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MACROECONOMIC ANALYSIS OF FISCAL POLICY AND SMALL AND MEDIUM-SCALE ENTERPRISES OUTPUT IN NIGERIA

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ABSTRACT

Fiscal policies, specifically taxation, affect the output growth of SMEs in most developing countries. This study analysed the impact of taxation on small and medium enterprises output in Nigeria using the Auto Regressive Distributed Lag model econometric technique using the ex-post facto research design. The econometric equation is anchored on the Solow-Swan and Keynesian theories. Secondary data from 1981 to 2022 was collected from The Central Bank of Nigeria, the International Labour Organization, and the World Bank Development Indicators. The unit root test showed that the variables were of mixed order of integration which warranted the use of the Bounds testing approach. Taxation had a positive and significant effect on SME output in the long run, loans and electricity supply were found to be positive and significant drivers of SME output in Nigeria. The study thus recommends that the long run effect of taxation should be considered by government when it has to do with SMEs. Also, efforts to shore-up the dedicated funds in specialized funding bodies like Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL) Bank of Industry should be activated to increase loans to SMEs. Third, government should open the electricity generation and distribution sector to private investors to enhance consumption.

Keywords: Government expenditure, SME Output, Employment, Bounds Test, Unit Root test
JEL Classification: D24, E21, G23

1 Introduction

The use of fiscal policy to promote employment and economic growth can be seen in the recent trend of tax policy reforms by countries worldwide. Such reforms have been geared towards promoting the inclusiveness of taxes. This phenomenon originated in the 1980s and has been sustained by the heads of numerous nations globally. The ongoing focus on fiscal policy reform is evident via multiple governments' implementation of tax reductions on personal income taxes for middle- and low-income individuals. The People's Republic of China recently implemented a series of tax cuts and tax reimbursements to support small businesses such as micro, small, and medium enterprises (MSMEs) and, as stated by the Chinese Premier in January 2022, achieve its employment target of over 13 million new urban jobs in 2022.

Fiscal policies, specifically taxation, affect the output growth of SMEs in most developing countries due to high tax rates and multiplicity of taxes. The high tax rate has become a characteristic feature of fiscal policy activities in Nigeria due to the drive to generate more revenue to meet expanding government size. According to Jack-Osimiri (2022), the current tax system across the nation is characterized by the duplication and multiplicity of taxes by the various tiers of government, has diminishing effects on investment and capital base and, in most cases, leads to the failure of firms in the country. The nature of the system of taxation in Nigeria, which, as observed, whose effect on firm performance tends to be negative, has been attributed to factors such as greed, a perceived unfair revenue structure, and the desire of states and municipal governments to increase internally generated money (Jack-Osimiri *et al*., 2022).

The use of fiscal policy is also reflected in the increase in global government expenditure. This can be seen in data that shows a growth rate of government spending in Nigeria (expenditure on consumption) from 1.58 percent in 1982 to 6.24 percent in 2021. The data reveals that government expenditure grew by an average of 2.81 percent. The data also shows that government expenditure increased from 1.49 percent in 1982 to 8.44 percent in 2021, with a growth rate average of 3.45 percent.

The challenge of identifying micro, small, and medium enterprises (MSMEs) has been successfully addressed by adopting the National Policy on MSMEs, which is comparable to the practices used in industrialized economies. Micro-firms are businesses that have total assets less than five

million Naira worth and employ fewer than 10 individuals. On the other hand, small enterprises have total assets worth that exceed five million Naira but are less than fifty million Naira and employ above 10 staff but below forty-nine individuals. While Medium Enterprises companies have a total asset (not Fixed) that surpasses fifty Million Naira but are less than Five Hundred Million Naira. Additionally, they employ a workforce consisting of 50 to 199 employees. According to Azubuike et al. (2018), the CBN has classified a small-scale industry as one with a total investment of less than 2.5 million naira, including the cost of land, and an annual revenue of less than N12.5 million.

Small enterprises are enterprises that employ 10 to 49 persons, while medium enterprises are enterprises that employ 50 to 249 persons. On the other hand, the National Bureau of Statistics, (2017) defines small enterprises as enterprises that have assets, not including buildings and land, above ₦10 million, but not more than ₦100 million and employ 10 to 49 persons, while medium enterprises are an enterprise which has assets, not including buildings and land, of above ₦50 million, but not more than ₦1 billion and employ 50 to 199 persons (Ajuwon *et al*., 2017; Onyeje *et al*., 2022). In this study, SMEs are defined from the National Bureau of Statistics (2020.) perspective. Thus, small enterprises are defined as enterprises located within the nation that have assets, not including buildings and land, between ₦5 million but not more than ₦1 billion and employ 10 to 199 persons. The rest of the work is divided into four parts with the second focusing on theoretical and empirical review. The third part looked at the method of study, the fourth presents the data, analysis, and discussion of findings, while part five is the conclusion and policy recommendations.

2 Theoretical and Empirical Review

The Keynesian theory believes that aggregate demand, measured by how much individuals, businesses, and the government spend, is the most important variable that moves an economy forward. Keynes opines that free markets do not have the self-balancing mechanism that ensures full employment of productive resources. According to the hypothesis, government involvement through public expenditure is required for an economy to achieve full employment (Jahan et al., 2014), and government public expenditure is a function of its tax activities. Thus, the output of the economy, and by extension, the output of small and medium sized enterprises, according to the Keynesian theory, is affected by the level of government intervention in economic activities, including its tax level.

The study conducted a review of local empirical studies investigating the effect of fiscal policy on SME performance. In one of such study, Essien et al. (2016) evaluated how government spending affect SMEs between 1970 and 2015 through the use of the ARDL model and VECM. The findings are that government spending, bank loans to SMEs, and interest rates significantly impacted Nigerian SMEs.

Gbande et al. (2018) utilised the Error Correction Model (ECM) to assess the impact of fiscal policy on progress of small and medium-sized companies (SMEs) from 1999 to 2016. Their findings suggest that the utilisation of the tax rate as a fiscal policy instrument has a minimal impact on the growth of Nigeria's small and medium-sized enterprises (SMEs). The findings further indicate that government investment exerts a significant impact on the growth of Nigeria's small and medium-sized enterprises (SMEs).

Agu et al. (2019) investigated the influence of taxation on the operational efficiency of SMEs in Aba, Abia State. The questionnaire functioned as the primary instrument in the survey technique. A survey was conducted, gathering a random sample of 162 individuals who were either employees or business owners from 40 SMEs. The collected data underwent examination by multiple regression analysis and a one-sample t-test. The findings demonstrated a significant and favourable association between taxes and the performance of SMEs. Furthermore, research has demonstrated that the assessment, collection, and distribution of taxes have considerable impact on the expansion of SMEs in Aba.

In their study, Goodwill et al. (2020) conducted research at the state level to examine the impact of tax policy on investment by SMEs in Calabar. The Chi-Square method was used to analyze data from 75 SMEs. The results indicate that the tax policy implemented by the state government has a detrimental and substantial impact on the investment choices of SMEs in Cross River State.

Inim et al. (2020) did a study from 2007 to 2019 to investigate the impact of taxation on SMEs expansion in Nigeria. The analytical methodology employed in the study was co-integration and error correction modelling. The conclusions indicate that SME expansion in Nigeria was significantly influenced by value-added tax (VAT) and corporation income tax (CIT). The impact of Customs and Excise Duty (CEDT) on their expansion, however, was determined to be insignificant. The analysis confirmed the anticipated inverse correlation between the three variables, specifically CIT, VAT, and CEDT, and the growth of SMEs.

Wasiu et al. (2022) examined the influence of fiscal policy on the expansion of SMEs in Nigeria. They used World Bank's Enterprise Survey data, which included a total of 354 SMEs. Based on analysis employed several statistical models, including OLS, Probit, and Logit. The results indicate that fiscal policy has a minimal and insignificant influence on SMEs. This is determined by assessing level of hindrance caused by tax administration, registration status, and level of competition. The results also indicated that theft, capacity utilisation, and access to finance influence the significant growth of SMEs in Nigeria.

3. Methodology

The research design which guided the conduct of this study is an ex-post facto design, based on analytical approach and strategy. This

enables the logical and coherent integration of the variant components of a study to ensure that the thorough investigation of the research problem (Labaree, 2013).

According to the Keynesian theory, it is anticipated that government spending and presence of MSE will have favourable effect on employment in Nigeria. The Keynesian theory is based on the following aggregate demand equation:

$$Y = C + I + G + (X - M) \quad (1)$$

where

Y = Aggregate output

C = Aggregate consumption expenditure

I = Aggregated investment expenditure

G = Aggregate government expenditure

(X-M) = Net exports (imports - exports)

In the above equation, Y is aggregate supply/output/income, while the summation of C, I, G and (X-M) are aggregated demand/expenditure. Specifically, based on the theory, G is dependent on the fiscal policy (taxation) actions of the government. Again, in an economy, aggregate output/supply/income may be regarded as being equivalent to aggregate employment, while aggregate investment may be regarded as being a function of investment by firms such as SMEs. Thus, replacing Y, G and I with SME output, taxation and investment in Nigeria and, holding other components of constant, the Keynesian aggregate demand model is adapted for this study as follows:

$$MSEO = f(TAX, INT, SSE, LSME, ELECT)$$

where:

MSEO = Micro and small enterprise output in Nigeria (proxy by wholesale and retail trade output and measured in naira billion) Ngutsar and Ijirshar (2020)

TAX = Tax (in billions of Naira and used as a measure of fiscal policy in Nigeria)

INT = Interest rate (measured as commercial bank lending interest rate in per cent)

SSE = Human capital (measured by secondary school enrolment in Nigeria) (Eke and Eke, 2023)

LSME = Commercial bank loans to small scale enterprises (measured in billions of Naira)

ELECT = Electricity supply as measure of infrastructure

The specified Micro and Small Enterprises output equation is expressed in econometric form to enable the estimation of its parameters through the introduction of the stochastic error term (U_2). This is done as follows:

$$MSEO = \varphi_0 + \emptyset_1 TAX + \emptyset_2 LSME + \emptyset_3 SSE + \emptyset_4 ELECT + \emptyset_5 INT + U_2 \quad (3)$$

$$\emptyset_0 > 0, \emptyset_1 > 0, \emptyset_2 > 0, \emptyset_3 > 0, \emptyset_4 < 0 \ \& \ \emptyset_5 < 0$$

The ARDL structural equation for small and medium enterprises output equation is specified thus:

$$\begin{aligned}\Delta lnMSEO_t = {} & c_0 + \delta_1 lnMSEO_{t-1} \\ & + \delta_2 lnTAX_t + \delta_3 lnLSME_t \\ & + \delta_4 lnSSE_t + \delta_5 lnELECT_t \\ & + \delta_6 lnINT_t \\ & + \sum_{i=0}^{k} \lambda_7 \Delta lnTAX_{t-1} \\ & + \sum_{i=0}^{k} \lambda_8 \Delta lnLSME_{t-1} \\ & + \sum_{i=0}^{k} \lambda_9 \Delta lnSSE_{t-1} \\ & + \sum_{i=0}^{k} \lambda_{10} \Delta lnELECT_{t-1} \\ & + \sum_{i=0}^{k} \lambda_{11} \Delta lnINT_{t-1} \\ & + \mu \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (4)\end{aligned}$$

The study data is time series in nature and were obtained from secondary sources such as Federal Inland Revenue Service (FIRS), CBN Statistical Bulletin, WDI, and National Bureau of Statistics.

4. Result and Discussion of Findings

Descriptive statistics

Preliminary analysis was conducted to ascertain the statistical properties of the study variables using descriptive statistics, which shows the relationship and distribution of the variables is presented in Table 1. Averagely, the output of micro and small enterprises measured by wholesale and retail trade output stood at N6154.6 billion naira for the period of the study, with the maximum and minimum values put at N23, 288 billion and N12 billion, respectively. Taxation variables showed an average of N400 billion, with maximum and minimum of N1,747 billion and N3 billion for the period of the study. The descriptive statistics of other control variables reveal that the average interest rate for the period was 11 per cent, loan to the small and medium scale enterprises was N28 billion, secondary school enrolment was 32 per cent and electricity consumption was 107 kilowatts hour.

TABLE 1
Descriptive Statistics of variables

Variable	Observations	Mean	Median	Maximum	Minimum	Std. Dev.
MSEO	41	6154.663	1243.263	23288.43	12.49394	8070.750
TAX	41	400.0325	89.10000	1747.990	3.000000	531.5517
INT	41	11.02927	10.10000	23.20000	4.200000	4.084069
LSME	41	28.18979	16.06927	123.9321	0.000000	29.49390
SSE	41	32.87577	28.84042	56.20540	17.10584	9.620531
ELECT	41	107.3527	100.8120	154.1723	51.08055	28.33937

Source: Authors' compilation, 2024

Correlation matrix

The result of the correlation matrix is presented in Table 2 and reveal that all variables, except interest rate, exhibit positive correlations. Weak correlation was noticed in the relationships between interest rate and loan to loan to SMEs (-0.02) and between SME loan and secondary school enrolment (0.19). There were also moderate correlations between secondary school enrolment and interest rate (-0.47), interest rate and SME output (-0.50). There is a very strong correlation between micro and small enterprises outputs (MSEO) and several variables such as tax (0.98), secondary school enrolment (0.87) and electricity supply (0.83). This indicates a robust positive correlation between MSEO and tax, secondary school enrolment, and power supply.

TABLE 2

Correlation matrix of variables

	Variable	1	2	3	4	5	6
1	MSEO	1					
2	TAX	0.98	1.00				
3	INT	-0.50	-0.12	1.00			
4	LSME	0.32	0.54	0.45	1.00		
5	SSE	0.87	0.65	0.83	0.88	1.00	
6	ELECT	0.83	0.71	0.80	0.83	-0.32	1.00

Source: Authors' compilation, 2024

Unit Root Test Results

Unit root test is done to make sure false loss doesn't happen. The unit root test checks to see if a series follows the I(1) method, representing a stochastic trend, or the I(0) process. In other words, it exhibits a predictable pattern and remains constant over time. The estimated results in Table 6 indicate that the ADF unit root test showed that employment (EMP), micro, small enterprises output (MSEO), secondary school enrolment (SSE), interest rate (INT), electricity consumption (ELECT), and commercial banks loans to small scale enterprises (LSME) were stationary at first difference. On the other hand, government expenditures (GOV) and taxation (TAX) were stationary at the level, using a significance level of 5 per cent.

TABLE 3
Stationarity test of variables

Variables	ADF Level (ADF 1st Diff)	ADF Critical value level (ADF Critical value 1st diff) at 5%	Decision
MSEO	1.796860 (-5.798785)	-3.536601 (-3.536601)	1(1)

SSE	-0.966444 (-8.057611)	-2.936942 -2.936942	1(1)
INT	-1.457802 (-3.800568)	-2.943427 (-2.943427)	1(1)
TAX	-4.312359	-2.945842	1(0)
ELECT	-1.859244 (-8.454153)	2.935001 -2.936942	1(1)
LSME	-1.870801 (-7.945713)	-2.935001 (-2.936942)	1(1)

Source: Authors' computation, 2024.

Optimal Lag Length Selection

This study used VAR lag order choice to choose the lag lengths. The analysis outcomes reported in Table 4 suggest the maximum lag length of one at a five percent significance level for all the equations.

TABLE 4

Lag order selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-777.5066	NA	2.38e+11	40.38496	40.81151	40.53800
1	-718.5322	96.77863*	4.25e+10*	38.64268*	40.13562*	39.17833*
2	-705.5927	17.91612	8.58e+10	39.26117	41.82049	40.17943

Source: Authors' computation, 2023.

Result of the Bounds test

The bounds test results are shown in Table 5 as required before proceeding with empirical estimation of the models. The F-statistics of 17.52187 is greater than the values for both the upper and lower bounds, the null hypothesis is rejected because at 5% level of significance, the study variables are correlated in the long run. This supports examining how the factors in the model are related in the short- and long-term by cointegrating them.

TABLE 5
ARDL/Bounds test

Test Statistic	Value	K
F-statistic	17.52187	6
Critical value		
Significance level	I0 Bound	I1 Bound
10%	3.12	3.98
5%	3.13	4.12
2.5%	4.32	5.11
1%	4.33	5.41

Source: Authors' computation, 2024.

Short-Run Result

Table 6 shows short-run outcomes of the autoregressive distributed lag (ARDL) model for mean squared error (MSE) output equation. The findings show that the anticipated coefficient of the error correction term is statistically significant and negatively valued. According to the computed coefficient, the model rapidly adjusts from its initial imbalance to its final balanced condition in the long term by 86.05 per cent. This shows that the model is adapting quickly.

The data also revealed that the predicted coefficients of SME production one-year lag were negative and statistically insignificant. Furthermore, tax coefficients in both the present year and the one-year lag period had a sign that contradicted theoretical a priori expectations, as they were positive even though statistically insignificant. A unit increase in tax brought about a 0.11 billion increase in SME output in the current year and a 0.06 billion increase in SME output. In both cases however, the result was not statistically significant. Interest rate also had a negative but insignificant effect on SME output as a one percent increase in interest rates reduces SME output by 0.34 billion naira.

Loan to SMEs and secondary school enrolment rate were found to positively impact on SME output while electricity consumption hurts SME output, and all the three variables were statistically significant.

TABLE 6
Short-run ARDL result.

Variable	Coefficient	Standard Error	t-Statistic	Probability
D(MSEO(-1))	-0.223126	0.447173	-0.498969	0.6222
D(TAX)	0.110883	0.269637	0.411230	0.6844
D(TAX(-1))	0.063512	0.085566	0.742253	0.4649
D(LSME)	0.116890	0.051282	2.279374	0.0314
D(LSME(-1))	0.080799	0.055371	1.459228	0.1570
D(SSE)	0.003421	0.001845	1.854120	0.0756
D(SSE(-1))	0.009173	0.002274	4.034182	0.0005
D(ELECT)	-0.376448	0.197357	-1.907447	0.0680
D(ELECT(-1))	-0.388196	0.209404	-1.853814	0.0756
D(INT)	-0.328152	0.216052	-1.518856	0.1413
ECM (-1)	-0.860580	0.027320	-3.149989	0.0058
Adjusted R-squared	0.583961	F-ststistic		202.23
D.W Stat.	1.218	Prob (F-Stat)		0.00000

Source: Authors' computation, 2024.

It can be deduced from the result that an increase in loan to SMEs by one billion naira raises the SME output level by 0.116 billion in the economy and this is statistically significant at 5 per cent level. Also, an increase in the secondary school enrolment by one per cent brings about an increase in SME output 0.003 billion in the country. With regards to electricity consumption, an increase in one kilowatts hour reduces SME output by 0.376 billion.

The R-squared adjusted value of 0.58 confirms taxation and different control variables describe around 58% of the total variation in SME production. This means that the factors in the model can't explain about 42% of the variation. The F-statistic, which is around 202, shows that all of the factors in the equation are statistically and collectively important. The Durbin-Watson (D-W) number of 1.218 means that the model does not have any autocorrelation.

Long -run result for micro and small enterprises equation.

The long run result for the micro and small enterprises equation as represented on Table 7 shows that all the explanatory variables were consistent with their theoretical postulations except commercial banks loans to SME (LSMEs).

TABLE 7
Long-run ARDL result

Variable	Coefficient	Std. Error	t-Statistic	Probability
Constant	-354.8295	1819.908	-0.194971	0.8465
TAX	14.41666	1.111073	12.97544	0.0000
LSME	-0.110760	0.052847	-2.095886	0.0456
SSE	0.426016	0.107823	3.951066	0.0005
ELECT	34.85079	21.90317	1.591130	0.1206
INT	-47.02302	74.71004	-0.629407	0.5332
R-squared	0.967326	F-Stat		207.23
Adjusted R-squared	0.962658	Prob (F-Stat)		0.0000
D.W	1.33			

Source: Author's compilation, 2023

Long-run estimates revealed that the coefficients of taxes (TAX), secondary school enrolment (SSE), and electricity supply (ELECT) were all positively connected with the outputs of micro and small companies (MSEO). According to the data, a single tax hike increased the output of micro and small companies (MSEs) by 14.41 billion.

Furthermore, a one percent increase in secondary school enrolment results in a 0.426016 billion rise in MSE output in the country. Regarding power consumption, a one-kilowatt-hour increase results in a 34.9 billion rise in MSE production. The variables TAX and SSE were statistically significant at a significance level of 5%, as evidenced by p-values less than 0.05 of 0.0000 and 0.0005, respectively. The statistics show that LSMEs and INT have negative relationships with MSEO. The LSMEs variable is considered statistically meaningful because its p-value of 0.0456 is less than the significance level of 0.05. But the INT variable is statistically insignificant because p-value of 0.5332 is greater than 0.05.

These numbers show that MSE's long-term income drops by 47 billion naira for every 1% rise in interest rates. If you lend one billion naira more to small and medium-sized businesses (SMEs), their output will go down by 0.111 billion naira in the long run. The numbers show that MSE's long-term income drops by 47 billion naira for every 1% rise in interest rates. If you lend one billion naira more to small and medium-sized businesses (SMEs), their output will go down by 0.111 billion naira in the long run.

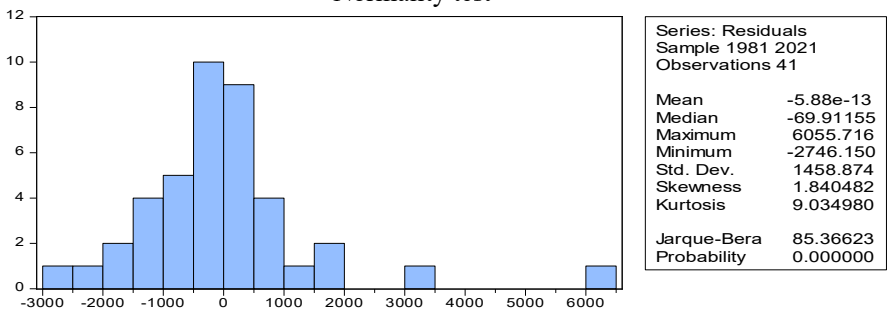
Post Estimations Tests

The results of the normality test for the micro and small enterprise equation can be seen in Figure 3. According to the null hypothesis distribution is uniform if the p-value is both not significant and more significant than the 5% significant level that was picked. The null hypothesis, which says distribution is normally distributed, should be thrown out because the p-value of the Jargue–Bera test (0.000001) is less than 5% significance level.

CUSUM test result as shown in figure 4 above indicates that the blue line falls within the upper

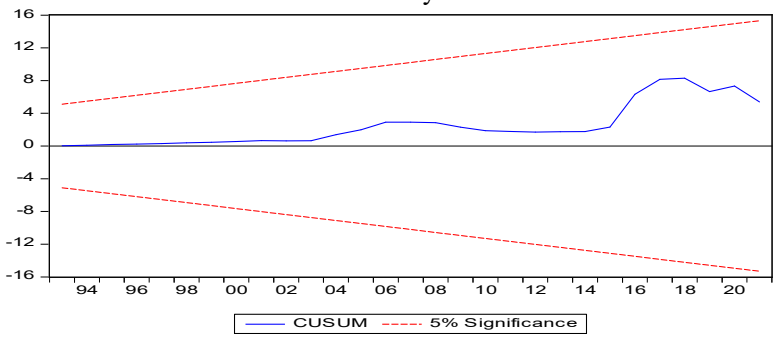
and the lower bound, therefore, we conclude that our model is stable throughout analysis.

FIG. 1
Normality test



Source: Researchers' computation, 2024.

FIG 2
Stability test



Source: Researchers' computation, 2024.

The study discovered a favourable but insignificant association between tax and SME output in the short-run and a positive and statistically significant effect in the long-run. Gbande et al. (2018) did a macro-level investigation and found that tax rates had no substantial influence on SMEs in Nigeria, which is consistent with the short-run findings of this study.

5. Conclusion and Recommendations

The paper examined the effect of fiscal policy on SME output in Nigeria from 1980 to 2022. The analysis employed various statistical techniques, including unit root tests and short and long-run ARDL estimate methods. The research design is an analytical approach used in ex-post facto research. The equation was formulated based on the Solow-Swan neoclassical growth theory and the Keynesian theory of public expenditure.

Furthermore, the Dickey-Fuller unit root test result showed that SMEO, INT and TAX were stationary at the level and hence integrated of order zero, while SSE, IFR, and LSME were stationary after first differencing, making them integrated of order one. The Bounds test also revealed long-run and short-run cointegrating relationships among the variables in the specified model. Taxation had a positive and significant effect on SME output in the long run, loans and electricity supply were found to be positive and significant drivers of SME output in Nigeria. The study thus recommends that the long run effect of taxation should be considered by government when it has to do with SMEs. Also, efforts to shore-up the dedicated funds in specialized funding bodies like Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL) Bank of Industry should be activated to increase loans to SMEs. Third, government should open the electricity generation and distribution sector to private investors to enhance consumption.

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