corresponding increase in the performance and creation of new manufacturing companies in Nigeria. Arikpo, Ogar and Comelius (2017) observed the relationship between fiscal policy and output manufacturing sector in Nigeria from 1982 to 2014. They employed the method of Ordinary Least Square. Data on output of the manufacturing sector, government revenue and spending were used as variables for the model parameters. The study pointed out that an increase in government revenue has a positive impact on output of manufacturing sector in Nigeria within the time reviewed. Eze and Ogiji (2013) used method of Error Correction analysis to analyze the effect of fiscal policy as it affects the manufacturing sector locally between 1990-2010. They used government revenue and expenditure as the main explanatory variables while the dependent variable is the manufacturing sector output. The result showed that government expenditure has a significant positive impact on manufacturing sector output while government revenue has grossly negative impact on the production sector output. The profitability in Nigeria's production sub sector using Johnsen co-integration and Vector Error correction technique was explored by Rasheed (2010).

II. Methodology

Research Design

The quasi-experimental research design was used in analyzing the various data collected. This is because; the study is quantitative in nature and thus requires the use of time series data to determine the relationship between the independent and the dependent variables under consideration.

Sources of data

The data used for the study were basically secondary data obtained from Central Bank of Nigeria (CBN) statistical bulletin and National Bureau of statistics (NBS). Covering the period of 1980 to 2017.

Model Specification

This model establishes the relationship between dependent and independent variables and this is stated below:

MSO = f (CTX, VAT, PPT, ECT)

The linear form of the model is stated thus;

$$MSO = \beta_0 + \beta_1 CTX + \beta_2 VAT + \beta_3 PPT + \beta_4 ECT + U$$

Where;

MSO = Manufacturing sector output

CTX= Corporate income tax

VAT= Value added tax

PPT= Petroleum profit tax

ECT= Excise Duty

U = Error Term

t = Time Frame

β_0 = Intercept parameter
β_1-β_4 = slope parameters

Technique of Data Analysis

The study used descriptive statistics analysis, unit root test, Johansen co-integration test, parsimonious error correction model also post estimation test was carried out.

III. Result and Discussion

Table 1: Descriptive Statistics for Underlying Series

	MSO	CTX	PPT	VAT	ECT
Mean	2041.725	750203.9	5536434.	305564.9	149180.8
Median	667.0100	21939.15	278250.0	168800.0	60350.00
Std. Dev.	2837.170	1769594.	10798526	281763.8	162558.4
Skewness	1.477439	2.786553	1.669163	0.385227	0.666226
Kurtosis	3.803997	10.52621	3.896622	1.381752	1.906112
Jarque-Bera	14.84805	138.8637	18.91822	3.212324	4.705695
Probability	0.000597	0.000000	0.000078	0.200656	0.095098
Observations	38	38	38	24	38

Source: *An Extract from (E- view 9)*

From Table 1, it can be deduced from the analysis that the standard deviation of the variables was higher than the mean and does not converged around their respective means. The kurtosis test with positive and large values showed that all the series have large tail implying their distributions is higher than normal.

Table 2. Augmented Dickey Fuller Unit Root Test at First Difference

Variables	**ADF @ Level**	**5% Critical Value**	**Decision**	**ADF @ 1st Diff**	**5% Critical Value**	**Decision**
MSO	6.2517	-2.9484	Not stationary	-4.1905	-3.5403	Stationary 1(I)
CTX	-1.1392	-3.5577	Not stationary	-6.5451	-3.5875	Stationary 1(I)
PPT	4.7488	-3.5628	Not stationary	-8.1785	-3.5403	Stationary 1(I)

VAT	-2.4282	-3.6220	Not stationary	-6.0981	-3.6328	Stationary 1(I)
ECT	-2.4514	-3.5366	Not stationary	-8.1200	-3.5403	Stationary 1(I)

Source: *An Extract from (E- view 9)*

Table 2. revealed that the variables were stationery at first difference and integrated at first order.

Table 3. Johansen Co-Integration Test Result

Eigen value K=1, r=2	Trace Statistics	5% critical value	Prob. **	Hypothesis of CE(s)
0.999309	215.6821	69.81889	0.0000	None *
0.732338	55.57424	47.85613	0.0080	At most 1 *
0.598722	26.57759	29.79707	0.1124	At most 2
0.215160	6.489383	15.49471	0.6376	At most 3
0.051332	1.159323	3.841466	0.2816	At most 4

*Note: r=number of co-integrating vectors and k = number of lags in model. * rejection of the H_0*

Source: *An Extract from (E- view 9)*

The results of the Johansen test of co-integration in table 3 showed that the Trace statistics revealed the presence of two co-integrating equations in the model, since the computed values of the Trace test statistics were greater than their corresponding critical values at 5% level. Thus, the null hypothesis (H_0) of no co-integration among the variables was rejected and concludes that there exists a long run equilibrium relationship amongst the variables under consideration.
The finding conforms to the empirical works of Simon-Oke & Awoyemi (2010) as well as Ogbonna & Appah (2012) who affirmed that there is a long run link between taxation variables and the output of manufacturing sector.

Table 4. Parsimonious ECM

Dependent Variable: Manufacturing sector output (MSO)

Variables	Coefficients	t-statistics	t-table	Probability
C	0.110815	5.112655	2.0345	0.0001
DLOG(MSO(-1))	0.115507	0.832418	2.0345	0.4182
DLOG(MSO(-2))	-0.040561	-0.314223	2.0345	0.7577
DLOG(CTX)	0.028585	2.400769	2.0345	0.0298
DLOG(PPT)	0.023040	2.177824	2.0345	0.0458
DLOG(VAT)	-0.010024	-0.704974	2.0345	0.4916
DLOG(ECT)	0.020096	1.677160	2.0345	0.1142
ECM(-1)	-6.65E-05	-4.545215	2.0345	0.0004
R-Squared	0.7372	f-statistics	6.0130	Prob(F-statistic)
Durbin Watson	2.2415	f-table	3.1300	(0.001787)

Source: *An Extract from (E- view 9)*

The results of the parsimonious error correction model presented in Table 4. indicate that the lag one value of manufacturing sector output (MSO) is positively signed but not significant as a dependent variable. This implies that an increase in the lag one value of manufacturing sector output will cause a corresponding increase in current value of the manufacturing sector output which serves as the dependent variable.

The coefficient of ECM showed that the speed of adjustment is 0.00665%. Meaning that 0.00665% of the disturbance term in the short run is corrected each year. The R-squared (R^2) unit value of 0.7372 showed that the model is a good fit. Thus, 74% variation in the manufacturing sector output is explained by all the four explanatory variables. The Durbin Watson statistics value of 2.2415 is not too far from the bench mark of 2.0 and this suggested that the model is free from positive first order correlation. Therefore, the explanatory variables in the model are not serially correlated. The f-statistic shows the overall significant of all the independent variables having f-statistics value of 6.0130 greater than the f-table value of 3.1300 indicates that all the explanatory variables are significant in explaining the growth of manufacturing Sector output during the course of study.

At 5% level the coefficient of corporate income tax (CTX) is positively signed and statistically significant with manufacturing sector output (MSO) at 0.0285855%. Thus denoting that a percentage increase in corporate income tax will increase the manufacturing sector output sector by 0.028585%. The coefficient of value added tax (VAT) is negatively signed and statistically not significant with manufacturing sector output (MSO) at 5% level. This means that a percentage increase in value added tax will lead to a corresponding decrease in the manufacturing sector output by 0.010024%. The coefficient of excise duty tax (ECT) is positively signed and statistically significant with manufacturing sector output (MSO) at 5% level. Percentage rise in excise duty tax will lead to increase in the manufacturing sector output sector by 0.020096%.

Table 5. Post Estimation Tests

Test	Test Statistic	Prob. Value	Critical Prob
Serial Auto Correlation Test	Prob. Chi-Square(X^2)	0.0819	0.0500
Normality Test	Jacque-Bera	0.1760	0.0500
Stability Test	Ramsey Reset t-test	0.0208	0.0500
Wald Test	F-stat	0.0447	0.0500

Source: *An Extract from (E- view 9)*

The post estimation test focuses mainly on Serial correlation test, Normality tests, Stability test and Wald test were presented on Table 5. The estimated model showed that the p-value of chi-square is 0.0819 which is greater than 0.05 critical value. Thus, the model is free from serial autocorrelation problem Similarly, the normality test result showed that the p-value of the Jacque-Bera statistic is 0.176 and is greater than 0.05 critical value. Thus, the residual is normally distributed. Meanwhile, the stability test measured by Ramsey Reset t-test has the p-value of 0.0208 which is less than 0-05 critical value. Thus, it can be concluded that the model is stable. The Wald test result showed that the F-statistics probability value is 0.0447. Since the probability is less than 0.05 critical values, therefore, the independent variables in the estimated model are significant in explaining the performance of manufacturing sector output in Nigeria over the study period.

IV. Conclusion

The study concludes that taxation especially, petroleum profit tax, corporate tax and excise duty play a significant role in boosting the output of the manufacturing sector thereby enhancing growth in Nigeria's economy. But VAT is not effective in generating revenue to boost the output of the manufacturing sector, due to the non-taxing of some important aspect of GDP which include aggregate national income as well as aggregate national expenditure

The Study recommended that the tax regulatory body should implement policies that will reduce the administrative loop holes in regards to revenue generation in VAT and this should be closely monitored to ensure it contribute positively to the growth of the output of the manufacturing sector as well as the economy both in the long run and short run.

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