FISCAL POLICY AND INDUSTRIAL SECTOR DEVELOPMENT IN NIGERIA

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ABSTRACT

This study looks at how fiscal policies affected Nigeria's industrial sector growth between 1986 and 2021. To estimate the model's parameters, Autoregressive Distributed Lag was adopted. However, the results suggest that corporate income tax has a negative long-term influence on Nigeria's output of solid minerals, whereas government capital expenditures on the mining and quarrying sector and exchange rate have a positive effect. The results also show that in short run, company income tax and exchange rate are negative while government capital expenditure on mining and quarrying sector is positive. The study therefore, recommends that government should reduce the rate of company income tax for this sector because company income tax is inimical to the growth of solid minerals sector output. Government should also allocate more budget for capital expenditure in the mining and quarrying sector and also ensure that the funds are efficiently utilized to provide the necessary infrastructure needed.

Keywords: Fiscal Policy, Industrial Sector, Solid Minerals Sector, ARDL, Nigeria.

JEL Classification Codes: E6, H3, L72.

1. INTRODUCTION

Economic growth and development can be achieved by using industrial sector development as a fundamental tool. This industry has the potential to assist in converting semi-finished and

raw materials into finished things that consumers can purchase (International Monetary Fund [IMF], 2020). Globally, the solid minerals' sector has significant value on the economy of countries like USA, China, India, Japan and so on. For instance, in 2004, China was able to attract more than half of its foreign direct investment in the mining sector due to the fact that thirteen thousand exploration licenses and forty thousand mining permits were issued to companies. This really helped them to generate thousands of employment through mining (National Research Council [NRC], 2007).

On the other hand, governments in developing nations have been charged with promoting economic growth by raising capital and allocating it for developmental initiatives. Fiscal policy (taxation and spending) is economically and socially vital to the development of any nation. It has been part of economic growth for over 100 years and one of the ways of creating greater equality, not only through benefits but through public services. Government spending and government taxation are thus far more efficient ways of generating revenue, funding and providing services than public-private partnerships or privatization (Public Services International [PSI], 2014).

Nigeria is a mineral rich country with a lot of non-fuel mineral reserves, particularly of uranium, gold, lead-zinc, coal, tin, bitumen, columbite, lignite, iron-ore, limestone, copper, granite etc. Although systematic mining in Nigeria began in 1903 after the colonial government ordered mineral explorations of the Southern and Northern protectorates, the country has been mining for more than 240 years (Nigeria Extractive Industries Transparency Initiative [NEITI], 2019).

The industry's advantages include the creation of jobs, connections both ahead and backward, and skill development. Due in part to backward links or local content, this business creates significantly more indirect and induced employment than it does direct employment, which together can have favourable effect on the economy (IMF, 2020).However, some of the problems associated with the sector include under-declaration of value of minerals exported, weak supervisory oversight, non-compliance with Environmental Protection and Rehabilitation Fund (EPRF), illegal mining activities, certain mineral exporting businesses' failure to pay royalties, lack of activity in some of the nation's strategic minerals amongst others. Another significant issue that has discouraged investment is insecurity. Capital spending to this sector year in year out was small. This inadequate capital spending in the sector has thus, given room for illegal mining and insecurity in the mining locations. High company income tax of 30 percent charged by government is another major challenge in this sector. This has discouraged both foreign and domestic investors to invest in the sector, because the industry requires a lot of capital and most investors believe that profits are not made immediately production starts (NEITI, 2019).

In order to address these issues, the Special Mines Security and Surveillance Task Force was established and put into service, and Mine Police was revived. The government has also devised methods for identifying and concentrating on mineral corridors to form clusters where facilities are constructed to gain economic advantage in areas of infrastructure and value chain development. The National Gold Policy was started by the federal government with the intention of increasing government revenue from gold mining operations while also facilitating official gold production, trading, and exports. Nonetheless, considering the extent of the reserves, the amount of mineral exploitation is far less than one may anticipate (NEITI, 2019). A US$30 billion intervention fund was approved from the nation's Natural Resources Development Fund (NRDF) and distributed in the final quarter of 2016 to support the formalization of artisan miners and the facilitation of exploratory efforts. The total funding

support provided to the industrial sector in 2 019 was #24.7 billion. The solid mineral sector however received N2.4 billion or 10 percent of the total fund. Despite all these policy interventions, the sector has not helped to reduce unemployment rate, boost revenue generation, reduce borrowing rate and enhance economic growth in Nigeria (NEITI, 2019).

Furthermore, despite Nigeria's vast and varied solid mineral deposits, the sector's contribution to GDP as a whole is still minimal and falls short of that of its major African rivals, like South Africa, Ghana, Cote D'Ivoire, and Botswana. The solid minerals strategy does not give government revenue maximization priority because of the substantial amounts of revenue generated by the oil and gas industry. Rather, its emphasis lies on advancing economic diversification, skill development, and employment. But in order to accomplish these goals, it is important to draw in foreign investment, which this industry has not done thus far. As a proportion of overall foreign direct investment, the solid minerals industry has received very little FDI (Central Bank of Nigeria [CBN], 2019).

This study therefore examines the impact of fiscal policy on industrial sector development in Nigeria. This paper is structured in the subsequent sections as follows: empirical literature; method used; results discussion; conclusion and recommendations.

2. LITERATURE REVIEW

2.1. Theoretical Literature

2.1.1. Wagner's Theory of Public Expenditure

This law named after the German political economist Adolph Wagner (1835-1917) is also known as the 'law of increasing state activity'. It was patterned after empirical analysis on Western Europe at the end of 19^{th} century. The law suggests that the share of the public sector in the economy will rise as economic growth proceeds, owing to the intensification of existing activities and extension of new activities. According to Wagner (1893), social progress has led to increasing state activity with resultant increase in public expenditure. He argued that government growth is a function of increased industrialization and economic development. Wagner stated that during the industrialization process, as the real income per capita of a nation increases, the share of public expenditures in total expenditures increases. Wagner's law postulates three assumptions that; the extension of the functions of the states leads to an increase in public expenditure on administration and regulation of the economy; the development of modern industrial society would give rise to increasing political pressure for social progress and call for increased allowance for social consideration in the conduct of industry; and the rise in public expenditure will be more than proportional increase in the national income and will thus result in a relative expansion of the public sector. This theory is relevant in this study because of its emphasis on industrialization. One of the roles of agriculture is to provide raw materials for industries. This will enhance growth in the agricultural sector which will in turn contribute to the growth of the economy.

2.1.2. Keynesian Theory of Public Expenditure

The Keynesian school of thought suggested that government spending can contribute positively to sectoral growth (like the agricultural sector) in the economy. Thus, an increase in government expenditure is likely to lead to an increase in employment, profitability and investment through multiplier effects on aggregate demand. Consequently, government expenditure increases the aggregate demand which brings about an increased output

depending on expenditure multipliers. Keynes regards public expenditures as an exogenous factor which can be utilized as a policy instruments to promote growth. This school of thought also believed that government intervention would help correct market failures. Keynes argued that during depression, increasing saving will not help but spending. Government will increase public spending, giving individuals purchasing power and producers will produce more, thus, creating more employment for people. This is the multiplier effect that shows causality from public expenditure to national income (Keynes, 1936). The relevance of this theory to the Nigerian economy is that it describes how the government of the country can help bring about growth in the solid minerals sector through its expenditure on the sector.

2.2. Empirical Literature

Theoretically, Keynes proposed an increased spending to ensure increase in aggregate demand which would be possible through production. Wagner as well believed that increase in state activities through industrialization would help develop the economy. Numerous empirical studies were conducted to evaluate the effects of fiscal policy (FP) on industrial sector, based on theoretical propositions. Nonetheless, several of these research that are most pertinent are covered in this paper. Sebil (2023) in his study on fiscal policy and sectoral output growth from 1981 to 2021, employed ARDL model and it was revealed from the findings that fiscal policy has negative but significant impact on mining, manufacturing, building and construction, wholesale retail and agricultural sectors' output in Nigeria. Olasehinde (2022) employed structural vector error correction model to study the effect of fiscal policy shocks on industrial sector growth in Nigeria, between 1981 and 2020. The result demonstrates a positive response between revenue shock and industrial sector output, while expenditure shock has no significant effect.

From 1987 to 2019, Ighoroje and Akpokerere (2021) assessed how Nigeria's industrial sector output was affected by fiscal policy. Using a multiple regression, the study posits that, although tax income minimally favours the Nigeria's industrial sector, government spending had a considerable impact. Using VECM, Omankhanlen et al. (2021) explored the contribution of government spending to Nigeria's industrial sector growth between 1981 and 2018. The study's findings, which employ manufacturing value added as an equivalent measure for industrial sector development, show that government spending favorably impacted on Nigerian manufacturing. Ozuzu and Isukul (2021) examined how government spending affected Nigeria's manufacturing sector between 1981 and 2015. Using VECM, the study affirmed that government capital expenditures significantly and favorably affect Nigeria's manufacturing and natural gas industries. A study by Ubong and Ettah (2020) on fiscal policy in relation to Nigeria's industrial sector from 1980 to 2018 utilized VECM. The industrial sector was shown to be significantly impacted in the short term by government capital and recurring expenses alike.

Ogu and Kem (2020) looked at how taxes affected Nigeria's industrial sector between 1981 and 2018. The study, which made use of the error correction model, found that taxes significantly and favorably affect Nigeria's industrial output. Olanipekun (2020) used the ARDL-ECM to evaluate, for the years 1970 to 2018, fiscal policy variables vis-à-vis industrial, service, and agricultural sectors of the economy. The outcome demonstrates that government investment spending in Nigeria has unpleasant effect on agriculture but a considerable impact on industrial sector. Using the manufacturing sub-sector as a proxy, Olawumi and Adesanmi (2020) investigated the implications of corporate tax revenue on industrial sector production in

Nigeria between 1983 and 2018. Using the ARDL model, the study discovered a favorable correlation between Nigeria's manufacturing sector output and corporate income tax

Using the ordinary least square method, Etim et al. (2020) conducted study on effects of taxes on Nigeria's industrial sector from 1985 to 2018. The findings indicate the company income tax and VAT have a negligible and unfavorable effect on Nigeria's manufacturing industry. In 2019, Ewubare and Ozo-Eson conducted study on impact of taxes on Nigeria's industrial sector between 1980 and 2017. Through the application of ECM, the study discovered that company income tax had a major and favorable impact. Imide (2019) investigated the effects of FP on Nigeria's industrial sector between 1980 and 2017, using OLS.The Nigerian manufacturing sector was shown to be positively, but marginally, impacted by government spending and corporate income tax.

Applying ARDL, Jeff-Anyeneh et al. (2019) examined the nexus between public spending and industrial sector expansion in Nigeria between 1981 and 2016. The study discovered that fiscal policy has no beneficial effects on Nigeria's manufacturing subsector. Kalu et al. (2018) used natural gas and crude oil as proxies for the industrial sector to examine the outcome of stabilization policies on Nigeria's industrial sector from 1981 to 2015. The study's use of an error correction model and its findings demonstrate the important influence fiscal policy has on Nigeria's industrial sector's growth.

Using an error correction model, Ajudua and Imoisi (2018) investigated the relationship between Nigeria's industrial sector and fiscal policy from 1986 and 2016. The manufacturing sub-sector was used to represent the industrial sector, and it affirmed that government spending has considerable effect on manufacturing industry in Nigeria, whilst government revenue has a negligible impact. Loto and Musa (2018) evaluated the impact of macroeconomic policy on Nigeria's industrial sector from 1981 to 2018 using a non-linear ARDL bound test approach. It was discovered that there is a long-term correlation between Nigeria's industrial subsectors and the fiscal policies.

Felix et al. (2017) investigated how Nigeria's industrial sector performed between 1982 and 2014 in relation to fiscal policy. Utilizing a multiple regression, the study asserted that government spending lowers the output of Nigeria's manufacturing sector. The industrial sector was represented by the manufacturing sector's production. Olawale et al. (2017) used the manufacturing sector as a stand-in for industrial sector to evaluate the effects of government expenditure from 1970 to 2014. Using the ARDL model, the study discovered a favorable impact. Chikelu and Okoro (2016) also used ECM to evaluate how capital expenditure affects Nigeria's industrial sector from 1981 to 2014. The outcome affirms that capital spending has a major effect on the sector.

Iweriebor et al. (2015) also found an appreciable effect of government expenditure on Nigeria industrial sector, having applied ECM for the period of 34 years, 1980 to 2013. Using Analysis of Variance (ANOVA), Raymond et al. (2015) carried out a similar research from 2008 to 2015. The findings indicate that fiscal policy contribute maximally to the sector's performance. Using an error correction mechanism, Bakare-Aremu and Osobase (2015) assessed monetary and fiscal policies' effects on industrial sector between 1970 and 2009. The results demonstrate that while monetary and fiscal policies affect Nigeria's mining industry negatively, they can spur the growth of Nigeria's manufacturing sector.

Gap in the Literature

Majority of studies carried out by scholars on the impact of fiscal policy on industrial sector in Nigeria only concentrated on manufacturing sector under the components of industry, while

few looked into crude petroleum and natural gas, neglecting solid minerals sector. The study by Sebil (2023) only focused on mining sector, which is one segment of the solid mineral sector. The neglect of this important sector has created an empirical gap which this study intends to fill. This study therefore used solid minerals to proxy industrial sector because no research work has been carried out on this sector vis-a-vis fiscal policy.

3. DATA AND METHODOLOGY

3.1. Theoretical Framework

This study is anchored on Wagner's theory of public expenditure theory. The reason for adopting the Wagner's theory of expenditure is because of its emphasis on increasing state activities through industrialization which would help to generate employment opportunities, increase purchasing power of individuals as well as boost productivity. Therefore, the applicability of this theory will contribute to the growth of the economy at large.

3.2. Model Specification

The Autoregressive Distributed Lag Model is used to quantify the growth of Nigeria's industrial sector by using fiscal policy. The method was used since it does not necessitate the integration of all variables in the same order and also produces robust results even in cases of small samples. The study included solid minerals output (SMO) as the proxy for industrial sector development which is the dependent variable. Other explanatory variables of the model include government capital expenditure on mining and quarrying sector (GCE), corporate income tax (CIT) and exchange rate (EXC). These variables are modelled in line with the model of Jeff-Anyeneh et al. (2019) with little modifications. The model is thus given as:

$$IPI = f(GREXP, GCEXP) \quad (1)$$

Where, IPI = Industrial Performance Index, GREXP = Government Recurrent Expenditure, GCEXP = Government Capital Expenditure. The model of this study is however, specified functionally as;

$$SMO = f(GCE, EXC, CIT) \quad (2)$$

Where: SMO = Solid Minerals Output, GCE = Government Capital Expenditure, EXC = Exchange Rate, CIT = Company Income Tax. The stochastic form is written as:

$$SMO_t = \beta_o + \beta_1 GCE_t + \beta_2 EXC_t + \beta_3 CIT_t + £_t \quad (3)$$

Where, £ = stochastic error term

Equation 3 can be transferred into logarithm so as to enable the coefficients be interpreted as elasticities. Therefore, the transformed model is given as:

$$\Delta \ln SMO = \ln\beta_0 + \beta_1 \ln SMO_{t-1} + \beta_2 \ln GCE_{t-1} + \beta_3 \ln EXC_{t-1} + \beta_4 \ln CIT_{t-1} + \sum_{i=1}^{p} \alpha 1i \Delta \ln SMOt - 1 + \sum_{i=1}^{q} \alpha 2i \Delta \ln GCE_{t-1} + \sum_{i=1}^{q} \alpha 3i \Delta \ln EXCt - 1 + \sum_{i=1}^{q} \alpha 4i \Delta \ln CITt - 1 + \mu_t \quad (4)$$

Table 3.1: Description and Measurement of Variables

Variables	Descriptions	Measurements	Sources of Data
Solid Minerals Output (SMO)	It is the total output of production made by the	Measured in billions of naira	**CBN Statistical Bulletin (2021)**

	solid minerals sub-sector		
Government Capital Expenditure on mining and quarrying sector (GCE)	This is fund used by the government to provide physical infrastructures in the mining and quarrying sub-sector	Measured in billions of naira	**National Bureau of Statistics (NBS) Various Years**
Company Income Tax	This is a type of tax levied by government on financial income generated by all entities within their jurisdiction	Measured in percentages	**CBN Statistical Bulletin (2021)**
Exchange Rate	This is the rate at which one US dollar is exchanged for naira	Measured in percentages	**CBN Statistical Bulletin (2021)**

Source: Researchers' Computation (2023)

3.3. Data Analysis Techniques

The analysis is time series based, and NBS and CBN statistics Bullletin provided the data for the variables. The ADF test was adopted to ascertain stationarity. To check for long-term relationships, the Johansen cointegration test was also performed. The model's parameters are estimated using the ARDL approach.

4. RESULTS AND DISCUSSION OF FINDINGS

4.1. Stationarity Test

The stationarity is established using ADF test and the result is stated in Table 1.

Table 1: ADF Unit Root Test

Variables	ADF Stat	Critical Value @5%	Order of Integration	P Value	Remarks
SMO	-3.45338	-2.95113	I(1)	0.0158	Stationary
GCE	-6.01610	-2.94840	I(0)	0.0000	Stationary
CIT	-6.96238	-2.95113	I(1)	0.0000	Stationary
EXC	-3.57128	-2.95113	I(1)	0.0118	Stationary

Source: Eviews 10 Output.

The result in Table 1 shows that solid minerals output (SMO), company income tax (CIT) and exchange rate (EXC) were stationary at first difference while government capital expenditure on mining and quarrying sector was stationary at level. It is then concluded that the model is stationary.

4.2. Lag Length Selection Criteria

Choosing the ideal lag length is essential for estimating the parameters of this model. Table 2 displays the outcome of this investigation, which used VAR lag length selection criterion.

Table 2: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-43.30742	NA	0.000207	2.867116	3.048511	2.928150
1	51.30020	160.5463*	1.78e-06*	-1.896982*	-0.990008*	-1.591813*
2	58.77817	10.87704	3.13e-06	-1.380495	0.252058	-0.831191
3	71.91937	15.92872	4.21e-06	-1.207234	1.150899	-0.413794

Source: Eviews 10 Output

Lag one is chosen as the appropriate lag length from the result. This is decided based on AIC which has the lowest value.

4.3. Cointegration Test (Bounds Test)

To verify the long run relationship, cointegration analysis is required for all time series data. The ARDL bounds test was utilized, taking into account the mixed order of integration. Table 3 reports the outcome of cointegrarion test.

Table 3: ARDL Bounds Test for Cointegration

ARDL Bounds Test
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	4.990159	3

Critical Value Bounds

Significance	I0 Bound	I1 Bound
5%	3.23	4.35

Source: Eviews 10 Output.

There is a long-term relationship amongst the variables, according to the ARDL Bounds test result shown in Table 3. This is seen from the value of F-statistics of 4.990159 which is greater than upper bounds (4.35) at 5 percent. The study concludes a long run relationship among solid minerals output, government capital expenditure on mining and quarrying sector, company income tax and exchange rate. Thus, the study do not accept the null hypothesis.

4.4. Autoregressive Distributed Lag Model

Given the cointegration of the variables under investigation, the ARDL model is the most suitable approach for estimating the model's parameters. Table 4 displays the outcome.

Table 4: Long-Run and Short Run ARDL Results

Long run Estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.070711	0.113972	0.620419	0.5397
SMO(-1)	0.974145	0.044055	22.11188	0.0000
CIT(-1)	-0.021764	0.032787	-0.663788	0.5119
GCE(-1)	0.037720	0.022549	1.672820	0.1048
EXC(-1)	0.028987	0.035671	0.812633	0.4228

Short Run Estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006290	0.011938	0.526939	0.6024
D(SMO(-1))	0.970635	0.365893	2.652786	0.0130
D(CIT(-1))	-0.030342	0.047433	-0.639679	0.5276
D(GCE(-1))	0.027779	0.016343	1.699761	0.1003
D(EXC(-1))	-0.067227	0.037442	-1.795513	0.0834
ECM(-1)	-0.892492	0.419307	-2.128492	0.0422

R-squared	0.406148	Mean dependent var	2.774412
Adjusted R-squared	0.300103		
F-statistic	3.829965	Durbin-Watson stat	1.745778
Prob(F-statistic)	0.009064		

Source: Eviews 10 Output.

From the result, the constant values for both long run and short run estimates are 0.0707 and 0.0063 respectively. This means that if all variables are fixed, the value of solid minerals output will be 0.0707 and 0.0063 respectively. The coefficients of the lagged value of solid minerals output (SMO) are 0.9741 and 0.9706 respectively. SMO has positive relationship with the current value of solid minerals output. This implies that 1 percent rise in the past value of SMO will increase its current value by 0.97 percent. The p value of 0.0000 and 0.0130 also shows that the past values of SMO are statistically significant with the current value of SMO. This variable conforms to a priori expectation and it corroborates the findings of Ozuzu and Isukul (2021) and Ubong and Ettah (2020) which found in their studies that fiscal policy has positive and considerable effect on industrial sector in Nigeria.

The value of government capital expenditure on mining and quarrying (GCE) in the long run is 0.0377 and 0.0278 in the short run show positive relationship with solid minerals output. It implies that 1 percent rise in GCE will increase the solid minerals output by 0.04 percent and 0.03 percent. Judging from the p value, GCE is statistically insignificant at 5 percent. This positive relationship implies that government capital expenditure in mining sector has helped to increase SMO to some extent. The findings however follow that of Jeff-Anyeneh et al (2019); Ajudua and Imoisi (2018) which exert that public spending has positive impact on industrial sector in Nigeria. It as well conforms to a priori expectation because government capital expenditure is expected to increase the output of solid minerals sector as it will provide the enabling environment for the investors to work and also attract new investors.

Furthermore, the coefficients of the past value of company income tax (CIT) which stands at -0.0218 in the long run and -0.0303 in the short run show a negative relationship. It indicates

that 1 percent rise in CIT will reduce SMO by 0.02 and 0.03 respectively. The variable is also not statistically significant as the p values of 0.5119 and 0.5276 are greater than 5%. The implication of this negative relationship is that the percentage of CIT charged in the solid minerals sector has reduced the output. This is because the industries that invest in this sector do not make profit immediately the investment is made. So, the 30 percent CIT rate for this sector is causing reduction in its contribution to bringing about growth in the economy. This result is expected and also corroborates the findings of Etim et al (2020) which found that CIT is inimical to the growth of industrial sector.

The long-term coefficient of exchange rate is 0.0289, while the short-term coefficient is -0.0672. This suggests that a 1% increase in exchange rates will result in a 0.03 percent long-term increase in the production of the solid minerals sector and a 0.07 percent short-term decrease in SMO. Since the p values are higher than five percent significance level, the exchange rate is statistically insignificant in relation to the output of solid minerals. The solid minerals sector's output increased during the study period, as indicated by the positive long-term association; however, in the short term, the opposite was true. The rationale is that since foreign firms make up the bulk of those who invest in the development of mineral resources, it is simpler for them to import capital goods at reasonable costs from their home nations. Long-term, however, this result deviates from the a priori forecast given the volatility of Nigeria's currency rate. The ECM value is -0.8925 and it implies that disequilibrium of 89 percent will be adjusted for in the present year.

According to the goodness of fit measure, R2, which is calculated as 0.4061, the government capital expenditure on mining and quarrying, company income tax, and exchange rates account for approximately 41% of the variation in the output of solid minerals. The variables represented by the error term, or those that impact fiscal policy but are not able to be explicitly expressed in the model, account for the remaining 59% of the explanation. The F-statistic of 3.8299 indicates joint significance of the variables. A model is considered free of autocorrelation if D-W is equal to or larger than 2. Thus, with D-W value of 1.75, it may be said that this model does not exhibit autocorrelation, and the null hypothesis that autocorrelation does not exist is accepted.

4.5. Post Estimation Diagnostic Tests

4.5.1. Heteroscedasticity Test

An estimated model with non-constant variance may produce a biased outcome, thus, the Breusch-Godfrey serial correlation LM test was utilized to check if the model is homoscedastic.

Table 5: Heteroscedasticity Result
Heteroskedasticity Test: BPG

F-statistic	2.113671	Prob. F(5,28)	0.0933
Obs*R-squared	9.316551	Prob. Chi-Square(5)	0.0971
Scaled explained SS	6.249076	Prob. Chi-Square(5)	0.2827

Source: Eviews 10 Output.

The probability F-statistic and Obs*R-squared values are 0.0933 and 0.0971, respectively, as reported in Table 5. At the five percent significance level, these numbers exceed the critical value. Consequently, it is determined that the model does not contain heteroscedasticity because the residuals are homoscedastic.

Stability Test

The stability test is necessary in a time series data to check if a model is correctly specified or not. This study used the Recursive CuSum and CuSum of square tests to establish stability status.

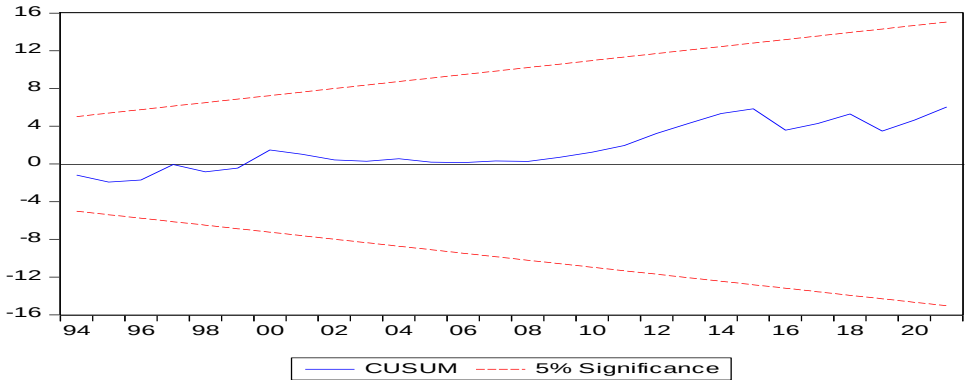

Figure 1: CUSUM Test

Source: Eviews 10 Output

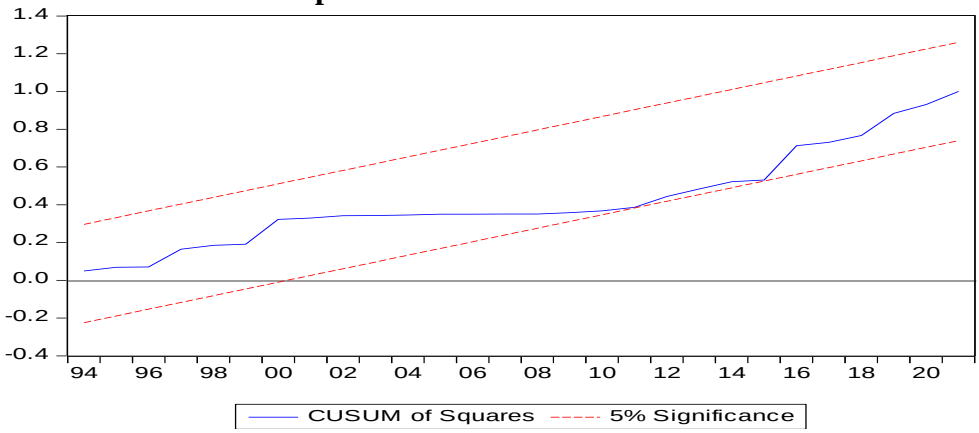

Figure 2: CUSUM OF Squares Test
Source: Eviews 10 Output

From these results, the model is stable and correctly specified since the base lines fall within the five percent boundaries.

5. CONCLUSION AND RECOMMENDATIONS

The study examines the impact of fiscal policy on industrial sector development in Nigeria, using solid minerals output to proxy industrial sector from 1986 to 2021. The key findings revealed that favourable and considerable effects exist between GCE and SMO in Nigeria.This positive relationship implies that GCE has helped to increase the output of the sector to some extent. The estimate of exchange was also found to be positive and statistically insignificant in the long run while it exerts insignificant negative impact in the short run. Moreover, it was revealed that company income tax of 30 percent is inimical to the growth of this sector, since it exerts negative as well as insignificant impact on solid minerals output in Nigeria.The model's reliability was conducted using autocorrelation, heteroscedasticity, stability tests and it was concluded that the variables (GCE, CIT and EXC) used to proxy fiscal policy are good predictor of solid minerals output. Thus, it is clear from the findings that fiscal policy is a good policy that can help to boost the output of industrial sector.

Policy Recommendations

In view of the major findings, these recommendations are provided.

i. Government should allocate more budget for capital expenditure in the mining and quarrying sector and also ensure that the funds are efficiently utilized to provide the necessary infrastructure needed. This would ensure smooth investment in this sector and as well increase the output of solid minerals.
ii. Government should also reduce the rate of company income tax for this sector because company income tax is inimical to the growth of solid minerals sector output. This rate should be reduced to about 18 or 20 percent in order to encourage investors who are willing to commit their resources in the development of this sector, irrespective of their country of origin.
iii. Government should formulate policy that will ensure stability of exchange rate so that local investors can invest in solid minerals sector.

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