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Small and Medium Enterprises Development and Employment Generation in Nigeria

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Abstract: This study examines small and medium enterprises development and employment generation in Nigeria using secondary time series data obtained from the Statistical Bulletin of Central Bank of Nigeria. In executing the study, the econometric regression techniques of the Ordinary Least Square (OLS) was applied after determining stationarity of our variables using the ADF Statistic, as well as the cointegration of variables using the Johansen approach and it was discovered that the variables are stationary and have a long term relationship among the variables in the model. From the result of the OLS, it is observed that gross domestic product, government expenditure and commercial banks credit to SMEs have a positive relationship with SMEs growth and development in Nigeria. On the other hand, unemployment and interest rate have a negative relationship with SMEs. Apart from government expenditure and unemployment rate which was not significant, gross domestic product, commercial banks credit to SMEs and interest rate significantly influence SMEs contribution to employment generation. The study therefore recommends that: The government should be definite about SMEs registration status. This will enable them qualify for government supervised scheme. Government should give grants to innovative SMEs in different areas of economic activities. The grants should be accessed at the local government levels so as to ensure accountability and consequently increase the number of people employed in the SMEs sector. Government should provide collateral, creating and supporting specific loans to SMEs through supervised credit schemes. This will help reduce high mortality rate of SMEs and boost employment.

Keywords: Gross Domestic Product, Government expenditure, Unemployment rate, Commercial Banks Credit, Interest rate.

1. INTRODUCTION

Small and Medium Enterprises have made remarkable contributions to the growth and development of both advanced and emerging economies globally (Shettima, Sharma & Banerji, 2020). Today, with the increasing number of economic activities in various economies, nearly 600 million jobs will be needed to absorb the rising workforce globally. Universally, SMEs accounts for around 90% of businesses and more than 50% of employment (Umar, Alasan & Mohammed, 2020; World Bank, 2020). In Nigeria, apart from employment generation, Small and Medium Enterprises (SMEs) contribute up to 40% of GDP and they significantly increase when combined with informal SMEs in wealth creation, poverty alleviation and income generation. Small and medium enterprises are in various sectors of the economy, including

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agriculture, manufacturing, services, retail, export and technology innovation, among others (Umar, Alasan & Mohammed, 2020; World Bank, 2020). OECD (1996) posits that between 30 and 60 per cent of SMEs can be characterised as *innovative***,** of which some 10 per cent are *technology-based*. Innovative SMEs tend to be *market-driven* rather than research-driven, and quicker in responding to new opportunities than large firms. They play a key role in pioneering and developing new markets. Programmes for improving the diffusion of technology have shifted from a supply focus to raising the capacity of SMEs to absorb technology (OECD, 1996).

Despite the observed contributions of small and medium enterprises in agriculture, manufacturing, services, retail, export and technology innovation, among others unemployment and the attendant poverty situation still soar in Nigeria. The government and other stake holders have made frantic effort at addressing the unemployment situation in Nigeria through various skills acquisition programmes and attracting of foreign direct investments into the country to help ameliorate the rising unemployment situation in the country yet the conundrum persists (Aderemi, Omitogun & Osisanwo, 2022). Available empirical literature posits that the unemployment situation in the country could be attributed to high mortality rate of small and medium enterprises. According to Effiom and Edet (2018) majority of newly established SMEs fail to survive their first two years, while existing ones are either shutting or operating at sub-optimal levels. This assertion is corroborated by Thompson and MacMillan (2010), who posited that "the failure rate for start-ups is high. And new ventures in emerging economies face such challenges as uncertain prices and cost, non-existent or unreliable infrastructure, and unpredictable competitive response". There will be inevitable consequence if the role of small and medium enterprises in the growth and development of the nation is undermined because small and medium enterprises make up about 97% of the economic activities through job creation, poverty alleviation and foreign exchange conservation (Olisah, 2023).

The small and medium enterprises sector contribution to the Gross Domestic Product is said to be relative low given that over 90% of the economic activities in the country are Small and medium enterprises based. Although indicators show that the sector had improved significantly since 1999, but it is still however far from meeting the targeted ideals as the sector is faced with a number of constraints such as the lack of credit availability which hampers the growth of small scale businesses in Nigeria (Olateju & Ibikunle, 2023). Olateju and Ibikunle (2023) posit that a number of challenges constrain small and medium enterprises in Nigeria from making the required contrition the development of the country. Some of the challenges mentioned include inadequate financing, high interest rate of banks, and harsh economic policy by the government, high level of taxation, etc. Consequently, considering the important role of that small and medium enterprises have played and continue play in most successful economies in terms employment generation, wealth creation, poverty reduction and sustainable economic growth and development, it warrant an empirical investigation to ascertain the extent to which the identifies challenges affect the capacity of SMEs in generating employment (Shettima, Sharma & Banerji, 2020; Fiseha & Oyelana, 2015; Taiga, Yusuf. & Onuorah, 2019). This is important because achieving full employment has been one of the main macroeconomic focuses of every government in an effort to attain economic growth and development. A country's economic growth is the process where the real per capital income of a country increases over a long period of time. This is measured by the increase in the amount of goods and services produced in a country. However, the level of employment can be used to measure or drive the level of economic growth and development in a country (Taiga, Yusuf. & Onuorah, 2019; Al-Haddad, Sial, Ali, Alam, Khuong & Khanh, 2019; Ijirshar, Mile & Ijirshar, 2023; Ilo, Soyebo & Olowofela, 2023; Mokuolu & Oluwaleye, 2023; Oke, Soetan & Ayedun, 2023).

Objective of the Study

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The broad objective of the study is to examine the influence of small and medium enterprises on employment generation in Nigeria. Specifically, this study seeks to:

1. Determine the effect of Gross Domestic Product on small and medium industry output.
2. Ascertain the effect of Government expenditure on small and medium industry output.
3. Examine the effect of Unemployment rate on small and medium industry output.
4. Determine the effect of Commercial Banks Credit small and medium industry output.
5. Ascertain the effect of Interest rate on small and medium industry output

Hypotheses of the Study

Ho_1: Gross Domestic Product has no significant effect on small and medium industry output.
Ho_2: Government expenditure has no significant effect on small and medium industry output.
Ho_3: Unemployment rate has no significant effect on small and medium industry output.
Ho_4: Commercial Banks Credit has no significant effect on small and medium industry output.
Ho_5: Interest rate has no significant effect on small and medium industry output

2. METHODOLOGY

Model Specification

The model for this study will be based on the insight gain from Nwoga, (2007) and modifications made. This modification was the introduction of the government expenditure and unemployment rate in the model. In line with this, this study will adopt Nwoga, (2007) style of model. Thus, the model equation for this study is stated as follow:

The structural form of the model is:

$$SME = f(GDP, GEXP, UMPL, CBC, INTR) \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots (1)$$

The mathematical form of the model is:

$$SME = \beta_0 + \beta_1 GDP + \beta_2 GEXP + \beta_3 UMPL + \beta_4 CBC + \beta_5 INTR \quad \ldots \quad \ldots (2)$$

The econometric form of the model is:

$$SME = \beta_0 + \beta_1 GDP + \beta_2 GEXP + \beta_3 UMPL + \beta_4 CBC + \beta_5 INTR\ R + \mu_i \quad \ldots (3)$$

Where; SME = Small and Medium enterprise captured by small and medium industry output
GDP = Gross Domestic Product
GEXP = Government expenditure
UMPL = Unemployment rate
CBC = Commercial Banks Credit
INTR = Interest rate
β_0 = Intercept of the model
$\beta_1 - \beta_5$ = Parameters of the regression coefficients
μ_i = Stochastic error term

Method Of Data Analysis

The economic technique employed in the study is the ordinary least square (OLS). This is because the OLS computational procedure is fairly simple a best linear estimator among all unbiased estimation, efficient and shown to have the smallest (minimum variance) thus, it become the best linear unbiased estimator (BLUE) in the classical linear regression (CLR) model. Basic assumptions of the OLS are related to the forms of the relationship among the distribution of the random variance (μ_i). OLS is a very popular method and in fact, one of the most powerful methods of regression analysis. It is used exclusively to estimate the unknown parameters of a linear regression model. The Economic views (E-views) software will be adopted for regression analysis.

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Evaluation of Parameter Estimates

The estimates obtained from the model shall be evaluated using three (3) criteria. The three (3) criteria include:

1. The economic a priori criteria.
2. The statistical criteria: First Order Test
3. The econometric criteria: Second Order Test

Evaluation based on economic a priori criteria

This could be carried out to show whether each regressor in the model is comparable with the postulations of economic theory; i.e., if the sign and size of the parameters of the economic relationships follow with the expectation of the economic theory. The a priori expectations, in tandem with the manufacturing sector growth and its determinants are presented in Table 1 below, thus:

Table 1: Economic a priori expectation

Parameters	Variables		Expected Relationships
	Regressand	Regressor	
β_1	SME	GDP	+
β_2	SME	GEXP	+
β_3	SME	UMPL	-
β_4	SME	CBC	+
β_5	SME	INTR	-

Source: Researchers compilation

A positive '+' sign indicate that the relationship between the regressor and regressand is direct and move in the same direction i.e. increase or decrease together. On the other hand, a '-' shows that there is an indirect (inverse) relationship between the regressor and regressand i.e. they move in opposite or different direction.

Evaluation based on statistical criteria: First Order Test

This aims at the evaluation of the statistical reliability of the estimated parameters of the model. In this case, the F-statistic, standard error, t-statistic, Co-efficient of determination (R^2) and the Adjusted R^2 are used.

The Coefficient of Determination (R^2)/Adjusted R^2

The square of the coefficient of determination R^2 or the measure of goodness of fit is used to judge the explanatory power of the explanatory variables on the dependent variables. The R^2 denotes the percentage of variations in the dependent variable accounted for by the variations in the independent variables. Thus, the higher the R^2, the more the model is able to explain the changes in the dependent variable. Hence, the better the regression based on OLS technique, and this is why the R^2 is called the co-efficient of determination as it shows the amount of variation in the dependent variable explained by explanatory variables.

However, if R^2 equals one, it implies that there is 100% explanation of the variation in the dependent variable by the independent variable and this indicates a perfect fit of regression line. While where R^2 equals zero. It indicates that the explanatory variables could not explain any of the changes in the dependent variable. Therefore, the higher and closer the R^2 is to 1, the better the model fits the data. Note, the above explanation goes for the adjusted R^2.

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Standard Error test (S.E): The standard error test is used to test if the regression coefficients of the explanatory variables are statistically significant, individually (different from zero). The precision or reliability of estimates (i.e., the intercepts and scopes) would also be measured by the Standard Error.

The F-test: The F-statistics is used to test whether or not, there is a significant impact between the dependent and the independent variables. In the regression equation, if calculated F is greater than the table F table value, then there is a significant impact between the dependent and the independent variables in the regression equation. While if the calculated F is smaller or less than the table F, there is no significant impact between the dependent and the independent variable.

The t-statistic: This is used to determine the reliability/statistical significance of each variable coefficient. Here, the absolute t-value of each coefficient is compared with a tabular t-value and if greater than a tabular t-value, such variable possessing the coefficient is accepted as statistically significant and fit to be used for inferences and possibly for forecasting.

Evaluation based on econometric criteria: Second Order Test

This aims at investigating whether the assumption of the econometric method employed are satisfied or not. It determines the reliability of the statistical criteria and establishes whether the estimates have the desirable properties of unbiasedness and consistency. It also tests the validity of non-autocorrelation disturbances. In the model, Durbin-Watson (DW), unit root test, co-integration test are used to test for: autocorrelation, multicolinearity and heteroskedasticity.

***Stationarity (unit root) test*:** The importance of this test cannot be overemphasized since the data to be used in the estimation are time-series data. In order not to run a spurious regression, it is worthwhile to carry out a stationary test to make sure that all the variables are mean reverting that is, they have constant mean, constant variance and constant covariance. In other words, that they are stationary. The Augmented Dickey-Fuller (ADF) test would be used for this analysis since it adjusts for serial correlation.

Decision rule*:* If the ADF test statistic is greater than the MacKinnon critical value at 5% (all in absolute term), the variable is said to be stationary. Otherwise it is non stationary.

***Cointegration test*:** Econometrically speaking, two variables will be cointegrated if they have a long-term, or equilibrium relationship between them. Cointegration can be thought of as a pre-test to avoid spurious regressions situations (Granger, 1986:226). As recommended by Gujarati (2004), the ADF test statistic will be employed on the residual.

Decision Rule: if the ADF test statistic is greater than the critical value at 5%, then the variables are cointegrated (values are checked in absolute term)

Test for Autocorrelation

The Durbin-Watson (DW) test is appropriate for the test of First-order autocorrelation and it has the following criteria.

1. If d* is approximately equal to 2 (d* =2), we accept that there is no autocorrelation in the function.
2. If d*= 0, there exist perfect positive auto-correlation. In this case, if 0<d*< 2, that is, if d* is less than two but greater than zero, it denotes that there is some degree of positive autocorrelation, which is stronger the closer d* is to zero.
3. If d* is equal to 4 (d*=4), there exist a perfect negative autocorrelation, while if d* is less than four but greater than two (2<d*< 4), it means that there exist some degree of negative autocorrelation, which is stronger the higher the value of d*.

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***Test for multicolinearity*:**
This means the existence of an exact linear relationship among the explanatory variable of a regression model. It is use to determine whether there is a correlation among variables.

Decision Rule: From the rule of Thumb, if correlation coefficient is greater than 0.8, we conclude that there is multicolinearity but if the coefficient is less than 0.8 there is no multicolinearity.

Test for heteroscedasticity:
The essence of this test is to see whether the error variance of each observation is constant or not. Non-constant variance can cause the estimated model to yield a biased result. White's General Heteroscedasticity test would be adopted for this purpose.

Decision Rule: We reject H_0 if $F_{cal} > F_{tab}$ at 5% critical value. Or alternatively, we reject H_0 if $n.R^2 > x^2$ tab at 5% critical value.

3. EMPIRICAL RESULTS AND ANALYSES

Stationary Unit Root Test
The Augmented Dickey-Fuller (ADF) test for unit roots was conducted for all the time series employed for the study. The ADF results in Table 2 show that all the variables are non-stationary in levels, that is, *I*(0). However, they are all stationary at their first differences, that is, they are *I*(1). Since the ADF absolute value of each of these variables is greater than the 5% critical value, they are all stationary at their first differences. The result of the regression (stationary unit root test) is presented in appendix 2 and the summary in table 2 below.

Table 2: Summary of ADF test

Variables	ADF Statistics	Lagged difference	5% Critical Value	Order of Integration
SME	-4.834036	1	-2.960411	Statistically stationary at *I*(1)
GDP	-5.489200	1	-2.960411	Statistically stationary at *I*(1)
GEXP	-5.396728	1	-2.960411	Statistically stationary at *I*(1)
UMPL	-6.404135	1	-2.960411	Statistically stationary at *I*(1)
CBC	-4.626230	1	-2.960411	Statistically stationary at *I*(1)
INTR	-9.992178	1	-2.960411	Statistically stationary at *I*(1)

Source: Researchers computation

These results from table 2 show that at 5% critical value, small and medium enterprises development (SME), gross domestic product (GDP), government expenditure (GEXP), unemployment rate (UMPL), Commercial Banks credit (CBC) and interest rate (INTR) are not stationary at level form (i.e. they are not integrated at order zero; *I*(0)). The variables are only stationary at first difference. That is, they are integrated at order one; *I*(1). This result is expected, since most macro-economic time-series data are known to exhibit non-stationary at level form.

Since our variables are non-stationary (i.e. at level form), we go further to carry out the cointegration test. The essence is to show that although all the variables are non-stationary, the variables have a long term relationship or equilibrium between them. That is, the variables are cointegrated and will not produce a spurious regression.

Summary Johansen Cointegration Test
Cointegration means that there is a correlationship among the variables. Cointegration test is done on the residual of the model. Since the unit root test shows that all the variables are stationary at first difference

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1(1), we therefore test for cointegration among these variables. The result is presented in tables 2 below for Trace and Maximum Eigenvalue cointegration rank test respectively.

Table 3: Summary of Johansen Co-integration Test

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.908385	163.0760	95.75366	0.0000
At most 1 *	0.676509	88.98110	69.81889	0.0007
At most 2 *	0.617768	53.99496	47.85613	0.0119
At most 3	0.454930	24.18141	29.79707	0.1929
At most 4	0.143556	5.369352	15.49471	0.7684
At most 5	0.018073	0.565382	3.841466	0.4521
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.908385	74.09490	40.07757	0.0000
At most 1 *	0.676509	34.98614	33.87687	0.0367
At most 2 *	0.617768	29.81356	27.58434	0.0254
At most 3	0.454930	18.81205	21.13162	0.1024
At most 4	0.143556	4.803970	14.26460	0.7664
At most 5	0.018073	0.565382	3.841466	0.4521

Source: Researchers computation

Table 3 indicates that trace have only 3 cointegrating variables in the model while Maximum Eigenvalue indicated only 3 cointegrating variables. Both the trace statistics and Eigen value statistics reveal that there is a long run relationship between the variables. That is, the linear combination of these variables cancels out the stochastic trend in the series. This will prevent the generation of spurious regression results. Hence, the implication of this result is a long run relationship between Small and Medium enterprise captured by small and medium industry output and other macroeconomic variables used in the model.

Presentation of result

The data for the result of the regression test is presented in table 4 below.

Table 4: Summary of regression results

Dependent Variable: SME
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	23.03838	0.623185	36.96876	0.0000
GDP	1.42E-05	2.16E-06	6.575930	0.0000
GEXP	2.81E-07	2.58E-07	1.090821	0.2850
UMPL	-1.701385	0.043563	-0.231782	0.9749
CBC	5.38E-07	2.30E-07	2.335443	0.0272
INTR	-3.096451	0.032486	-2.968984	0.0062
R-squared	0.909937	F-statistic		54.55809
Adjusted R-squared	0.893259	Prob(F-statistic)		0.000000
S.E. of regression	0.775086	Durbin-Watson stat		1.408038

Source: Researchers computation

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Evaluation of the Estimated Model

To analyze the regression results as presented in table 4, we employ economic a prior criteria, statistical criteria and econometric criteria.

Evaluation based on economic a priori criteria

This subsection is concerned with evaluating the regression results based on a priori (i.e., theoretical) expectations. The sign and magnitude of each variable coefficient is evaluated against theoretical expectations.

From table 4, it is observed that the regression line have a positive intercept as presented by the constant (c) = 23.04. This means that if all the variables are held constant (zero), SME will be valued at 23.04. Thus, the a-priori expectation is that the intercept could be positive or negative, so it conforms to the theoretical expectation.

From table 4, it is observed that gross domestic product, government expenditure and commercial bank credits to small and medium enterprises have a positive relationship with small and medium enterprises development. This means that when gross domestic product, government expenditure and commercial bank credits to small and medium enterprises increases, there will be increase and improvement in small and medium enterprises development. On the other hand, unemployment and interest rate have a negative relationship with small and medium enterprises development. From the regression analysis, it is observed that all the variables conform to the a priori expectation of the study. Thus, table 5 summarises the a priori test of this study.

Table 5: Summary of economic a priori test

Parameters	Variables		Expected Relationships	Observed Relationships	Conclusion
	Regressand	Regressor			
β_0	SME	Intercept	+/-	+	Conform
β_1	SME	GDP	+	+	Conform
β_2	SME	GEXP	+	-	Conform
β_3	SME	UMPL	-	+	Conform
β_4	SME	CBC	+	+	Conform
β_5	SME	INTR	-	-	Conform

Source: Researchers compilation

Evaluation based on statistical criteria

This subsection applies the R^2, adjusted R^2, the S.E, the t–test and the f–test to determine the statistical reliability of the estimated parameters. These tests are performed as follows:

From our regression result, the **coefficient of determination (R^2)** is given as 0.909937, which shows that the explanatory power of the variables is very high and/or strong. This implies that 90.99% of the variations in the growth of the GDP, GEXP, UMPL, CBC and INTR are being accounted for or explained by the variations in SME. While other determinants of small and medium enterprises development as proxied by small and medium industry output not captured in the model explain just 9.01% of the variation in the growth of SME in Nigeria.

The **adjusted R^2** supports the claim of the R^2 with a value of 0.893259 indicating that 89.33% of the total variation in the dependent variable (small and medium enterprise development as proxied by small and medium industry output is explained by the independent variables (the regressors)). Thus, this supports the statement that the explanatory power of the variables is very high and strong.

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The **standard errors** as presented in table 4 show that all the explanatory variables were all low. The low values of the standard errors in the result show that some level of confidence can be placed on the estimates.

The **F-statistic:** The F-test is applied to check the overall significance of the model. The F-statistic is instrumental in verifying the overall significance of an estimated model. The F-statistic of our estimated model is 54.55809 and the probability of the F-statistic is 0.0000. Since the probability of the F-statistic is less than 0.05, we conclude that the explanatory variables have significant impacts on small and medium enterprise development via small and medium industry output growth in Nigeria.

Alternatively, F-statistic can be calculated as:

V_1 / V_2 Degree of freedom (d.f)

V_1 = n-k, V_2 = k-1:

Where; n (number of observation); k (number of parameters)

Where k-1 = 6-1= 5

Thus, df = 33-6= 27

Therefore, $F_{0.05(5,27)}$ = 2.21 (From the F table) … F-table

F-statistic = 54.55809(From regression result) … F-calculated

Since the F-calculated > F-table, we reject H_0 and accept H_1 that the model has goodness of fit and is statistically different from zero. In other words, there is significant impact between the dependent and independent variables in the model.

T-statistic: Here, we compare the estimated or calculated t-statistic with the tabulated t-statistic at $t_{\alpha/2}$ = $t_{0.05}$ = $t_{0.025}$ (two-tailed test).

Degree of freedom (d.f) = n-k = 33-6 = 27

So, we have:

$T_{0.025(27)}$ = 2.052... Tabulated t-statistic

Here, we are interested in determining the statistical reliability and significance of the individual parameters used in our model. We shall do this by comparing the absolute t-value of each coefficient with the critical t-value of 2.052 and if the absolute t-value is greater than 2.052, such variable possessing the coefficient is accepted as statistically significant and fit to be used for statistical inference and possibly for forecasting. This exercise is shown in the table below:

Table 6: Summary of t-test

Variable	t-tabulated ($t_{\alpha/2}$)	t-calculated (t_{cal})	Conclusion
Constant	±2.052	36.96876	Statistically Significance
GDP	±2.052	6.575930	Statistically Significance
GEXP	±2.052	1.090821	Statistically Insignificance
UMPL	±2.052	-0.231782	Statistically Insignificance
CBC	±2.052	2.335443	Statistically Significance
INTR	±2.052	-2.968984	Statistically Significance

Source: Researchers computation

From table 6, the ***t-test*** result is shown and the individual hypothesis consider below;

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For GDP, $t_{\alpha/2} < t_{cal}$, therefore we reject the null hypothesis and accept the alternative hypothesis. This means that GDP have a significant impact on SME.

For GEXP, $t_{\alpha/2} > t_{cal}$, therefore we accept the null hypothesis and reject the alternative hypothesis. Thus, GEXP do not have significant impact on SME.

For UMPL, $t_{\alpha/2} > t_{cal}$, therefore we accept the null hypothesis and reject the alternative hypothesis. Thus, UMPL do not have significant impact on SME.

For CBC, $t_{\alpha/2} < t_{cal}$, therefore we reject the null hypothesis and accept the alternative hypothesis. This means that CBC do has a significant effect on SME.

For INTR, $t_{\alpha/2} < t_{cal}$, therefore we reject the null hypothesis and accept the alternative hypothesis. This means that INTR have a significant impact on SME.

Evaluation based on econometric criteria

In this subsection, the following econometric tests are used to evaluate the result obtained from our model: autocorrelation, multicolinearity and heteroscedasticity.

Test for Autocorrelation

Using Durbin-Watson (DW) statistics which we obtain from our regression result in table 4 it is observed that DW statistic is 1.408038 or 1.41%, which indicate the absence of autocorrelation in the series so that the model is reliable for predications.

Test for Multicolinearity

This means the existence of an exact linear relationship among the explanatory variable of a regression model. This means the existence of an exact linear relationship among the explanatory variable of a regression model. This will be used to check if collinearity exists among the explanatory variables. The basis for this test is the correlation matrix obtained using the series. The result is presented in table 7.

Table 7: Summary of Multicollinearity test (correlation matrix).

Variables	Correlation Coefficients	Conclusion
GDP and GEXP	0.754268	No multicollinearity
GDP and UMPL	0.779254	No multicollinearity
GDP and CBC	0.708923	No multicollinearity
GDP and INTR	0.487781	No multicollinearity
GEXP and UMPL	0.754466	No multicollinearity
GEXP and CBC	0.750712	No multicollinearity
GEXP and INTR	0.387130	No multicollinearity
UMPL and CBC	0.712877	No multicollinearity
UMPL and INTR	0.290740	No multicollinearity
CBC and INTR	0.323172	No multicollinearity

Source: Researchers computation

Decision Rule: From the rule of Thumb, if correlation coefficient is greater than 0.8, we conclude that there is multicolinearity but if the coefficient is less than 0.8 there is no multicolinearity. We therefore, conclude that the explanatory variables are not perfectly linearly correlated.

Test for Heteroscedasticity

This test is conducted using the white's general heteroscedascity test.

Hypothesis testing: H_0: $\beta_0 = \beta_1 = \beta_2 = \beta_3 = 0$ (homoscedastic)

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H_1: $\beta_0 = \beta_1 = \beta_2 = \beta_3 \neq 0$ (heteroscedastic)

We observe that the probability of F- statistic of the white test is 0.0015. Since the probability of F- test is less than the 0.05 significance level, we accept the null hypothesis that there is heteroscedasticity in the residuals. This goes to say that the residuals of our estimated model do have a constant variance (homoscedastic). This finding has some adverse implications. Amongst these is the bias that heteroscedasticity may create in the standard errors and t-values, hence leading to erroneous inferential decisions. To circumvent this, we employed the Newey-West method. This crucial technique produces Heteroscedasticity and Autocorrelation Consistent (HAC) standard errors. Therefore, notwithstanding the presence of heteroscedasticity in the residuals of our estimated model, our inferences remain untainted, since the Newey-West method has neutralized the consequences of heteroscedasticity on the standard errors.

4. CONCLUSION AND RECOMMENDATIONS

The study attempted to explain the influences and contributions of small and medium enterprises on employment generation in Nigeria from 1999-2022 using Ordinary least Square (OLS) technique method. All data used are secondary data obtained from the Statistical Bulletin of Central Bank of Nigeria. In executing the study, the OLS techniques was applied after determining stationarity of our variables using the ADF Statistic, as well as the cointegration of variables using the Johansen approach and was discovered that the variables are stationary and have a long term relationship among the variables in the model. From the result of the OLS, it is observed that gross domestic product, government expenditure and commercial banks credit to SMEs have a positive relationship with SMEs growth and development in Nigeria. On the other hand, unemployment and interest rate have a negative relationship with SMEs. This means that when SMEs is increasing, unemployment will be reducing. Finally, the study shows that there is a long run relationship exists among the variables. Both R^2 and adjusted R^2 show that the explanatory power of the variables is very high or strong. The standard errors show that all the explanatory variables were all low. The low values of the standard errors in the result show that some level of confidence can be placed on the estimates. Following the findings, this study recommends that: The government should be definite about SMEs registration status. This will enable them qualify for government supervised scheme. Government should give grants to innovative SMEs in different areas of economic activities. The grants should be accessed at the local government levels so as to ensure accountability and consequently increase the number of people employed in the SMEs sector. Government should provide collateral, creating and supporting specific loans to SMEs through supervised credit schemes. This will help reduce high mortality rate of SMEs and boost employment.

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