Fiscal Policy Instruments and Real Sector Output in Nigeria 1987 - 2021

[1]Nwajiaku, Eric Okwuchukwu; [2]Prof. Egungwu, Ikenna & [3]Ogini, Promise, PhD

[1]School of Financial Studies,
Federal Polytechnics Oko, Anambra State, Nigeria
Nwajiaku.eric@gmail.com

[2]Department of Banking and Finance,
Faculty of Management Sciences
Chukwuemeka Odumegwu Ojukwu University, Anambra, Nigeria
ikennaegungwu@yahoo.com/ ic.egungwu@coou.edu.ng

[3]Department of Banking and Finance,
Faculty of Management Sciences
Chukwuemeka Odumegwu Ojukwu University, Anambra, Nigeria
promiseoginik@gmail.com

ABSTRACT
Fiscal policy is the use of government spending and taxation to influence aggregate demand and the level of economic activities. The main objective of the study is to investigate the effect of fiscal policy instruments on manufacturing sector output in Nigeria. The specific objectives include to: determine the effect of recurrent expenditure on manufacturing sector output; examine the effect of capital expenditure, on manufacturing sector output in Nigeria; analyze the effect of taxation on manufacturing sector output; determine the effect of domestic debt on manufacturing sector output and to assess the effect of external debt on manufacturing sector output. Both conceptual, theoretical and empirical literature were reviewed. The study adopted *ex-post facto* research design while secondary data were sourced from the CBN Statistical Bulletin. The study employed econometric techniques, such as Descriptive Statistics, Augmented Dickey Fuller Tests for Unit Roots, the Autoregressive Distributive Lag (ARDL) and the Diagnostics Tests to determine the reliability of the models and results obtained. The Diagnostics analyses carried out are the Normality Test, Serial Correlation, Multicolinearity Test, Heteroskedasticity, and Ramsey RESET Tests. Our findings revealed that recurrent expenditure, capital expenditure, taxation, domestic debt, external debt have significant short run effect but no significant long run effects on manufacturing sector output. This suggests that fiscal policy instruments have not been an effective long run policy instruments that can largely influence the manufacturing sector output in Nigeria. The study therefore concludes that fiscal policy instruments have been an effective short run policy instruments that largely influenced the manufacturing sector output in Nigeria. Amongst the recommendations is that government should increase its spending on roads and other infrastructural facilities in other to promote the manufacturing sector output in Nigeria. Government spending should be channeled to capital projects and social overhead capital that will encourage the manufacturing sector output in Nigeria. Borrowing should be contemplated only if it is designed to improve the manufacturing sector output and the amount of debt to borrow should be sustainable to reduce the pressure exerted by its servicing requirements to

promote the manufacturing sector output in Nigeria. The study contributed to knowledge by introducing more variables, leading to adoption of many models and also extending the geographical scope

Keywords: Fiscal Policy Instruments, Real Sector Output, Nigeria

INTRODUCTION

The real sector is a major segment of the economy because activities in the sector influence economic productivity. It is constituted by economic agents that contribute to a nation's Gross Domestic Product (GDP). The sector is crucial for economic sustainability due to its productive capacity to meet aggregate demand in the economy. The Central Bank of Nigeria (CBN) classifies the real sector in Nigeria into agricultural, industrial, building and construction, wholesale and retail trade and services sectors. The aggregation of production output from these sectors reflects the growth level in the Nigerian economy and can be used as a yardstick to judge economic performance (Adedoyin & Ernest, 2018).

Fiscal policy is the use of government spending and taxation to influence aggregate demand and the level of economic activities (Alimi, Yinusa, Akintoye and Aworinde, 2016). Ikeora (2007) defines fiscal policy as the policy of the government which is usually effected through the manipulation of government revenue and expenditure. These are in the form of taxation, government budget (revenue and expenditure), subsidy, planning and direct government investment. The purpose is to influence economic activities in order to achieve desirable rational objectives.

These objectives are price stability, income redistribution, employment generation, balance of payment, exchange rate stability and promotion of economic growth and development. The use of government revenue and expenditure to influence macroeconomic variables developed as a result of the Great Depression (1929-1930) when the previous laissez-faire approach to economic management became discredited.

The British economist, John Magard, Keynes spearheaded the revolution in economic thinking that overturned the prevailing idea that free markets would automatically provide full employment. The main plank of Keynes theory is the assertion that aggregate demand is the most important driving force in an economy that free markets have no balancing mechanisms that led to full employment and that inadequate overall demand could lead to prolonged periods of high unemployment. Keynes advocated counter cyclical fiscal policies that act against the direction of the business cycle. He advocates fiscal spending on labour intensive infrastructure projects to stimulate employment and stabilize wages, raise taxes to cool the economy and prevent inflation. Keynes argued that governments should solve problems in the short-run rather than wait for the market forces to fix things over the long run because as he put it, "in the long run, we are all dead".

Fiscal policy can be both expansionary and restrictive. Fiscal and monetary policies are the key strategies used by a country's government and Central Bank to advance its economic objectives. While fiscal policy deals with taxation, government spending, subsidy, debt, and budget and are often administered by a government department, monetary policy deals with bank credit, interest rates but both policies influence a country's economic performance. Nigeria has in the last one decade experienced economic growth but the growth has not been all inclusive. The author averred that the major drivers have been the agricultural and service sectors. The use of fiscal policy tools as a measure of achieving growth in the GDP and macroeconomic stability before and after the introduction of the Structural Adjustment Programme (SAP) has not rendered a significant success in Nigeria. This is partly due to the fact that Nigeria's macroeconomic policies have been consistently inconsistent over the past decades (Ugwuayi & Ugwunta, 2017). It is against this background that this study attempts to investigate the effect of fiscal policy instruments on real sector in Nigeria between 1987 and 2021.

Statement of the Problem

Market mechanism cannot solely perform all the economic functions in a country; and as such fiscal policy is required to correct, guide and supplement market forces. Government therefore uses fiscal policies as the mechanism to correct market imperfections and failure. In Nigeria, government at various times had used fiscal policy to manage the economy with a view to achieving desired macroeconomic objectives such as promoting employment generation, ensuring economic stability, maintaining price

stability and balance of payment viability, ensuring exchange rate stability and maintaining stable economic growth (Ugwuayi & Ugwunta, 2017).

Previous attempts to understand the effect of fiscal policy on manufacturing sector output have resulted in conflicting opinions. The existing studies disagreed both in the line of significance and direction of relationship. A number of findings suggest significant influence from fiscal policy especially the moderating effect of capital and recurrent expenditure (Miftahu & Rosni, 2017; Morakinyo, David and Alao, 2018; Apere 2017; Cordilia and Amah, 2018; Alimi, Yinusa, Akintoye and Aworinde, 2016). Despite agreeing that manufacturing sector output responds to fiscal policy instruments, these studies are at variance as to the direction of the effect. This conflict suggests that it may not be enough to employ fiscal policy instruments for manufacturing sector output. For instance, Cyril, (2016) Ugwuayi and Ugwunta, (2017) and Egbulonu and Amadi (2016) averred that all the fiscal policy instruments they employed in their studies have a negative effect on manufacturing sector output in both the long and short run which implies that capital expenditure, recurrent expenditure and taxation will have negative effect on manufacturing sector output; as against the belief from studies like Morakinyo, (2018) Sikiru and Aminu, (2015) Yakubu and Shehu, (2013), which found that fiscal policy instruments promote real sector. Osinowo, (2015) Shuaib, Augustine, & Frank, (2015), found that capital expenditure, recurrent expenditure and taxation are not statistically significant tools for enhancing manufacturing sector output.

Different analytical techniques were employed by some of the authors who carried out research in this area. This has contributed to the different results obtained and the conflicts arising there from. These shortcomings have created a knowledge gap in the literature. It attempted to distinguish between long and short run effects of the variables in the model and determine the causalities among the variables used in the study

Review of Related Literature
Conceptual Review
Fiscal Policy
Abdurrauf (2015), defines fiscal policy as the process of government management of the economy through the manipulation of its income and expenditure and to achieve certain desired macroeconomic objectives. The Central Bank of Nigeria (2011) defined fiscal policy as the use of government expenditure and revenue collection through tax and amount of government spending to influence the economy.

Fiscal policy is the means by which the government adjusts its level of spending in order to monitor and influence the nation's economy (Agu, & Idike, 2014). It is used along with the monetary policy which the central bank uses to influence money supply in a nation. In other words, fiscal policy is a major economic stabilization weapon that involves measures taken to regulate and control the volume, cost and availability as well as direction of money in an economy to achieve some specified macroeconomic policy objective and to counteract undesirable trends in the Nigerian economy (Abdurrauf, 2015).

Agu, Idike, Okwor and Ugwunta (2014) defined fiscal policy as government's program with respect to the purchase of goods and services and spending on the transfer of payments, and as well the amount and type of taxes. In finance, fiscal policy is the use of government revenue collection (taxation) and expenditure (spending) to influence the economy. The two main instruments of fiscal policy are government taxation and expenditure. Changes in the level and composition of taxation and government spending can affect aggregate demand and the level of economic activity; the pattern of resource allocation; and the distribution of income (Oka & Anthony, 2017). This implies that Fiscal policy refers to use of the government budget to influence economic activities. Anthony and Chukwu (2015) contend that fiscal policy involves the use of government spending, taxation and borrowing to affect the level and growth of aggregate demand, output and jobs creation. It is the government spending policies that influence macroeconomic conditions. These policies affect tax rates, interest rates and government spending, in an effort to control the economy. Fiscal policy is the means by which a government adjusts its levels of spending in order to monitor and influence a nation's economy.

Various researchers have submitted that fiscal policy goals include the following: increasing employment opportunities; attaining full employment; stabilization of domestic prices; promoting economic growth

and development through industrialization; achieving equity in income redistribution; achieving stable exchange rate; and increasing the rate of investment in the country (Arin, Braunfels & Doppelhofer, 2015).

The term fiscal policy has conventionally been associated with the use of taxation and public expenditure to influence the level of economic activities. The implementation of fiscal policy is essentially routed through government's budget. The budget is, therefore, more than a plan for administering the government sector. Taxation and public expenditure reflects and shapes a country's economic life. In fact, the most important aspect of a public budget is its use as a tool in the management of a nation's economy (Adedoyin, & Ernest, 2018).

Capital Expenditure

Capital expenditure refers to the amount spent in the acquisition of fixed (productive) assets (whose useful life extends beyond the accounting or fiscal year), as well as expenditure incurred in the upgrade and improvement of existing fixed assets such as lands, building, roads, machines and equipment, etc., including intangible assets. Expenditure in research also falls within this component of government expenditure. Capital expenditure is usually seen as expenditure creating future benefits, as there could be some lags between when it is incurred and when it takes effect on the economy (Okafor, 2012).

One way capital expenditure impacts on economic growth is the creation of employment. The multi-hydra problem of unemployment in the economy is reduced to the barest minimum. Another way it causes economic growth is the re-allocation of resources to every sector of the economy. Resources are moved from the surplus areas to the deficit areas where they are needed with, thus opening up vast opportunities which will improve the citizens of the country (Ogar, Arikpo & Suleiman, 2019).

Federal expenditure in Nigeria is classified into expenditures in government functions such as administration, social and community services, economic services and transfers. Expenditure on administration includes general administration, defense, internal security and national assembly. Expenditures on social and community services include those on education, health and other social and community services. Expenditures on economic services include those on agriculture, construction, transport and communication and other economic services. Government transfers include public debt servicing, pensions and gratuities, contingencies/subventions, etc. (CBN Statistical Bulletin, 2011).

Recurrent Expenditure

Recurrent expenditure on the other hand refers to expenditure on Purchase of goods and services, wages and salaries, operations as well as current grants and subsidies (usually classified as transfer payments). Recurrent expenditure, excluding transfer payments, is also referred to as government final consumption expenditure. Recurrent expenditures are those incurred on either day to day basis, or weekly, monthly, or even yearly basis and they include administration, internal security expenses, wages and salaries of public workers (Nwaeze, Njoku & Nwaeze, 2014).

 Recurrent expenditures associated with a public investment projects are those operations and maintenance expenditures needed to run the project at a level consistent with its expected use, and to maintain the capacity of the investment during its expected lifetime. For example recurrent expenditures in the case of a new school serving an expanded student population would include the teachers' salaries and additional textbooks and teaching materials required to operate the new facility. They would also include electricity, heating and other costs needed to operate the facility, and the regular and periodic maintenance needed to maintain the facility. Importantly, recurrent expenditures should reflect full capacity utilization of the facility that is, the recurrent expenditures expected when the investment is being used as designed.

Recurrent expenditures will be both direct and indirect. Clearly, increasing the number of teachers to staff additional classrooms is a direct cost of investment in improved access to education. Teacher training to supply the necessary teachers may be an indirect cost – unless explicitly provided for as part of the investment project. If possible, indirect recurrent expenditures should be referenced in public investment proposals (Oka & Anthony 2017).

Taxation
Taxation is an instrument employed by the government for generating public funds. It is a required payment imposed by the government on the income, profit or wealth of individuals, group of persons, and corporate organizations (Okoli & Matthew, 2015). Piana (2003) opines that it is a result of the application of tax rate to a tax base. According to Oka, (2017) a well-designed tax system can help governments in developing countries prioritize their spending, build stable institutions, and improve democratic accountability. The main purpose of a tax is to enable public sector finance activities so as to achieve some nation's economic and social goals. It can also be for the purpose of redistribution of wealth to ensure social justice. Therefore, taxes can be used as an instrument for achieving both micro and macroeconomic objectives especially in developing countries such as Nigeria. The dwindling level of tax revenue generation in the developing countries makes it difficult to use tax as an instrument of fiscal policy for the achievement of economic development. Some governments like Canada, United States, Netherland, and The United Kingdom have substantially influenced their economic development through tax revenue generated from Company Income Tax, Value Added Tax, and Personal Income Tax, and have prospered through tax revenue. In Africa, natural resources such as income from production sharing, royalties, and corporate income tax on oil and mining companies yield the significant portion of tax revenue (Okoye & Ezejiofor, 2014).

External Debt
Debt is derived from Latin word "debere" meaning to owe. Debt has been conceptualized as resources of money used in an organization which is not contributed by its owners and does not in any other way belong to the shareholders. Okoh, (2015) noted that there are two types of debts: domestic debt and external debt. Ogunbiyi and Okunlola, (2015) asserts that when government borrows, the debt is public debt. Public debts may be domestic (internal) or external. Domestic debt is debt incurred by government through borrowing from within the country, while external debt refers to the portion of a country's debt that was borrowed from foreign lenders including commercial banks, governments or international financial institutions.

The focus of this study is on external debt which refers to that part of a nation's debt that is owed to creditors outside the nation. Arnone, Bandiera and Presbiterio (2005) define external debt as that portion of a country's debt that is acquired from foreign sources such as foreign corporations, government or financial institutions. According to Ogbeifin (2007), external debt arises as a result of the gap between domestic savings and investment. As the gap widens, debt accumulates and this makes the country to continually borrow in increasing amounts in order to stay afloat.

Domestic Debts
Debt refers to the resources of money in use in an organization, which is not contributed by its owners and does not in any way belong to them (Oyejide et al, 1985). Debt according to Ogbeifin (2007) is generated by the gap between domestic saving and investment, which can increase in absolute terms over time. As the gap widens and the debt accumulates, interest rates also accumulate and the country must borrow increasing amounts just to maintain a constant flow of net imports. It must also borrow to re-finance maturing debt obligations Debt can be classified as domestic and external. Since the focus of this paper is on external indebtedness of the nation, Nigeria external debt is therefore defined as, debt owned by the public and private sectors of the Nigerian economy to non residents/citizens and payable in foreign currency, goods and services (Ogbeifun, 2007).

External debt is one of methods through which countries finance their deficits and carry out economic projects that are capable of increasing peoples' standard of living and promote sustainable economic development. It is an important resource needed to support sustainable economic growth (Audu, 2004).

Manufacturing Sector Output
Manufacturing sector refers to those industries which are involved in the manufacturing and processing of items and indulge in either creation of new commodities or in value addition (Torlagh, 2013). The manufacturing sector industry played a significant role in the transformation of the economy for example; it is an avenue for increasing productivity related to import replacement and export expansion, creating foreign exchange earning capacity; and raising employment and per capital income which causes unique

consumption patterns. Furthermore, Osakwe, Ibenta and Ezeabasili, (2019) opines that manufacturing sector creates investment capital at a faster rate than any other sector of the economy while promoting wider and more effective linkages among different sectors. Acknowledge this benefit of this sector; the Nigerian government has introduced various strategies to improve the sector such as import substitution strategy, export promotion strategy, the introduction of bank of industry to induced credit facility to the sector and the National Economic Empowerment and Development Strategy (NEEDS).

According to Eze, and ogiji, (2013), manufacturing sector accounts for a significant share of the industrial sector in developed countries. The final products can either serve as finished goods for sale to customers or as intermediate goods used in the production process.

Manufacturing sector as seen by (Loto, 2012) refers to an avenue for increasing productivity in relation to import replacement and export expansion, creating foreign exchange earning capacity, raising employment and per capital income which causes unrepeatable consumption pattern.

Loto (2012) revealed that the Structural Adjustment Programme (SAP) introduced in May 1986 was partly designed to revitalize the manufacturing sector by shifting emphasis to increased domestic sourcing of inputs through monetary and fiscal incentives. The deregulation of the foreign exchange market was also effected to make non-oil exports especially manufacturing sector more competitive even though, this also resulted in massive escalation in input costs. Examining the manufacturing sector over the years in Nigerian economy shows that the share of the manufacturing sector in the gross domestic product has not been impressive. The manufacturing sector contributes 34.94% to gross domestic product in 1986 after the structural adjustment programme. By 1990 and 1995 it decline to 22.84% and 10.17% respectively. The contribution of the Nigerian manufacturing sector to Gross domestic product is very insignificant between 1996 to2012. The year 2000, 2005 and 2012 recorded 6.97%, 2.80% and 1.88% respectively (Osakwe, Ibenta & Ezeabasili, 2019).

Theoretical Framework

This study will be anchored on the endogenous growth theory, which advocates the stimulation of level and growth rate of gross domestic income within the model using fiscal policy (e.g., government spending). The traditional neoclassical growth model assumes that output is a function of capital and labor, while technology is given: $Y = Af(K, L)$, (1) where Y = output, A is technology, being exogenous, while capital (K) and labor (L) are endogenous factors. In the New Growth Model (Endogenous Growth Model) technology is viewed as endogenously determined: $Y = f(K, L, A)$. (2) Technology (A) refers to rate of investment, (K) is the investment in capital stock and (L) is the human capital. This model envisages greater role of government in improving the efficiency or resource allocation and promoting investment to raise the rate of economic growth in the developing countries (Ahuja, 2009). The government can directly make adequate investment in economic infrastructure such as power, communication, roads, and highways and in human capital, which promote private investment and generate increasing returns to scale. Though, in many respects, endogenous growth is a mere extension of the neoclassical theory of growth. It, however, makes a departure from the neoclassical policy of free market and passive role of government. More specifically, models of the growth effects of fiscal policy are usually built on the basis of Barro and Sala-i-artin (1992) framework. This study draws inspiration from these studies by employing a production function in which government expenditure and taxation enter as inputs. The choice of this framework is owed to its simplicity in application and availability of time series data in Nigeria.

Empirical Review

Israel (2019) examined the Impact of fiscal policy on the manufacturing sector of the Nigerian Economy from 1980 to 2017. The model for the study comprises of Index of manufacturing sector as endogenous variable and proxy by IMS and exogenous variables were; Government Expenditure (GEXP), Company Income Tax rate (CITR) and Federal Government Domestic debt Outstanding (FDDO). Annual time series data were gathered from the Central Bank of Nigeria Statistical Bulletins from 1980 to 2017. The techniques used for analysis are the Ordinary Least Square Techniques tested at the 5% level of

significance. The econometric techniques of Ordinary Least Squares (OLS) results reveal that the government expenditure (GEX) and Company Income Tax Rate (CITR) have positive relationship with the Index of Manufacturing Sector (IMS) while Federal Government Domestic Debt Outstanding (FDDO) has negative linear relationship with the Index of Manufacturing Sector (IMS)

Eze, and Ogiji (2018) analyzed the impact of fiscal policy on the manufacturing sector output in Nigeria. Empirical evidence from the developed and developing economies has shown that fiscal and monetary policies have the capacity to influence the entire economy if it is well managed. An ex-post facto design (quantitative research design) was used to carry out this study. The results of the study indicate that government expenditure significantly affect manufacturing sector output based on the magnitude and the level of significance of the coefficient and p-value and there is a long-run relationship between fiscal policy and manufacturing sector output. The implication of this finding is that if government did not increase public expenditure and its implementation, Nigerian manufacturing sector output will not generate a corresponding increase in the growth of Nigerian economy

Sunday, Nwanne., Basil, Ugwu and Festus (2019) examined the effect of fiscal policy on real sector growth in Nigeria focusing on government capital expenditure and its effect on the growth of the agricultural sector in Nigeria. The study adopted the ex-post facto research design and regression analysis as methodology using ARDL. Descriptive statistics and graphs were also used to complement the regression result. The result from the study found that there is a significant and positive effect of government capital expenditure on the growth of the agricultural sector in Nigeria. The implication of the study is that fiscal policy through government capital expenditure will increase the agricultural sector growth and thereby increases its contributions to the growth of the economy. This means that when there is enough revenue, the government only spends more money on infrastructural development that can help the agriculture sectors to grow by having access to good road and electricity. The result is an indication that government capital spending in Nigeria has been able to spur the economic growth of Nigeria through agricultural sector output

Hammed (2018) examined the influence of government corporate tax policy on the performance of 54 randomly selected listed companies that cut across 17 categories of non-financial in Nigeria over a period of 1990-2002. Using Generalised Method of Moment (GMM) and contrary to the expectation, the study found positive1 relationship between corporate tax policy and the output performance of quoted manufacturing firms in Nigeria. This may be an indication that government revenue from corporate tax was judiciously expended on productive government expenditure most especially in Lagos State as virtually all the selected manufacturing firms have their main base in Lagos State

Adeyemi, Obinna, and Ebenezer (2019) investigated the effect of fiscal and monetary policy on the manufacturing sector output in Nigeria using a quarterly data from 1981 to 2015 employing the structural vector autoregressive (SVAR) framework. An eight variable SVAR for manufacturing sector output was employed. The short-run SVAR showed that only monetary policy rate and money supply conformed to theory. The impulse response functions showed that all monetary variables as well as other variables with the exception of government expenditure conformed to economic theory. One major finding of the study is that the lending interest rate accounted for the biggest variance in the manufacturing contribution to gross domestic product as shown by the forecast error variance decomposition

METHODOLOGY
Research Design
The study adopted the *ex-post facto* research design because the data to be sourced from Central Bank of Nigeria (CBN), are already documented isolated from any form of manipulation, manufacturing sector output is the dependent variable. The explanatory variables (X) represent the tools of fiscal policy which include taxation, capital, recurrent expenditure domestic debt and external debt to be expressed as a percentage of real GDP
Model Specification
The model which was adopted for objective two is the model of Israel (2019) who examined the impact of fiscal policy on the manufacturing sector of Nigeria

The Model is stated thus:
MOT= f (RCE, CPE, TAX, EXD)
Where:
MOT= Manufacturing Sector Output
RCE = Recurrent Expenditure
CPE = Capital Expenditure
TAX= Taxation
EXD= External Debt
The model was adapted and modified by the introduction of domestic debt
MOT= f (RCE, CPE, TAX, EXD, DD)
The Econometric Equation Form of the Model is:
$$MOT = \beta_0 + \beta_1 RCE + \beta_2 CPE + \beta_3 TAX + \beta_4 EXD + \beta_5 DD + \mu \text{ --- ---- ---- --- ---2}$$
Where:
MOT= Manufacturing Sector Output
RCE = Recurrent Expenditure
CPE = Capital Expenditure
TAX= Taxation
EXD= External Debt
DD= Domestic Debt

Method of Analyses
Data for the study were subjected to preliminary test to confirm the behavior of the data set. The data were analyzed with econometric techniques involving Descriptive Statistics, Augmented Dickey Fuller Tests for Unit Roots. The Autoregressive Distributive Lag (ARDL) Approach which is capable of handling both stationary at level I(0) and first difference I(1) or will be used for the data analysis
Data Analysis
Descriptive Statistics
Descriptive statistics were introductory analyses that explained the normality of the variables used for the analyses. The statistics include the mean, median, minimum and maximum, standard deviation and Jacque Bera tests. Mean is the average value of the series, obtained by adding up the series and dividing by the number of observations. Median is the middle value (or average of the two middle values) of the series when the values are ordered from the smallest to the largest. The median is a robust measure of the centre of the distribution that is less sensitive to outliers than the mean.
Maximum and Minimum are the maximum and minimum values of the series in the current sample. Std Dev. (standard deviation) is a measure of dispersion or spread in the series. Skewness is a measure of asymmetry of the distribution of the series around its mean. Kurtosis measures the peakiness or flatness of the distribution of the series. If the kurtosis exceeds 3, the distribution is peaked (leptokurtic) relative to the normal; if the kurtosis is less than 3, the distribution is flat (platykurtic) relative to the normal. Jarque-Bera is a test statistic for testing whether the series is normally distributed. The null hypothesis is that the variable is normally distributed.

Decision Rule
Decision rule is to reject when p. value is less than 0.05 level of significance

4.3.1 Descriptive Statistics

These measures the individual characteristics of the variables used in this study. The result of the descriptive statistics is presented in Table 1

Table 1: Descriptive Statistics for Fiscal Policy Instruments on Manufacturing Sector Output in Nigeria

	MOT	CPE	RCE	DD	EXD	TAX
Mean	2044.157	334.9596	758.1421	6812.361	1622.909	705.9038
Median	1714.670	240.5700	445.6300	677.8200	640.9750	313.8800
Maximum	3578.640	1152.800	3525.100	142772.6	6171.320	3109.440
Minimum	1398.100	6.370000	15.65000	36.79000	100.7900	15.65000
Std. Dev.	672.9408	329.4416	909.0833	28971.42	1776.529	846.6242
Skewness	1.132505	1.009978	1.520537	4.581128	1.173264	1.310657
Kurtosis	2.945748	3.086196	4.808683	22.00718	3.104152	3.914728
Jarque-Bera	4.628624	2.439439	16.87243	5.894738	8.472675	3.244785
Probability	0.298834	0.295313	0.425313	0.514460	0.197426	.0.15247
Sum	49059.77	8039.030	18195.41	163496.7	38949.81	16941.69
Sum Sq. Dev.	10415533	2496231.	19007948	1.939210	72589276	16485767
Observations	**34**	**34**	**34**	**34**	**34**	**34**

The descriptive statistics showed the mean and standard deviation. The mean is the average value of each variable over the years while the standard deviation shows the variability of the values. The descriptive statistics also showed the maximum and minimum values. The Jarque-Bera statistics is the test of normality of the time series variables.

The results of the descriptive statistics showed that manufacturing sector output (MOT) had a mean of 2044.157 and standard deviation of 672.9408 with minimum and maximum values 1398.100 and 3578.640 respectively

Capital Expenditure (CPE) had a mean of 334.9596 with standard deviation of 329.4416 with minimum and maximum values of 6.370000 and 1152.800 respectively

Recurrent Expenditure (RCE) had a mean of 758.1421 with standard deviation of 909.0833 with minimum and maximum values of 15.65000 and 3525.100 respectively

Taxation (TAX) had a mean of 705.9038 with standard deviation of 846.6242 with minimum and maximum values of 15.65000 and 3109.440 respectively

Domestic Debt (DD) had a mean of 6812.361 with standard deviation of 28971.42 with minimum and maximum values of 36.79000 and 142772.6 respectively

External Debt (EXD) had a mean of 1622.909 with standard deviation of 1776.529 with minimum and maximum values of 100.7900 and 6171.320 respectively

Unit Root

Table 2 Summary of the Unit Root Result

Variables	At Level 1(0)	At First Difference 1(1)	Order of Integration	Probability
RCE	-4.839292		1(0)	0.0112
CPE	-4.595801		1(0)	0.0016
TAX	-5.814004		1(0)	0.0022
DD	-4.340303		1(0)	0.0048
EXD	-3.718454		1(0)	0.0127
MOT		-5.193801	1(1)	0.0002

Source: Eviews 9.0

The result of the study indicate that Recurrent Expenditure, Capital Expenditure, Taxation, Domestic Debt, External were stationary at 5% level [1(0)] while Manufacturing Sector Output, was stationarity at first difference [1(1)].

From the analyses of stationarity of the variables, it was seen that the variables have mixed stationarity of level and first differences. The Autoregressive Distributive Lag (ARDL) approach which is capable of handling both stationary at level I(0) and first difference I(1) was used for the data analysis. Thus, the most suitable tool of analyses is the ARDL test that accommodates both the short and long run trends in testing the relationship between the dependent and independent variables.

Effects of Fiscal Policy Instruments on Manufacturing Output in Nigeria

ARDL (Bounds) Test for Cointegration

Table 3. Result of the ARDL (Bounds) Test for Fiscal Policy Instruments and Manufacturing Output Model

ARDL Bounds Test
Date: 03/25/22   Time: 17:05
Sample: 1987 2021
Included observations: 34
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	2.181826	6

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.82	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.65	4.43

Source: Eviews 9.0

The bound test is shown in Table 4.7. The result compared the F-statistics with the critical bound values. The F-statistics of 2.181826 showed that the F-statistic is less than the lower bounds at 2.45 and upper bounds at 3.61 of the critical values at 0.05 level of significance. This means that there is no cointegration or long run relationship between fiscal policy instruments and manufacturing output in Nigeria

Short Run Relationship
Table 4: Short Run Model of the Relationship Between Fiscal Policy Instruments and Manufacturing Output In Nigeria

Test Equation:
Dependent Variable: D(MOT)
Method: Least Squares
Date: 03/25/22   Time: 17:05
Sample: 1987 2021
Included observations: 34

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(MOT(-1))	1.729197	0.150139	4.188924	0.0020
D(MOT(-2))	0.294608	0.197117	2.494586	0.0354
D(MOT(-3))	-0.717502	0.150930	1.253868	0.1320
D(RCE)	0.000452	0.000287	1.574070	0.3603
D(RCE(-1))	-0.002870	0.000467	0.147190	0.1027
D(RCE(-2))	0.000465	0.000303	1.532619	0.3680
D(CPE)	7.328609	17.09379	3.428729	0.0022
D(CEP(-1))	31.72812	19.43470	2.632550	0.0049
D(CEP(-2))	-3.556998	12.88294	-0.276101	0.8285
D(TAX)	-0.694296	4.188000	-0.165782	0.8954
D(TAX(-1))	6.757826	4.746836	1.423648	0.3898
D(TAX(-2))	6.539968	3.802973	1.719699	0.3353
D(DD)	0.384300	0.151523	2.53248	0.0191
D(DD(-1))	2.430015	0.323754	7.50539	0.0843
D(DD(-2))	0.788349	0.172149	4.57942	0.1369
D(EXD)	-1.577581	0.138787	1.36694	0.5371
D(EXD(-1))	-1.879746	0.185741	1.12023	0.7224
D(EXD(-2))	-1.713830	0.310252	-1.52390	0.1140
C	10.11870	536.0992	0.018875	0.9880
RCE(-1)	-0.002744	0.000834	-3.290595	0.1878
CEP(-1)	14.79284	15.45837	0.956946	0.5140
TAX(-1)	-8.030840	7.756200	-1.035409	0.4889
DD(-1)	2.260335	0.360622	-6.267878	0.1007
EXD(-1)	3.549005	0.378985	9.364510	0.0677
MOT(-1)	0.559164	0.080873	6.914082	0.0914

R-squared	0.769959	Mean dependent var		3782.073
Adjusted R-squared	0.728814	S.D. dependent var		3665.450
S.E. of regression	126.2249	Akaike info criterion		11.04614
Sum squared resid	15932.74	Schwarz criterion		12.40063
Log likelihood	-136.6922	Hannan-Quinn criter.		11.47946
F-statistic	8.733464	Durbin-Watson stat		2.552776
Prob(F-statistic)	0.002754			

Source: Eviews 9.0

Manufacturing Sector Output (MOT): The results showed that the coefficient of manufacturing sector output at first year is positive at 1.729197 and after one year is 0.294608 with t-Statistic of 4.188924 and 2.494586 with probability value of 0.0020 and 0.0354 showing that manufacturing sector output is an endogenous variable in the short run

Recurrent Expenditure (RCE): The coefficient of recurrent expenditure in the first year is positive at 0.000452 and after one year, it becomes negative at -0.002870 with t-Statistic of 1.574070 and 0.147190 with probability value of 0.3603 and 0.1027 showing that recurrent expenditure has no significant effect on manufacturing sector output in the short run

Capital Expenditure (CEP): The coefficient of capital expenditure in the first year is positive at 7.328609 and after one year is positive at 31.72812 with t-Statistic of 3.428729 and 2.632550 and probability value of 0.0022 and 0.0049 this shows that capital expenditure has significant effect on manufacturing sector output in the short run

Taxation (TAX): The coefficient taxation in the first year is negative at -0.694296 and after one year is positive at 6.757826 with t-Statistic of -0.165782 and 1.423648 and probability value of 0.8954 and 0.3898 this indicate that taxation has no significant effect on manufacturing sector output in the short run

Domestic Debt (DD): The coefficient of domestic debt in the first year is positive at 0.384300 and after one year is positive at 2.430015 with t-Statistic of 2.536248 and 5.505739 and probability value of 0.0191 and 0.0403 showing that domestic debt has significant positive effect on manufacturing sector output in the short run

External Debt (EXD): The coefficient of external debt in the first year is negative at 1.577581 and after one year is negative at 1.879746 with t-Statistic of 1.36694 and 1.12023 and probability value of 0.5371 and 0.7224; this means that of external debt has insignificant and negative effect on manufacturing sector in the short run

The R^2 as adjusted is 0.728814 or 72% which shows that fiscal policy variables jointly explained about 73% variations in the dependent variables (Manufacturing Output) in Nigeria

Normality Test

The models are examined for normal distribution. The Jarque-Bera (JB) statistics is used to test for the normality of the models. The null hypothesis is that the models are normally distributed. The decision rule is to reject the null hypothesis if the p.value is less than 0.05 level of significance

Table 5: Normality Test of the Models in the Study

Models	Jarque-Bera statistic	P-value
MOT	4.628624	0.298834
RCE	16.87243	0.425313
TAX	3.244785	0.152478
DD	45.894738	0.514460
EXD	8.472675	0.197426
CPE	2.439439	0.295313

Source: Extract from E-views Results

The models are examined for normal distribution. The Jarque-Bera (JB) statistics is used to test for the normality of the models. The null hypothesis is that the models are normally distributed. The decision rule is to reject the null hypothesis if the p.value is less than 0.05 level of significance. The P.values of the JB for MOT, RCE, CPE, TAX, DD and EXD. Since the p.values are greater than 0.05, the study cannot reject the null hypothesis that the model is normally distributed.

Serial Correlation Test

This test investigates whether there is a correlation between one time period and another over time in the time series used for the analyses. The presence of correlation of time periods will lead to serial correlation which will have huge effect on the reliability of model estimation. It may lead to high significant value, inefficient estimation, exaggerated goodness of fit and false coefficient of regression sign (positive or negative). The presence of serial correlation is tested using the Breusch-Godfrey Serial Correlation LM Test. The null hypothesis is no presence of serial correlation.

The Decision Rule: The decision rule is to reject the null hypothesis if the p. value is less than 0.05 level of significance. From result, the p. values of the models are greater than 0.05, which revealed that the models are not serially corrected at 5% level of significance.

Examine the Effect of Fiscal Policy Instruments on Manufacturing Output in Nigeria

Table 6: Serial Correlation Test for Fiscal Policy Instruments and Manufacturing Output

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.289596	Prob. F(2,17)	0.7522
Obs*R-squared	1.087271	Prob. Chi-Square(2)	0.5806

Source: Eviews 9.0

The results of the F-statistic are 0.289596 with probability value of 0.7522. Since the p.value is greater than 0.05, the study thus concludes that there is no serial correlation (of time series) in the model. This confirms that the nature of the relationship (negative or positive) as found in the estimation from the ARDL are correct and true of the model characteristics. As well, the significance values are correct as estimated. This implies that the result of the test of hypothesis from the Autoregressive Distributed Lag (ARDL) gives correct position of the effect of fiscal policy instruments on manufacturing output Model

Heteroskedasticity Test

The study also tested for heteroskedasticity in linear regression analysis. Presence of heteroskedasticity implies that the coefficients estimated from the regression analyses will be a biased one. Presence of heteroskedasticity means that there is an unequal error variance in the model from the data observations. The null hypothesis is that the residuals are homoscedastic and the alternate hypotheses are that the residuals are heteroscedastic.

The Decision Rule:

The decision rule is to reject the null hypothesis if the p.value is less than 0.05 level of significance. From result in Table 9, the p.values of the models is greater than 0.05, revealed that the models do not have homoscedastic at 5% level of significance.

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Table 7: Heteroskedasticity Test for Effect of Fiscal Policy Instruments and Manufacturing Output

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.499523	Prob. F(13,19)	0.2053
Obs*R-squared	16.71166	Prob. Chi-Square(13)	0.2128
Scaled explained SS	4.013744	Prob. Chi-Square(13)	0.9910

Source: Eviews 9.0

The F-statistic of the Breusch-Pagan-Godfrey result is 1.499523 with probability value of 0.2053. Since the probability value is greater than 0.05, we cannot reject the null hypothesis that the residuals are homoscedastic. Thus, we conclude that there is no heteroscedastic in the model. This confirms that the result obtained from the estimated model is not a biased value of the effect of fiscal policy instruments on manufacturing output model

Regression Specification Error Test (RESET Test)

This is to ensure that there is linear relationship in the regression model. The traditional OLS as well as the advanced ARDL regression employed in this study are based on the assumption of linear relationships. Thus, the presence of nonlinear relationship will produce unreliable regression results. The *Ramsey Reset test* is employed to identify the existence of any significant nonlinear relationships in the developed linear regression model. The null hypothesis is that there is non- linear relationship in the regression model.

The Decision Rule:

The decision rule is to reject the null hypothesis if the p.value is less than 0.05 level of significance.

The Effect of Fiscal Policy Instruments on Manufacturing Output in Nigeria
Table 8: Regression Specification Error Test (RESET Test): for Fiscal Policy Instruments and Manufacturing Output

Ramsey RESET Test
Equation: UNTITLED
Specification: MOT MOT(-1) MOT(-2) MOT(-3) RCE CPE TAX
      TAX(-1) TAX(-2) DD (-1) DD (-2) EXD C
Omitted Variables: Squares of fitted values

	Value	Df	Probability
t-statistic	3.761885	18	0.0014
F-statistic	14.15178	(1, 18)	0.4214

F-test summary:

	Sum of Sq.	Df	Mean Squares
Test SSR	7723718.	1	7723718.
Restricted SSR	17547709	19	923563.6
Unrestricted SSR	9823990.	18	545777.2

Source: Eviews 9.0
The Table 31 above showed that the F-statistics and the corresponding p.values of the Ramsey RESET Tests is 3.761885 and 0.0014 respectively. Since, the p. value is less than 0.05 level, we reject the null hypotheses of non-linear relationships in the models. This implies that the models are well specified and are good for the estimation of the model, fiscal policy instruments and manufacturing output in Nigeria. The results from this study is thus expected to be reliable

CONCLUSION
Our findings revealed that fiscal policy instruments have 72% significant short run policy effect but no significant long run effects on manufacturing output in Nigeria. The short run model reveals that manufacturing sector output is an endogenous variable in the short run in the short run. This suggests that fiscal policy instruments have not been an effective long run policy instruments that can largely influence the manufacturing sector output in Nigeria.
The study therefore concludes that fiscal policy instruments have been effective short run policy instruments that largely influenced manufacturing sector output in Nigeria

RECOMMENDATIONS
1. Government should increase its spending on roads and other infrastructural facilities in other to promote the manufacturing sector output in Nigeria.
2. Government spending should be channeled to capital projects and social overhead capital that will encourage the manufacturing sector output in Nigeria.
3. Borrowing should be contemplated only if it is designed to improve the manufacturing sector output and the amount of debt to borrow should be sustainable to reduce the pressure exerted by its servicing requirements so as to promote the real sector in Nigeria.
4. Government should rely more on taxation that have greater effects on investment in the real sector than borrowing.

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