

## Impact of Fiscal Policy Indicators on Non-Manufacturing Industrial Sector in Nigeria

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### Abstract

In Nigeria, government expenditure has continued to rise due to the huge receipts from the production and sales of crude oil, and the increased demand for public goods. Unfortunately, rising government expenditure has not translated to meaningful industrial growth and development. Therefore, the study examined the impact of fiscal policy on the non-manufacturing industrial sector in Nigeria from 1987 to 2022. The study adopted the ex post facto research design and secondary data were sourced from the Central Bank of Nigeria Statistical Bulletin December 2022. The study further adopted the Auto-regressive Distributed Lag (ARDL) approach to estimate the effect of fiscal policy indicators on non-manufacturing industrial output in Nigeria and the paper the study revealed that the government recurrent expenditures in Nigeria and oil taxation in Nigeria have a positive and significant effect on non-manufacturing output in Nigeria and though the non-oil taxation in Nigeria has a positive impact on manufacturing industrial output in Nigeria its effect was insignificant in improving the level of manufacturing industrial output in Nigeria while, government capital expenditures in Nigeria, public external debt in Nigeria and public domestic debt in Nigeria have a negative effect on manufacturing industrial output in Nigeria. Therefore, the government through the Federal Ministry of Finance and other related Agencies should design a mechanism to track the fiscal policy indicators in Nigeria to ensure that projects are industrially driven, especially the infrastructural projects for a massive increase in industrial output in Nigeria especially, the non-manufacturing industrial output in Nigeria.

**Keywords:** *Fiscal Policy, Non-Manufacturing, Expenditure, Taxation, Debt*

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### **Background to the Study**

One of the remarkable trends in contemporary history has been the importance of the growth of economic life. Any serious discussion of government is bound to raise the question of revenue and expenditure. Through appropriate tax, expenditure, and regulatory policies, the government seeks to attain certain objectives. One of the regulatory policies used by the government in achieving its objectives to bring about economic growth is fiscal policy. Fiscal policy is an outgrowth of Keynesian economics and its logical analysis suggests that it offers a sure-fire means of stabilizing the economy. The goal of modern fiscal policy is to achieve economic efficiency and stability. In a modern economy, no sphere of economic life is untouched by the government. Two major fiscal instruments or tools are used by the government to influence private economic activity; taxes and expenditure (Uche, 2012).

The intent of the fiscal policy is essential to stimulate economic and social development by pursuing a policy stance that ensures a sense of balance between taxation, expenditure, and borrowing that is consistent with sustainable growth. However, the extent to which fiscal policy engenders economic growth continues to attract theoretical and empirical debate among scholars, especially in developing countries. In Nigeria, government expenditure has continued to rise due to the huge receipts from the production and sales of crude oil, and the increased demand for public goods. Unfortunately, rising government expenditure has not translated to meaningful industrial growth and development, as Nigeria ranks among the poorest countries in the world (Okwo, 2010). In addition, many Nigerians have continued to wallow in abject poverty while so many live below the poverty line. Coupled with dilapidated infrastructure especially roads and power supply, that has led to the collapse of many industries, including a high level of unemployment.

The government can encourage the industrial sector by coordinating fiscal measures. All the blueprints and methods used to generate income, make expenditures, and repay debts in the process of governing the economy are referred to as fiscal policy (Geoff, 2012). 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 government expenditure. It can also be seen as government spending policies that influence macroeconomic conditions. Until the Great Depression of the 1930s, the importance of fiscal policy in promoting economic stability was understood only slowly and insufficiently (Bhatia, 2002). The Nigerian economy was reasonably stable throughout the 1950s - mid-1960s as it was built on agriculture, but in the early 1970s, the economy's pattern completely transitioned from agriculture to the oil and gas sub-sector, resulting in variations in Nigeria's investment climate. The Nigerian economy has been subjected to a variety of shocks and disruptions since the 1970s. Low manufacturing investment is another one of those impacts.

Despite many industrial policies and reforms, many emerging countries, including Nigeria, have failed to attain industrialisation. In Nigeria, the industry sector's contribution to national productivity has been steadily declining for a long time, and as a result, economic development has been disappointingly modest, while poverty levels have risen dramatically (Iwuagwu, 2009). The fiscal policy stance is a primary conduit via which the government's

efforts toward industrialisation and better economic development are channeled. As a result, the purpose of this study is to analyze the impact of fiscal policy on Nigeria's industrial sector development.

## **Materials and Methods**

### **Conceptual Review**

Fiscal policy has been conventionally associated with the use of taxation and public expenditure to influence the level of economic activities. Jaiswal (2014) observed that fiscal policy has conventionally been associated with the use of taxation and public expenditure to influence the level of economic activities. They further argued that the implementation of fiscal policy is essentially routed through the government's budget. Igwe *et al.*, (2015) opined that the objective of fiscal policy is to promote economic conditions conducive to business growth while ensuring that any such government actions are consistent with economic stability. Indeed, fiscal policy as a concept entails the management of the economy by the government through the manipulation of its income and expenditure power that will result in a desired macroeconomic objective inclusive of economic growth (Aregbe & Greg, 2015). Therefore, this paper sees fiscal policy refers to determining the government of its sources of income and the means of disbursement of this income, in other words, explaining from where the income comes which sources are most important, and where the most important and best channels for distributing this income.

On the other hand, the term "industry" refers to all economic activity including the processing of raw materials and the production of goods in factories. The term "industry" refers to a group of businesses that are active in the process of industrialization. The introduction and expansion of industries in a specific location, region, or country are referred to as industrialization (Obioma & Ozughalu, 2010). Is also known as an increase in manufacturing's proportion of the Gross Domestic Product (GDP) and the occupations of the economically active population (Iwuagwu, 2009). The Nigerian industrial sector is involved in activities aimed at transforming raw materials into partially finished or finished goods. According to Muhamad and Henny (2020) industrial outputs subdivided into two which are manufacturing industrial output and non-manufacturing industrial output. Eze *et al.*, (2019) stated that non-manufacturing output refers to the total value of services and products produced in sectors other than manufacturing during a specific period of time. Unlike manufacturing output, which focuses on tangible goods, non-manufacturing output encompasses a wide range of services and intangible products. This sector is sometimes referred to as the services sector and includes activities such as retail, education, healthcare, finance, real estate, information technology, hospitality, and transportation.

### **Empirical Review**

Yuan *et al.*, (2022) assessed what the Chinese economic recovery implies after the pandemic regarding economic expansion and energy consumption of different economies utilizing an econometric approximation relying on data throughout the COVID-19 phase. The study discovered proof of robust direct provincial spillovers, implying that provinces tend to construct a cluster of high-performing and low-performing areas, a procedure that

accentuates regional earnings variances. Applying the experience of revamping previous financial crises, we replicate the impact of the pandemic on the competence of these, and by far, other upper-limit income nations to build back better from the pandemic to jobs occasioned by proofs of the pandemic. The spillover impact of China's economic revival past the pandemic phase carries a critical effect on the expansion in energy consumption in high-income nations and, subsequently middle-income nations. As total factor productivity headwinds underpin economic growth, fiscal policy is the only policy that probably sustains the pollution intensities and concurrently advances household well-being regarding consumption. In another study, Idoko *et al.*, (2021) investigated the effect of fiscal policy on economic development in Nigeria. The technique of estimation employed in the study was Ordinary Least Square (OLS) regression analysis. Panel data for the study was collected from the Central Bank annual bulletin. The result of the analysis showed that taxation and government expenditure have no significant effect on economic development except government revenue which revealed a significant effect on economic development in Nigeria. The study further conducted the standard error test and discovered that taxation and government expenditure have no significant effect on economic development, except government revenue which revealed a significant effect on economic development in Nigeria. This also implies that taxation and government expenditure within the study period on average did not have any effect on economic development, but on government revenue.

Adegbayo *et al.*, (2021) examined the impact of fiscal, monetary, and trade policies on Nigerian economic growth from 1985 to 2020. This study adopts the endogenous growth model (AK model) as its theoretical framework. The ARDL long-run result shows that fiscal policies stimulate economic growth, while on the contrary, trade policies deter Nigerian economic growth. The short-run result shows that the fiscal policies have an inconsistent impact on Nigerian economic growth and thus differs from the long-run result; while government spending continues to drive economic growth in Nigeria, government revenues do not affect the growth of the economy. The result of the impact of monetary policies shows that the interest rate impels the growth of the economy while the money supply deters the growth of Nigeria's economy; lastly, the trade policies maintain a negative influence on the economy in both the long run and short run.

In another study, Muhamad and Henny (2020) analyzed the contribution of fiscal policy to the industrial sector. The variables used in this research are industrial sector GDP, BI interest rate, government expenditure, and tax revenue. The appropriate model for time series data that is not stationary is the Vector Error Correction Model (VECM). The data used are quarterly data from 1999 to 2019. The empirical results show that the industrial sector has a positive response to the shock of tax revenue variables and the consumer price index. On the other hand, the industrial sector responded negatively to shocks from government spending and the BI interest rate. The results of the variance decomposition analysis show that government spending provides the largest contribution to the industrial sector compared to other variables in this study. While, Yahaya (2020) examined the relationship between fiscal policy and economic development using the human development index (HDI) as a more comprehensive representation of human and economic progress than the gross domestic

product (GDP). The study adopts an ex-post facto research design to enable the use of Nigerian time-series data from 1990 to 2017 in an Ordinary Least Square (OLS) regression technique for analyses. Findings reveal that fiscal policy variables such as government revenue and expenditure have a negative effect on the gross domestic product but a positive and significant on the human development index of Nigeria, while government debt has a positive effect on GDP and a significantly negative effect on HDI. Results further reveal interesting outcomes on the effect of fiscal policy on Nigeria's economic development such as trade depicting a negative and significant effect on HDI but positive and insignificant on GDP.

Uffie and Aghanenu (2019) examine the effect of fiscal variables on manufacturing sector output in Nigeria between 1981 and 2016. Fiscal policies are total government expenditure and company income tax, while manufacturing sector output is the proportion of GDP to the manufacturing sector. The Autoregressive Distributed Lag (ARDL) bounds test approach to Cointegration was adopted. The findings showed that fiscal policy has both short-run and long-run impacts on the manufacturing sector output in Nigeria. Specifically, government expenditure has a positive significant impact on manufacturing output while company income tax dampened output owing to a multiplicity of taxes. In another study, Imide (2019) examined the impact of fiscal policy on the manufacturing sector of Nigeria from 1980 to 2017. The manufacturing sector was proxied as the Index of Manufacturing Sector while the explanatory variables were government expenditure, company income tax rate, and federal government domestic debt outstanding. The econometric techniques of Ordinary Least Squares (OLS) results reveal that government expenditure has a positive relationship with the index of the manufacturing sector while federal government domestic debt outstanding has a negative linear relationship with the index of the manufacturing sector.

Eze *et al.*, (2019) studied the influence of fiscal policy on real sector growth in Nigeria. The explanatory variables are government wealth expenditure controlled by interest rate, inflation rate, and exchange rate, while the real sector which captured as the output in the agricultural sector. Analyses gotten from the ARDL revealed a significant and positive influence of government wealth expenditure on the growth of the agricultural sector in Nigeria. Victor and Roman (2017) analyzed the fiscal policies on agriculture and industry in Ukraine, with the SVAR model using quarterly data for the 2001–2016 period. The results indicate that government spending has a positive effect on both agricultural production and industrial output, while an increase in government revenue is of the same expansionary impact for the latter only.

Bakare-Aremu and Osobase (2015) investigated the impact of monetary and fiscal policies (i.e. stabilization policies) on the performance of the manufacturing sector in Nigeria for the period 1970 to 2009 using an error correction mechanisms model. They discovered that those policies have an expected impact on the output of the manufacturing sector in Nigeria both in the short-run and long-run. The research work established that stabilization policy has a great impact on manufacturing sector performance and that if certain adjustments are made it would better the lots of the people by developing the sector, through Government fiscal policy and its monetary policy measures. While, Osinowo (2015) examined the effect of fiscal policy

on sectoral output growth in Nigeria for the period 1970-to 2013. Specifically, fiscal policy was represented with expenditure and controlled for trade openness, inflation rate, interest rate, population, labour, and political stability. Sectoral output measured included agriculture, mining, building and construction, manufacturing, wholesale and retail, and service sectors. The study employed the Autoregressive Distributed lag and Error Correction Model (ECM). The results revealed that total fiscal expenditure contributes to the output of all other sectors apart from the agricultural sector.

### **Theoretical Framework**

Adolph Wagner (1835-1917) believed that there was a cause-effect relationship between economic growth and public expenditure. His hypothesis of 'Law of Increasing State Activity' states that as per capita income and output increase in industrialized countries, the public expenditure of those countries necessarily grows as a proportion to total economic activity. He observed that 'a comprehensive comparison of different countries and different times demonstrates that among progressive people, an increase regularly takes place in the activity of both central and local governments (Wagner, 1917). The increase is both extensive and intensive. The central and local governments constantly undertake new functions, while they perform both old and new functions more effectively and completely. He analyzed the trend of public expenditure and came to the following conclusions: As the national income increases in amount, the percentage of outlay for government-supplied goods is greater. ii) Increased public expenditure is the natural result of economic growth and continued pressure for social progress (Wagner 1835-1917)

### **Methodology**

The study employed the *ex-post facto* research design in obtaining, analyzing and interpreting the data and adopted the secondary method of data collection and the data were sourced from the Central Bank of Nigeria (CBN). Autoregressive Distributed Lagged (ARDL) was used for the estimation and this procedure was developed by Pesaran and Shin (1999) which was later expanded by Pesaran *et al.*, (2001) and the procedure allows the researcher to use variables that are not integrated in the same order. Also, the error correction model (ECM) will be used to establish the short-run and long-run causal relations between fiscal policy indicators and manufacturing industrial sector in Nigeria.

### **Model Specification**

The initial model was adopted from the work of Ighoroje and Akpokerere (2021) who examined fiscal policy and industrial sector output in Nigeria which is stated as follows:

$$ISO = f(GE, GT, DD, DF) \quad (1)$$

The function is comprised of four variables which are Industrial Sector Output represented by the industrial sector (ISO), government expenditure (GE), tax revenue (TR) and budget deficit (BD). The ISO is the dependent variable while the independent variables are government expenditure (GE), tax revenue (TR) and budget deficit (BD) for the study.

$$\text{Thus, } Y = f(X) \tag{2}$$

Equation 2 shows the structural relationship between fiscal policy indicators of the non-manufacturing industrial sector in Nigeria.

$$NMS = f(CEX, REX, NTX, OTX, EXD, DMD) \tag{3}$$

Therefore, below are the specified Autoregressive Distributed Lagged (ARDL) and the Error Correction Model (ECM) according to the specific objectives of the study which are as follows:

$$nms_t = \alpha_0 + \sum_{a=1}^p \alpha_{1a} nms_{t-a} + \sum_{b=1}^q \alpha_{2b} cex_{t-b} + \sum_{c=1}^q \alpha_{3c} rex_{t-c} + \sum_{d=1}^q \alpha_{4d} ntx_{t-d} + \sum_{e=1}^q \alpha_{5e} otm_{t-e} + \sum_{f=1}^q \alpha_{6f} exd_{t-f} + \sum_{g=1}^q \alpha_{7g} dmd_{t-g} \tag{4}$$

$$+ \alpha_{8a} \Delta nms_{t-1} + \alpha_{9b} \Delta cex_{t-1} + \alpha_{10c} \Delta rex_{t-1} + \alpha_{11d} \Delta ntx_{t-1} + \alpha_{12e} \Delta otm_{t-1} + \alpha_{13f} \Delta exd_{t-1} + \alpha_{14g} \Delta dmd_{t-1} + \mu_t$$

Therefore, equation (4) was used to estimate and analysis the long-run impact of fiscal policy indicators on non-manufacturing industrial sector in Nigeria. From equation (4), NMS is the non-manufacturing industrial sector contribution to the gross domestic product in Nigeria and represents the non-manufacturing industrial sector in Nigeria which is the dependent variable while the following are the independent variables: CEX is the government capital expenditures, REX is the government recurrent expenditures, NTX is the non-oil taxation in Nigeria, OTX is the oil taxation in Nigeria, EXD is the public external debt and DMD is the public domestic debt in Nigeria. Also, the Error Correction Model (ECM) that was used to examine the effect of fiscal policy indicators on non-manufacturing industrial sector in Nigeria is specified as follows: Similarly, the Error Correction Model (ECM) that was used to examine the impact of fiscal policy indicators on non-manufacturing industrial sector in Nigeria is specified as follows:

$$nms_t = \alpha_0 + \sum_{a=1}^p \alpha_{1a} \Delta nms_{t-1} + \sum_{b=1}^q \alpha_{2b} \Delta cex_{t-1} + \sum_{c=1}^q \alpha_{3c} \Delta rex_{t-1} + \sum_{d=1}^q \alpha_{4d} \Delta ntx_{t-1} \tag{5}$$

$$+ \sum_{e=1}^q \alpha_{5e} \Delta otm_{t-1} + \sum_{f=1}^q \alpha_{6f} \Delta exd_{t-1} + \sum_{g=1}^q \alpha_{7g} \Delta dmd_{t-1} + \lambda ec m_{t-1} + \mu_t$$

Therefore, equation (5) was used to estimate and analyze the short-run impact of fiscal policy indicators on non-manufacturing industrial sector in Nigeria. The model, that is equation (5) above will be used to adjust the estimation until the ECM turned negative. The negative sign of the coefficient of the error correction term ECM (-1) shows the statistical significance of the equation in terms of its associated t-value and probability value.

## Presentation and Discussion of Results

### Descriptive Statistics

This section shows the descriptive summary of all the variables used in this paper which are the non-manufacturing industrial sector in Nigeria (NMS), government capital expenditures in Nigeria (CEX), government recurrent expenditures in Nigeria (REX), non-oil taxation in

Nigeria (NTX), oil taxation in Nigeria (OTX), public external debt in Nigeria (EXD) and public domestic debt in Nigeria (DMD).

**Table 1:** Descriptive Summary

	NMS	MDS	CEX	REX	NTX	OTX	EXD	DMD
Mean	7653.982	5176.913	994.1328	2922.107	1635.771	4000.763	3149.953	4707.438
Median	3685.805	2147.435	508.7500	1216.050	621.6000	2942.900	961.8750	1448.120
Maximum	34770.50	27508.50	6335.580	15553.55	7944.560	41097.00	18702.25	22210.36
Minimum	34.51000	45.96000	6.400000	15.60000	6.400000	19.00000	100.7900	36.79000
Std. Dev.	9281.549	7136.977	1447.850	4175.058	1982.140	6882.233	4475.587	6073.920
Skewness	1.294919	1.850603	2.264431	1.807969	1.394123	4.492415	2.150309	1.385671
Kurtosis	3.879396	5.661529	7.531564	5.202839	4.457440	24.85684	6.998463	3.874772
Jarque-Bera	11.22089	31.17399	61.56850	26.89125	14.84767	837.6732	51.72453	12.66834
Probability	0.003659	0.000000	0.000000	0.000001	0.000597	0.000000	0.000000	0.001775
Sum	275543.3	186368.9	35788.78	105195.9	58887.76	144027.5	113398.3	169467.8
Sum Sq. Dev.	3.020000	1.780000	73369401	6.100000	1.38000	1.660000	7.010000	1.29000
Observations	36	36	36	36	36	36	36	36

**Source:** Researcher's Computation Using EViews-12 (2024)

That the non-manufacturing industrial sector in Nigeria (MDS), government capital expenditures in Nigeria (CEX), government recurrent expenditures in Nigeria (REX), non-oil taxation in Nigeria (NTX), oil taxation in Nigeria (OTX), public external debt in Nigeria (EXD) and public domestic debt in Nigeria (DMD) are mesokurtic as their kurtosis values are greater than three (3). Also, the Jarque-Bera probability shows that manufacturing industrial sector in Nigeria (MDS), government capital expenditures in Nigeria (CEX), government recurrent expenditures in Nigeria (REX), non-oil taxation in Nigeria (NTX), oil taxation in Nigeria (OTX), public external debt in Nigeria (EXD) and public domestic debt in Nigeria (DMD) are not normally distributed as their probability values did not pass the normality test at 1%, 5%, and 10%.

### Stationary Tests (Unit Root Tests)

This section shows the unit root of the variables using the Augmented Dickey-Fuller (ADF) Test to check the stationary at a 5 percent level of significance.



**Table 2: Unit Root Test Result**

Variable	Augmented Dickey-Fuller (ADF) Test		
	@ Level	@ 1 <sup>st</sup> Diff.	Status
NMS		-5.105721**	1(1)
CEX		-5.837608**	1(1)
REX	-	-5.138659**	1(1)
NTX	-	-3.448204***	1(1)
OTX	-6.271953**		1(0)
EXD	-	-4.027364**	1(1)
DMD		-4.746689**	1(1)
Asymptotic Critical Values			
1%	-3.639407	-3.646342	
5%	-2.951125	-2.954021	
10%	-2.614300	-2.615817	
<i>* implies significance at 1% level, **implies significance at 5% level and *** implies significance at 10%</i>			

**Source:** Author's Computation, using E- views 12, 2023

Table 2 shows the stationary test of the non-manufacturing industrial sector in Nigeria and fiscal policy indicators in Nigeria (government recurrent expenditures in Nigeria, non-oil taxation in Nigeria, oil taxation in Nigeria, public external debt in Nigeria and public domestic debt in Nigeria). Thus, Table 2 of the ADF tests results revealed that all the variables non-manufacturing industrial sector in Nigeria (NMS), government capital expenditures in Nigeria (CEX), government recurrent expenditures in Nigeria (REX), non-oil taxation in Nigeria (NTX), public external debt in Nigeria (EXD) and public domestic debt in Nigeria (DMD) are stationary at first difference which means that they are integrated of order 1(1) at a 5% level of significance except oil taxation in Nigeria (OTX) which was integrated of 1(0) and requires the ARDL Bound Test to show if the variables are co-integrated and furthermore, taking into account the non-manufacturing industrial sectors models.

### Co-integration of ARDL-Bounds Test

This section shows the ARDL co-integration bounds test of the variables used in this paper.

**Table 3: Non-Manufacturing Model Co-integration ARDL Bound Tests**

Test Statistic	Value	Signif.	I(0)	I(1)
Asymptotic: n=1000				
F-statistic	19.21749	10%	1.99	2.94
k	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99

**Source:** Author's Computation, using E- views 12, 2023

Table 3 shows the Autoregressive Distributed Lagged (ARDL) Bound Co-Integration Test Using the ARDL Bound test with critical value (Pesaran, Shin and Smith, 2001), the variables were co-integrated at a 5 per cent level of significance since the Wald F- statistics of 19.21749

is greater than the critical lower and upper bound 2.27 and 3.28 respectively. This implies that the non-manufacturing industrial sector in Nigeria (NMS), government capital expenditures in Nigeria (CEX), government recurrent expenditures in Nigeria (REX), non-oil taxation in Nigeria (NTX), oil taxation in Nigeria (OTX), public external debt in Nigeria (EXD) and public domestic debt in Nigeria (DMD) are co-integrated and the study proceeded to use the Autoregressive Distributed Lagged (ARDL) for the estimation and analysis.

### Presentation and Interpretation of Results

This section presented the long-run and short-run results of the ARDL regression analysis where the non-manufacturing industrial sector in Nigeria is the dependent variable while the government capital expenditures in Nigeria, government recurrent expenditures in Nigeria, non-oil taxation in Nigeria, oil taxation in Nigeria, public external debt in Nigeria and public domestic debt in Nigeria are the independent variables.

**Table 4:** Non-Manufacturing Model of the ARDL Estimation Results  
**Dependent Variable: NMS**

Co-integrating Estimates (ECM Estimates)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(NMS(-1))	-0.518739	0.075864	-6.837747	0.0000
D(CEX)	-0.521627	0.414093	-1.259687	0.2248
D(REX)	0.328296	0.255984	1.282486	0.2169
D(REX(-1))	1.674462	0.226862	7.380962	0.0000
D(NTX)	2.173460	0.541080	4.016892	0.0009
D(NTX(-1))	3.164256	0.490474	6.451422	0.0000
D(OTX)	0.104641	0.018380	5.693233	0.0000
D(DMD)	-1.071690	0.363200	-2.950689	0.0089
D(DMD(-1))	3.344301	0.464602	7.198205	0.0000
CointEq(-1)*	-0.764468	0.070268	-10.87927	0.0000
R-squared	0.967278			
Adjusted R-squared	0.955007			
F-statistic	558.6574			
Prob. (F-statistic)	0.000000			
Durbin-Watson stat	2.166952			
Long Run				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CEX	-2.557016	2.282058	-1.120487	0.2781
REX	3.298961	0.973641	3.388273	0.0035
NTX	1.690922	1.657488	1.020172	0.3219
OTX	0.442207	0.183368	2.411582	0.0275
EXD	-0.207296	0.122083	-1.697988	0.1077
DMD	-1.266655	0.499436	-2.536171	0.0213
C	414.5547	279.2328	1.484620	0.1560

**Source:** Researcher's Computation Using EViews-12 (2023)

From Table 4 the value of F-statistics of 558.6574 and the probability values of 0.0000, indicated that there is a long-run relationship between the fiscal policy indicators in Nigeria

and non-manufacturing industrial sector in Nigeria. The R-square value of 0.97 revealed that fiscal policy indicators variables in Nigeria which government capital expenditures in Nigeria (CEX), government recurrent expenditures in Nigeria (REX), non-oil taxation in Nigeria (NTX), oil taxation in Nigeria (OTX), public external debt in Nigeria (EXD) and public domestic debt in Nigeria (DMD) jointly accounted for about 97 percent of the variation in the non-manufacturing industrial sector in Nigeria during the period under review, while the remaining 1 percent accounted for by other factors outside the model.

The short-run result and the ECT show the 1-period lag Error Correction Term. Its value of -0.76 indicates that it is negative and statistically significant with a probability value of 0.00 at a 5 percent significant level. This means that the average speed of adjustment from the short run to the long run should there be any disequilibrium is 76%. While, the short-run coefficient and probability values of each variable revealed that the previous value of non-manufacturing industrial sector in Nigeria, government capital expenditures in Nigeria and public domestic debt in Nigeria have negative and significant impact on non-manufacturing industrial sector in Nigeria at 5 percent significant level except government capital expenditures in Nigeria which has insignificant impact on non-manufacturing industrial sector in Nigeria. On the other hand, the coefficient and probability value revealed that the government recurrent expenditures in Nigeria, previous value of government recurrent expenditures in Nigeria, non-oil taxation in Nigeria, previous value of non-oil taxation in Nigeria, oil taxation in Nigeria, and public domestic debt in Nigeria have a positive and significant impact on non-manufacturing industrial sector in Nigeria at 5 percent significant level except the value of government recurrent expenditures in Nigeria has an insignificant impact on non-manufacturing industrial sector in Nigeria.

The long-run regression results revealed that government capital expenditures in Nigeria has a negative impact on non-manufacturing industrial sector in Nigeria and the probability value of 0.278 shows that government capital expenditures in Nigeria has an insignificant impact on non-manufacturing industrial sector in Nigeria. On the other hand, government recurrent expenditures in Nigeria has a positive impact on non-manufacturing industrial sector in Nigeria and the probability value of 0.0035 shows that government recurrent expenditures in Nigeria has a significant impact on non-manufacturing industrial sector in Nigeria.

Also, non-oil taxation in Nigeria has a positive impact on non-manufacturing industrial sector in Nigeria and the probability value of 0.3219 shows that non-oil taxation in Nigeria has an insignificant impact on the non-manufacturing industrial sector in Nigeria. On the other hand, oil taxation in Nigeria has a positive impact on non-manufacturing industrial sector in Nigeria and the probability value of 0.0275 shows that oil taxation in Nigeria has a significant impact on the non-manufacturing industrial sector in Nigeria. Furthermore, public external debt in Nigeria has a negative impact on non-manufacturing industrial sector in Nigeria and the probability value of 0.1077 shows that public external debt in Nigeria has an insignificant impact on non-manufacturing industrial sector in Nigeria. On the other hand, public domestic debt in Nigeria has a positive impact on non-manufacturing industrial sector in Nigeria and the probability value of 0.0213 shows that public domestic debt in Nigeria has an insignificant impact on the non-manufacturing industrial sector in Nigeria.

## Hypotheses Testing

**Table 5:** Hypotheses Testing of ARDL Results (Taxation Model)

Hypotheses	Tc	Tt	Decision Rule	Remark
H <sub>0</sub> : $\beta_4 = 0$ H <sub>1</sub> : $\beta_4 > 0$	1.12	2.04	Tc > Tt Reject H <sub>0</sub> Tc < Tt Accept H <sub>0</sub>	<b>Accepted</b>
H <sub>0</sub> : $\beta_4 = 0$ H <sub>1</sub> : $\beta_4 > 0$	3.39	2.04	Tc > Tt Reject H <sub>0</sub> Tc < Tt Accept H <sub>0</sub>	<b>Rejected</b>
H <sub>0</sub> : $\beta_4 = 0$ H <sub>1</sub> : $\beta_4 > 0$	1.02	2.04	Tc > Tt Reject H <sub>0</sub> Tc < Tt Accept H <sub>0</sub>	<b>Accepted</b>
H <sub>0</sub> : $\beta_4 = 0$ H <sub>1</sub> : $\beta_4 > 0$	2.41	2.04	Tc > Tt Reject H <sub>0</sub> Tc < Tt Accept H <sub>0</sub>	<b>Rejected</b>
H <sub>0</sub> : $\beta_4 = 0$ H <sub>1</sub> : $\beta_4 > 0$	1.69	2.04	Tc > Tt Reject H <sub>0</sub> Tc < Tt Accept H <sub>0</sub>	<b>Accepted</b>
H <sub>0</sub> : $\beta_4 = 0$ H <sub>1</sub> : $\beta_4 > 0$	2.53	2.04	Tc > Tt Reject H <sub>0</sub> Tc < Tt Accept H <sub>0</sub>	<b>Rejected</b>

*Tc is the calculated T-Statistics, Tt is the table T-Statistics (Theoretical T-Statistics) and the decision rule is based on 5% level significance. While the Degree of Freedom is set as (N-K) = 31 (Gujarati & Sangeetha, 2007).*

**Source:** Author's Computation, using E- views 12, 2024

The **H<sub>01</sub>** which states that government capital expenditures in Nigeria has no significant impact on non-manufacturing industrial sector output in Nigeria was **accepted** at the 5% level of significance given that the value of the calculated T-Statistics (Tc) of 1.12 is less than the value of the table T-Statistics (Tt) of 2.04. This implies that the government capital expenditures in Nigeria has negative and insignificant impact on non-manufacturing industrial sector output in Nigeria at the long run. While, the **H<sub>02</sub>** which states that government recurrent expenditures in Nigeria has no significant impact on non-manufacturing industrial sector output in Nigeria was **rejected** at the 5% level of significance given that the value of the calculated T-Statistics (Tc) of 2.83 is greater than the value of the table T-Statistics (Tt) of 2.04. This implies that the government recurrent expenditures in Nigeria has positive and significant impact on manufacturing industrial sector output in Nigeria at the long run.

On the other hand, While, the **H<sub>03</sub>** which states that non-oil taxation in Nigeria has no significant impact on non-manufacturing industrial sector output in Nigeria was **accepted** at the 5% level of significance given that the value of the calculated T-Statistics (Tc) of 1.02 is less than the value of the table T-Statistics (Tt) of 2.04. This implies that the non-oil taxation in Nigeria has positive and insignificant impact on non-manufacturing industrial sector in Nigeria at the long run. While, The **H<sub>04</sub>** which states that oil taxation in Nigeria has no significant impact on non-manufacturing industrial sector output in Nigeria was **rejected** at the 5% level of significance given that the value of the calculated T-Statistics (Tc) of 2.41 is greater than the value of the table T-Statistics (Tt) of 2.04. This implies that the oil taxation in Nigeria has a positive and significant impact on non-manufacturing industrial sector output in Nigeria at the long run.

Furthermore,  $H_{05}$  which states that public external debt in Nigeria has no significant impact on non-manufacturing industrial sector in Nigeria was **accepted** at the 5% level of significance given that the value of the calculated T-Statistics ( $T_c$ ) of 1.69 is less than the value of the table T-Statistics ( $T_t$ ) of 2.04. This implies that the public external debt in Nigeria has a negative and insignificant impact on non-manufacturing industrial sector in Nigeria at the long run. And finally, the  $H_{06}$  which states that public domestic debt in Nigeria has no significant impact on non-manufacturing industrial sector output in Nigeria was **rejected** at the 5% level of significance given that the value of the calculated T-Statistics ( $T_c$ ) of 2.54 is greater than the value of the table T-Statistics ( $T_t$ ) of 2.04. This implies that the public domestic debt in Nigeria has positive and significant impact on non-manufacturing industrial sector output in Nigeria at the long run.

### Post-Diagnostic Checks

**Table 6:** Heteroskedasticity and Serial Correlation Test: Breusch-Pagan-Godfrey

Null hypothesis: Homoskedasticity			
F-statistic	0.541365	Prob. F(16,17)	0.8867
Obs*R-squared	11.47629	Prob. Chi-Square(16)	0.7792
Scaled explained SS	2.885121	Prob. Chi-Square(16)	0.9999
Breusch-Godfrey Serial Correlation LM Test			
F-statistic	0.290532	Prob. F(2,15)	0.7520
Obs*R-squared	1.267959	Prob. Chi-Square(2)	0.5305

**Source:** Author's Computation, using E- views 12, 2023

Table 6 shows the test for Heteroscedasticity. It indicates that the variables are free from the problem of Heteroscedasticity since the p-values of F-stat. and Obs\*R-squared of 0.54 and 11.47 respectively are greater than the 5% significance level. This outcome is further strengthened by the p-value of 0.99 for the Scaled explained SS which also suggests the absence of Heteroscedasticity in the model of the impact of fiscal policy on non-manufacturing industrial sector in Nigeria and this implies that the absence of heteroscedasticity among the variables which are non-manufacturing industrial sector in Nigeria, government capital expenditures in Nigeria, government recurrent expenditures in Nigeria, non-oil taxation in Nigeria, oil taxation in Nigeria, public external debt in Nigeria and public domestic debt in Nigeria. Similarly, the Breusch-Godfrey Serial Correlation LM Test result revealed that there is the absence of serial correlation among the economic variables given the p-values of F-stat. and Obs\*R-squared of 0.29 and 1.267 respectively which are greater than the 5% significance level and this implies that there is absence of Serial Correlation among the economic variables which are non-manufacturing industrial sector in Nigeria, government capital expenditures in Nigeria, government recurrent expenditures in Nigeria, non-oil taxation in Nigeria, oil taxation in Nigeria, public external debt in Nigeria and public domestic debt in Nigeria.

## Normality Test

**Figure 1:** Non-Manufacturing Sector Model Normality Test

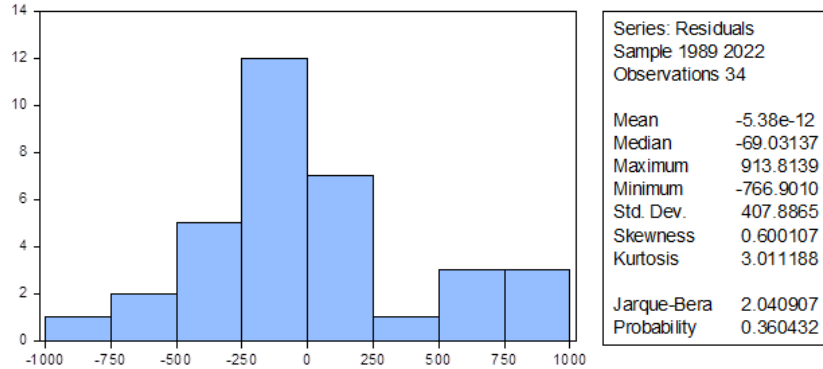


Figure 1 shows the non-manufacturing sector model normality test and the Jarque-Bera value of 2.04 and the probability value of 0.360432 revealed that the model of the impact of fiscal policy indicators on the non-manufacturing industrial sector in Nigeria is normally distributed. This implies that the model and the variables used in the model which are the non-manufacturing industrial sector in Nigeria (NMS), government capital expenditures in Nigeria (CEX), government recurrent expenditures in Nigeria (REX), non-oil taxation in Nigeria (NTX), oil taxation in Nigeria (OTX), public external debt in Nigeria (EXD) and public domestic debt in Nigeria (DMD) are normally distributed.

## Discussion of Findings

The long-run regression analysis of the non-manufacturing industrial sector output model revealed that the fiscal policy indicators jointly have a strong relationship with the non-manufacturing industrial sector output in Nigeria suggested by the 97 percent of the R-Square and the F-statistics value of 558.65 revealed that there is a significant relationship between fiscal policy indicators and non-manufacturing industrial sector output in Nigeria. Thus, based on the coefficient and probability of the individual variables, the government capital expenditures in Nigeria were found to have a negative and insignificant impact on non-manufacturing industrial sector output in Nigeria, while government recurrent expenditures in Nigeria had a positive and significant impact on non-manufacturing industrial sector output in Nigeria. While, non-oil taxation in Nigeria had a positive and insignificant impact on non-manufacturing industrial sector output in Nigeria and the other hand, oil taxation in Nigeria was found to positive and significant impact on non-manufacturing industrial sector output in Nigeria. Also, the result revealed that public external debt in Nigeria has a negative and insignificant impact on non-manufacturing industrial sector output in Nigeria while public domestic debt in Nigeria was found to have a negative and significant impact on non-manufacturing industrial sector output in Nigeria.

## Conclusion and Recommendations

In conclusion, the study revealed that in the fiscal policy and non-manufacturing model government recurrent expenditures in Nigeria and oil taxation in Nigeria have a positive and

significant effect on non-manufacturing output in Nigeria and this implies that these two are the best fiscal policy instruments to improve the manufacturing industrial output in Nigeria. Also, though the non-oil taxation in Nigeria has a positive effect on manufacturing industrial output in Nigeria its effect was insignificant in improving the level of manufacturing industrial output in Nigeria while, government capital expenditures in Nigeria, public external debt in Nigeria and public domestic debt in Nigeria have negative effect on manufacturing industrial output in Nigeria and the study revealed that government capital expenditures in Nigeria and public domestic debt in Nigeria have negative and significant effect on manufacturing industrial output in Nigeria this implies that the higher the government capital expenditures in Nigeria and public domestic debt in Nigeria the lower the level of manufacturing industrial output in Nigeria. Therefore, the paper recommended the following:

- i. The government through the Federal Ministry of Finance and other related Agencies should design a mechanism to track the government capital expenditures in Nigeria to ensure that projects are industrial-driven, especially the infrastructural projects for a massive increase in industrial output in Nigeria especially the non-manufacturing industrial output in Nigeria.
- ii. Also, the government's Federal Ministry of Finance and other related Agencies should increase by 10 percent the recurrent expenditures at all levels to the real sector and should be industrial growth driven to increase its significant effect on non-manufacturing industrial output in Nigeria through effective demand.
- iii. The government through the Federal Ministry of Finance and other related Agencies should design a mechanism to maintain the current level of non-oil taxation in Nigeria because it has a positive and significant effect on non-manufacturing industrial output in Nigeria.
- iv. On the other hand, the government through the Federal Ministry of Finance and other related Agencies should design a mechanism to revisit the current level of oil taxation in Nigeria because it has a negative and significant effect on manufacturing industrial output in Nigeria and while it has a positive and significant effect on non-manufacturing industrial output in Nigeria. Therefore, oil taxation in Nigeria should be revisited the policy with respect to non-manufacturing industrial output in Nigeria.
- v. Also, the government through the Federal Ministry of Finance and other related Agencies should design a mechanism to revisit the current level of the public external debt in Nigeria to improve the level of significance and make it effect positive on non-manufacturing industrial output in Nigeria.
- vi. Similarly, the government through the Federal Ministry of Finance and other related Agencies should design a mechanism to revisit the current level of the public domestic debt in Nigeria to improve the level of significance and make it effect positive on non-manufacturing industrial output in Nigeria.

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