IMPACT OF CREDIT, INTEREST RATE AND INFLATION ON SMALL AND MEDIUM ENTERPRISES PRODUCTIVITY IN NIGERIA

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ABSTRACT

This study sought to evaluate the impact of credit, interest rate and inflation on Small and Medium Enterprises Productivity in Nigeria, using annual time series data from 1986-2023. The data for the study was sourced from the World Development Indicator (WDI) and the Central Bank of Nigeria (CBN) statistical bulletin. The data collected were gross domestic product (GDP) which is the dependent variable while commercial bank total credit to private sector (CPS), small and medium enterprises contribution to GDP (SMEC), inflation rate (INFL) and interest rate (INT) are the independent variables. Descriptive, inferential statistics and Error Correction Model (ECM) were used to test the long run relationship of the variables. The results of the regression show that credit to private sector and small and medium enterprises contribution to gross domestic product is positive and significant to economic growth. The results further revealed that inflation rate and interest rate have a negative and insignificant effect on gross domestic product. The study recommends that government should put more efforts to curb inflation to give more confident to investors and should implement measures (low interest rates) that would broaden the borrowing base to improve financial capacity of SMEs, thus lead to an increase in the contribution of SMEs to nation's GDP.

KEYWORD*: SME, Interest rate, Inflation, GDP.*

1.INTRODUCTION

Small and medium scale enterprises (SMEs) are pivotal to the growth of national and regional economies. Hence, they are acknowledged as the engine of economic growth that promote economic well-being particularly in developing and emerging market economic through employment generation and poverty alleviation. SMEs contributes to GDP, increases revenue from taxes, develops human capacity, fosters entrepreneurship culture, generates income, and improves the quality of life of members a society (Adeyemi, 2011). Ateke and Nwiepe (2017) add that SMEs fundamental components of the economic fabric of developed and emerging economies that stimulate economic growth, promote innovation and enhance prosperity. The word 'small and medium scale enterprises' has as many interpretations as they have applications. It has been used inter-changeably by the researchers, policy makers, and business advisors. They are informal sector, small business, small firms, small-scale industries (SSI), small scale enterprise (SSE), small and medium enterprise (SME), medium and small-scale industry (MSSI), micro, small and medium enterprise (MSME) and micro enterprise (ME). Variants of expressions are used among and within different countries.

The entrepreneur plays a central role in capitalist economies (Schumpeter, 1934, 1939; Vaz-Curado and Mueller, 2019). therefore, the question regarding the factors that explain the expansion or contraction of entrepreneurship in economies is of vital importance (see, e.g., Gnyawali and Fogel, 1994; Keilbach, et al., 2008). The role of credit and finance in enhancing entrepreneurship has been ignored or underweighted in conventional wisdom (Hodgson, 2021). The conventional wisdom some economic historians (e.g., Postan, 1935; Pollard, 1964) have adopted theorizes that entrepreneurs finance their businesses with their own savings and by reinvesting their profits or borrowing from their family and friends. In this framework, financial institutions play a minor role in financing entrepreneurial activities (Heaton, 1937; Trew, 2010). In sharp contrast, many international studies violate this view and emphasize that financial institutions play a key role in economic development (e.g., Hodgson, 2021; Trew, 2010).

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Furthermore, the attainment of a prosperous economy will remain elusive in the midst of high interest rate because it stagnates economic growth and hinders expansion of businesses. Developing nations have maintained a double-digit interest rate which makes cost of borrowing from banks relatively high compared to a single digit in many developed countries. In developed economies 98% of all enterprises are SMEs, employing 80% of labour in Japan, 50% in Germany, 46% in USA and contributing 39% of national income to the USA economy (Udechukwu, 2003), and 60% to the Chinese GDP in 2014 (Lam & Liu, 2020). These statistics suggests that lending to SMEs makes meaningful impact to when they are long-term oriented. However, lenders always preferred the opposite because of the volatile, high mortality rate and high risk involved in lending to SMEs. In addition, economic theory has always pointed to the harmful effects of inflation on the growth of economies, whether through expectations, the costs of investing, the difficulty of predicting relative prices in the future or even the political aspects associated with austerity measures of macroeconomic policy (Dressler, 2016). In general, it is understood that macroeconomic policy is clearly important for economic growth because of its role in reducing uncertainty and encouraging investment by economic agents (Barro & Sala-I-Martin, 2004; Aghion & Howitt, 2009; Acemoglu, 2009; Ramzi & Viem, 2016).

Therefore, with the individual effect of credit, interest rate and inflation on small and medium enterprise productivity in Nigeria, the survival rate of SMEs has been a contending issue in Nigeria. Obiwuru et al. (2012) and Basil (2005) reveals that about 80% of SMEs die within their first five years of establishment, a smaller percentage survive the first five years but goes into extinction in the sixth to tenth year while five to ten per cent survive, thrive and goes into maturity. Access to credit facility has been a major constraint limiting the growth of SMEs in relation to its contribution to gross domestic product (Lam & Liu, 2020; Opara, 2011; Onyenebo, 2018; Basil, 2005; Ayuba & Zubairu, 2015). It is no doubt that apart from funds sourced internally by operators of SMEs in the country, the external source of funds comes from the banking sector (Aremu & Adeyemi, 2011). High interest rate discourages operators of SMEs from accessing these loans to finance their businesses; low interest rate attracts investment and causes expansion of economic output (Ojeaga & Odejimi, 2014).

There is indeed no controversy about the importance of SMEs to the wellbeing of nations; and their funding has attracted the attention of scholars and policy-makers. Previous studies focused on explaining drivers of growth of SMEs less on credit, interest rate, inflation, and more on internal competences and sundry environmental variables. With a view to joining the discourse on growth of SMEs and contribute to the growing body of knowledge on the topic therefore, this paper examines the impact of credit, interest rate and inflation on SMEs productivity in Nigeria.

Statement of the Problem

This study was informed by the perceived paradox of growth in Nigeria. As the GDP grows, it is expected that it trickles down to other sectors of the economy by ways of greater utilisation of local raw materials, employment generation, encouragement of rural development, development of entrepreneurship, mobilisation of local savings, linkages with bigger industries, provision of regional balance by spreading investments more evenly, provision of avenue for self-employment and provision of opportunity for training managers and semi-skilled workers. Unfortunately, the reverse is the case. The country's citizens continued to record a dwindling economic situation, low levels of purchasing power, inability to access capital for business expansion and low level of standard of living, increase in unemployment and underemployment, and low level of absorption capacity of the informal sector enterprise. In spite of the fact that SMEs have been regarded as the backbone of most economies for employment generation and technological development, its impact on Nigeria economic growth and development has been low, thus warranting an empirical probing to various SMEs drivers and inhibitors that impact on the growth in Nigeria. In recent times, however, economic growth and development and their drivers have been examined by researchers from various standpoint and with varying literary perspectives. The impact of Small and Medium Enterprises on the growth and development of the Nigerian economy have also been investigated (Eze and Okpala, 2015; Muritala *et al.*, 2012; Offor, 2012; Opafunso and Adepoju, 2014). For example, Offor (2012) carried out similar research but the study regress only Small-Scale Industries Output and real interest rate on GDP. Eze and Okpala (2015) included Output of Small and Medium Scale Enterprises, Bank Credit to SMEs, Interest rate, and Government Expenditure among others.

This study is important and it fills a gap by expanding models of previous researchers to include other variables that either propel or inhibit SMEs from impacting positively on economic growth in Nigeria, Thus the inclusion of small and medium enterprises contribution to GDP, inflation, interest and credit to private sector. Furthermore, if SMEs in Nigeria are restructured to impact heavily on GDP in Nigeria, arguably it will help to address the challenges of unemployment, poverty, and a host of other human miseries.

The main objective of this study is to investigate the impact of credit, interest rate and inflation on SMEs productivity in Nigeria. But the specific objectives are; (i) Examine the contribution of Small and Medium Enterprises on Economic growth in Nigeria; (ii)

investigate the impact of Inflation on the growth of SMEs in Nigeria and (iii) to determine the impact of Credit to SMEs on economic growth in Nigeria.

2.LITERATURE REVIEW

The role of SMEs in the creation of employment opportunities and poverty alleviation in the economy has very strong empirical support, for instance while   giving an insight into the contribution of SMEs in the economic growth, carpenter (2012) in his book opined that, about 70 percent of SMEs industries account for development in developed countries. SMEs today account for the bulk of output in most countries. They have also proven beyond doubt to be employment creators in China where they employed more than 50 percent of the work force. While in Nigeria, SMEs in both the formal and informal sectors employs over 60 percent of the workforce (Ashamu, 2014). Therefore, the argument on the role of small and medium scale enterprises in ameliorating the menace of unemployment in the national economy has been in the front burner for years and this has geared many scholars on the subject to conduct researches that could beam light on the issue. It is in the   same spirit that reviewing past research studies on the subject becomes imperative (Omadjohwoefe, 2011).

Adeyemi and Lanrewaju (2014) assessed the impact of Small and medium business entrepreneurship on poverty reduction in Ibadan metropolis, South Western Nigeria. The study population was drawn from a register of relevant trade associations and published government documents, which yielded a total of 383 enterprises. The study used simple percentage and logit regression as a tool of analysis. The empirical results indicated that individuals in and small business entrepreneurship in Ibadan metropolis earnings increased by 39%. The study found that the impact could have been more pronounced but for some socio-economic, infrastructural and management challenges. The study recommends strengthening of entrepreneurship, increased publicity of government Business Development and Support Services, liberalization of access to and usage of business premises, reduction in cost of production, improvement of infrastructural facilities among others.

Emerole and Edeoga (2015) conducted a study on employment creation and income generation potential of small and medium scale enterprise in Abia state, Nigeria. With reference on poultry and bakery, beyond the broad objective, the study sought specifically to assess the income generating capacity of these firms, and assess their employment capacity and its determinants. Sixty samples were randomly selected from each of these SMEs; Income statement account and multiple regression analysis were used to analyze the data collected. The Income Statement Account reveal that an average poultry in Abia state metropolis has an income generating capacity of ₦2,534,200 and average bakery ₦3,151,056 annually. The regression coefficient revealed that Size of the firms (0.638) at 1% level of significant, Number of department (0.611) at 5% level of significant is positively related to the employment capacity of these firms, Availability of labour (-0.636) and profitability of the organization (-3.138) has a negative relationship with the employment capacity of these firms. Each of these firms has a minimum of two employees and maximum of five persons, while one hundred and twenty (120) firms studied has a total number of three hundred and eighteen (318) employees. The researcher concluded that the employment creation and income generation potential of small and medium scale enterprises are indispensable for economic development of Abia state in particular and Nigeria as a whole. Thus he recommended that government should encourage more entrepreneurs through the creation of social amenities and reviewing of tax policies which have a negative influence on their income generating capacity.

James (2015) examined the role of small-scale enterprises in the achievement of economic growth in Nigeria. The problems hindering the small-scale enterprises from achieving their full potentials as the agents of growth and development were highlighted. Suggestions and recommendations were made with a view to solving the identified problems. One essential function of small-scale enterprises is that they provide employment to large number of Nigerians residing in both the rural areas and the urban centres thereby helping to solve the nagging problem of unemployment in the country. When unemployed people are given gainful employment, it reduced the spate of social ills, such as, robbery, prostitution, advance fee fraud (419) and kidnapping in the society. The operation of numerous small-scale enterprises also boosts trading activities because the employed people are earning money which they can spend in obtaining good and services. Descriptive research method was adopted in this article. The study population used consists of 50 small-scale enterprises chosen through simple random sampling from businesses operating in two states (Lagos and Anambra States). A total of 250 questionnaires were administered (that is five questionnaires for each of the 50 enterprises). Tables and percentages were subsequently used to analyze the data extracted from the completed questionnaires. Apart from other supportive facts and figures, more than 77.7% of the respondents strongly believed that small-scale enterprises in Nigeria serve as veritable instrument for achieving economic growth. Ilegbinosa and Jumbo (2015) empirically examined the impact of Small and Medium Scale Enterprises on Nigeria's economic growth from 1970 to 2012. The study collected both primary data for 84 SMEs and secondary data for the statistical analysis. The ordinary least square (OLS), co-integration and error correction model were employed as statistical tools to estimate the data collected during the period of this study. The variables used include Gross Domestic Product as the dependent variable and Finance Available to Small and

Medium Enterprises, Interest rate and Inflation rate as the independent variables. The result of the analysis revealed that finance available to SMEs was positively related to economic growth while interest rate and inflation rate showed a negative and positive influence on economic growth respectively.

Chinweuba and Sunday (2015) conducted a quantitative analysis of the impact of Small and medium scale enterprises (SMEs) on Nigeria's economic growth performance for the sample period 1993 to 2011. The econometric technique adopted for the study was multiple regression method based on ordinary least squares technique. The study adopted the Augmented Dickey Fuller (ADF) unit root test to check for the order of stationarity of the variables employed. The Johansen cointegration test conducted to show evidence of long run equilibrium relationship between small and medium scale enterprises and economic growth. The result of the regression reveals that output of the small scale enterprises does not make any significant contribution to Nigeria's economic growth performance. The study concludes that poor government policies, on tariffs and incentives, bribery and corruption, non-existent.

Mashimba and Khul (2015) examined the performance of Micro and Small-Scale Enterprises (MSEs) in Tanzania; a growth hazards of fruit and vegetables processing vendors. The study locations were selected as sample using simple random sampling procedure and the survey method was used to collect data from the respective small enterprises. Panel data were used given the large size of the sample. The study employs the Cox proportional (Cox PH) analytical tool to investigate growth of studied MSEs over time. The analysis evolves interaction manager-owner's intrinsic knowledge, resources, and geographical proximity of sampled enterprises. The results show a low growth rate of studied enterprises, i.e. at 0.25 and 0.16 per year for revenue and capital investment respectively. The main factors associated to studied MSEs growth are MSE's operational capital; number of owners; staff-size; profit; annual production of products; access to basic market information; linkage to supportive bodies; business improvement services; distances to inputs sources and marketplaces; and manager-owner's age as well as experience in business activities.

Brown, Earle and Lup (2016), employed panel data techniques to analyze a survey of 297 new small enterprises in Romania containing detailed information from the start-up date through 2016. They found strong evidence that access to external credit increases the growth of both employment and sales, while taxes appears as constrain to growth. The data suggest that entrepreneurial skills have little independent effect on growth, once demand conditions are taken into account. The evidence for the effectiveness of technical assistance is weak: only assistance provided by foreign partners yields a positive effect. A wide variety of alternative measures of the business environment (contract enforcement, property rights, and corruption) are tested, but none are found to have any clear association with firm growth.

Niskanen and Niskanen (2017) investigated the determinants of growth in a sample of small and micro Finnish firms. Firm growth is examined on a number of firm specific and relationship lending characteristics. The data set provides an excellent opportunity for investigating the effects that firm specific factors have on firm growth. The study investigated the relationship between firm growth and relationship lending variables. They are also able to provide new information on the role that legal form has on firm growth by using more detailed ownership variables. The results on relationship lending effects suggest that an increase in the number of lending banks decreases growth rates in the larger firms and that an increase in the number of banks operating in the county where the firm is located enhances growth of the larger firms and decreases growth rates of the smaller firms. It could, therefore, be argued that close lending relationships enhance growth for all firms, but that only the larger firms in the sample benefit from more competitive banking markets.

Ogbe (2017) conducted a study on the effects of small business on the reduction of poverty in Nigeria; a case study of some selected small businesses in Benue state. The research uses desk top research and interviewed some entrepreneur in Benue State and concluded that small business actually contributed maximally to the reduction of poverty levels in the area as they serve as sources of livelihood to their proud owners and beneficiaries. The researchers, however, recommend that government at all levels should create an enabling environment for small business to strive most especially in the areas of finance, Security, policies, technical advice and infrastructure (examples roads, electricity and water)

Jeremiah and Emmanuel (2015) investigated the nature of relationship between inflation rate and economic growth rate. The study made use of secondary data sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin and the National Bureau of Statistics (NBS). The Ordinary Least Square (OLS) logged multiple regression was employed with Gross Domestic Product (GDP) as the dependent variable and Inflation Rate (INFR), Exchange Rate (EXCHR), Input of Labour and Input of Capital served as the explanatory variables. Our results showed that inflation rate in line with apriori expectations had a positive relationship but non-significant with the economic growth rate. And recommended that for sustainable economic growth to be achieved in Nigeria, the level of inflation should be stabilized by the monetary authorities.

Ahmed and Mortaza (2015) empirically established a statistically significant negative relationship between inflation and economic growth using CPI and real GDP as proxy variables for Bangladesh for the period between 1980 and 2016. This reconciles with the work of Saeed (2007) for Kuwait between 1985 and 2005 which indicates long run and strong inverse relationship between CPI and real GDP. Okwuchukwu et'al (2015) examines the significance of bank credit in stimulating output within the real sector and the factors that prompt financial intermediation within the economy: Nigeria experience. The variables used are real GDP and real private sector credit growth. It was observed that there exists a reserved causation between real output and financial development. It is therefore recommended for the government to ensure proper integration of the financial sector to be capable of substantially intermediating in the financial processes for the real sector of the economy.

3.METHODOLOGY

The application of appropriate method in economic research is very important if useful policy recommendation is to be made from a particular study. The work will adopt econometric method since the research is a time series analysis involving more than two independent variables. Accordingly, this section deals with the source of data, theoretical framework, model specification and method of data analysis and evaluation techniques.

Model Specification

The model for this study will be based on the insight gain from Nwoga (2007) and modifications made. In line with this, the study will adopt Nwoga style of model and make GDP as the dependent variable in the model. In line with this, this study will adopt Nwoga style of model and make GDP as the dependent variable while SMEC, inflation, interest and credit to private sector are the explanatory variables of the study. Thus, the model equation for this study is stated as follow:

The model is implicitly specified as follows;

GDP = f(SMEC, CPS, INT and INFL)…………………………………(1)

The model is explicitly specified thus:

$GDP_t = a_0 + \alpha_1 SMEC + \alpha_2 CPS + \alpha_3 INFL + a_4 INT + et$…………….………… (2)

Where:

GDP = Gross Domestic Product

SMEC = Small and Medium Enterprises Contribution to GDP

CPS = Credit to Private Sector

INT = Interest Rate

INFL = Inflation Rate

a_0 = the intercept, $\alpha_1 - \alpha_4$ = the coefficient or slope of the independent variables

ε_t = stochastic error term.

The 'a priori' expectations are determined by the principles of economic theory and refer to the expected relationship between the explained variable and the explanatory variable(s). It is expected that $\alpha_1 - \alpha_2, > 0, \alpha_3 - \alpha_{4 < 0}$

There has been several arguments that the log form of a model produces a more reliable result than the non-log form due to the capacity of the log form to smoothen the data and on this ground a log form of the model is thus specified with a view to smoothen the data and to avoid the error of Heteroscedasticity.

$(GDP) = a_0 + \alpha_1 (SMEC) + \alpha_2 L (CPS) + \alpha_3 INFL + a_4 INT + et$…………………… (3)

Estimation Technique

The first step in this analysis is to test for the properties of the time series data with a view to determining whether or not the variables are non-stationary, stationary at level or first differencing. Having established the stationarity of the variables and they were all integrated of the same order one I(1), we proceed to Johansen co-integration test which will enable us to establish if there is any co-integrating equation in the model which will suggest the existence of long run relationship among the variables under examination. Meanwhile having established that there are co-integrating equations in the model the next thing is to estimate an Error Correction Model (ECM) which will help us to determine the speed of adjustment from the short-run disequilibrium to long run equilibrium. In other words, ECM represents the short-run dynamic model in the work.

4.DATA PRESENTATION AND ANALYSIS

4.1 Summary of Descriptive Statistics

Table 1 presents a descriptive statistics of time series data variables used for the study. The essence of this is to show the level of disparity among the variables.

Table 1: Summary of Descriptive Statistic

	LNGDP	LNCPS	LNSMEC	LNINFL	LNINT
Mean	8.893784	6.506070	4.337935	2.368192	2.847956
Median	9.169617	6.737767	3.970830	2.321955	2.897807
Maximum	11.52771	12.26000	11.02241	2.856470	3.394508
Minimum	5.310443	0.000000	1.735189	1.629241	2.208274
Std. Dev.	2.026810	2.900023	2.579561	0.268257	0.263526
Skewness	-0.329916	-0.409742	0.466128	-0.105688	-0.613076
Kurtosis	1.774561	2.871312	2.250314	3.558097	3.468396
Jarque-Bera	2.421349	0.860142	1.788912	0.445189	2.153556
Probability	0.297996	0.650463	0.408830	0.800439	0.340692
Sum	266.8135	195.1821	130.1380	71.04575	85.43868
Sum Sq. Dev.	119.1308	243.8938	192.9699	2.086898	2.013925
Observations	30	30	30	30	30

Source: Researcher's computation (2024) using E-views 10.0

Table 1 shows the descriptive statistics of the variables used in the study. It shows that 1986-2016, the average Gross Domestic Product (GDP), Credit to Private Sector (CPS), Small and Medium Enterprises Contribution to GDP (SMEC), Inflation (INFL), and Interest Rate (INT) variables are 8.893784, 6.506070, 4.337935, 2.368192 and 2.847956 respectively. This indicates that the variables exhibit significant variation in terms of magnitude, suggesting that estimation at levels may introduce some bias in the result.

4.1.1 Correlation Analysis
In an attempt to explore the relationship between dependent variable GDP and explanatory variables used in the study, the study carried out correlation analysis using Pearson Product Moment Correlation (PPMC). Whereas the descriptive output tells us about each set of data (that is, the mean, standard deviation, Jarque-Bera, probability, and number of values for each variable). The correlation matrix output tells us how the variables are related. This is necessary because the independent and dependent variables need to be tested for multicollinearity.

Table 2: Correlation Matrix

Variable	LNGDP	LNCPS	LNSMEC	LNINFL	LNINT
LNGDP	1.000000	0.967264	0.844573	-0.360334	-0.044162
LNCPS	0.967264	1.000000	0.802031	-0.256393	0.016231
LNSMEC	0.844573	0.802031	1.000000	-0.349959	-0.106429
LNINFL	-0.360334	-0.256393	-0.349959	1.000000	0.129318
LNINT	-0.044162	0.016231	-0.106429	0.129318	1.000000

Source: Researcher's computation (2024) using E-views 10.0

Table 2 shows how the variables relate to one another in the sample data from 1986-2023. The table shows that the coefficient of correlation of a variable with respect to itself is 1.0000. This indicates that there exists a perfect relationship between a variable with respect to itself. The matrix result showed that there exists a positive relationship between CPS, SMEC and GDP with a coefficient of 0.967264, 0.844573 and 1.00 respectively. The implication of a positive relationship between two variables is that both of them move in the same direction. This means when one of the variables moves upwards, the other also would be found to move upward. This means that Credit to Private Sector and Small and Medium Enterprises Contribution to GDP affect Gross Domestic Product positively. The implication is that, as CPS and SMEC increase, GDP increases by one unit. On the other hand, negative relationships exist between Interest Rate (INT) and Inflation Rate (INFL) and Gross Domestic Product. It means that INT, INFL and GDP move in oppose direction. Conclusively, the result showed that the variables are independent of each other and can be included and used in the regression analysis as independent variables without getting spurious results.

4.2 Unit Root Test
In time series analysis, stationarity of the series is examined by unit root test. This is to avoid producing spurious regression results that would make estimates biased and inconsistent, the time series data for all the principal variables in the model (GDP, CPS, SMEC, INT, and INFL) were tested for the period 1986-2024 to ensure their stationarity. There are several standard tests that are normally employed for unit root testing. The study made use of Augmented Dickey-Fuller (ADF) unit test to establish the stationarity of the data and order of integration. To determine if the time series is stationary, the ADF test statistic value must be greater than Mackinnon critical value at 5% level of significance, with the comparison done at absolute term.

Table 3: Stationarity Test of Variables ADF Test

Variable	ADF Stat	Critical levels (5%)	Order of integration	Stationarity Status
GDP	-3.311524 (0.0233)	-2.963972	1(1)	Stationary
CPS	-5.274161 (0.0002)	-2.967767	1(1)	Stationary
SMEC	-7.662767 (0.0000)	-2.967767	1(1)	Stationary
INT	-8.172489 (0.0000)	-2.967767	1(1)	Stationary
INFL	-7.202540 (0.0001)	-3.144920	1(1)	Stationary

Source: Researcher's computation (2024) using E-views 10.0

The result of the ADF test at first difference as shown in table 4.3 above reveals that the ADF test statistics is higher than the critical value at both 1%, 5% and 10% levels of significance, this however implies that all the variables included in the model are integrated of the same order one I(1) except GDP. In other words, the result shows that all the variables are stationary at 1%, 5% and 10% level of significant respectively. Having established stationarity among the variables, the implication is that there could be a long run relationship among the variables that are integrated of the same order, and so we proceeded to test for co-integration so as to determine the number of co-integrating equations in the model.

4.3 Tests for Cointegration

If variables possess relationship that allows them to converge in the long- run, cointegration test helps to facilitate policy formulation and implementation. It helps to determine if this long-run relationship exists among the variables. The study utilized Johansen (1991) cointegration test. The choice of this method is based on the fact that, it is easy to use and possess some unique capabilities. It has generalized testing procedure for more than one cointegration relationships. The decision rule is that the trace statistic must be greater than the 5% critical value at none hypothesized.

Table 4: Summary of Cointegration Results

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.871800	111.1357	69.81889	0.0000
At most 1 *	0.664064	57.72754	47.85613	0.0045
At most 2	0.435435	29.36586	29.79707	0.0560
At most 3	0.370261	14.50165	15.49471	0.0702
At most 4	0.090906	2.477974	3.841466	0.1154

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.871800	53.40816	33.87687	0.0001
At most 1 *	0.664064	28.36168	27.58434	0.0397
At most 2	0.435435	14.86421	21.13162	0.2985
At most 3	0.370261	12.02368	14.26460	0.1098
At most 4	0.090906	2.477974	3.841466	0.1154

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

Source: Researcher's computation (2024) using E-views 10.0
Engel Granger cointegration test results reveal that the residuals from the regression results are stationary at 5% level of significance. This implies that Credit to Private Sector (CPS), Small and Medium Enterprises Contribution to GDP (SMEC), Interest Rate (INT) and Inflation Rate (INFL) are co integrated with Gross Domestic Product (GDP) from1986 to 2024. In order words, there exists a long run and stable relationship between the dependent and independent variables. This finding also reveals that any short run deviation in this relationship would return to equilibrium in the long run.

4.4 Long Run Regression Model
Table 5: Result of the Long Run Regression Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.969589	1.197972	5.817822	0.0000
LNCPS	0.578354	0.048765	11.85991	0.0000
LNINT	-0.231280	0.323644	-0.714613	0.4815
LNINFL	-0.706836	0.332809	-2.123850	0.0438
LNSMEC	0.113875	0.056616	2.011363	0.0552
R-squared	0.957880			
Adjusted R-squared	0.951141			
F-statistic	142.1363			
Prob(F-statistic)	0.000000			
Durbin-Watson	1.031960			

Source: Researcher's computation (2024) using E-views 10.0
Table 5 above shows the result of the long run model which reveals the coefficient of CPS is 0.578354 with a probability value of 0.0000 indicating that CPS has a positive and significant impact on the growth of the Nigerian economy in the long run. It was also shown in the result above that INT has a coefficient of -0.231280 with a probability value of 0.4815 indicating that there is a negative and non-significant relationship between INT and economic growth in Nigeria in the long run. The result of the long run model also shows that inflation has a negative and significant relationship with economic growth in Nigeria in the long run. The result in the table also reveals that Small and Medium Enterprises Contribution has positive and significant relationship with economic growth of Nigeria within the period of investigation as shown by the coefficient of 0.113875 and a probability of 0.0552. The result of R^2 and that of the adjusted R^2 with a value of 0.957880 and 0.951141 respectively shows that the line of best fit is highly fitted. In other words, the result also implies that in the long run, about 96% of the variation in the dependent variables was attributed to the variation in the independent variables included in the model. The result for F-statistics as shown in table 5 above also reveals that the overall regression is statistically significant at 5% level of significant. The test for autocorrelation represented by the Durbin-Watson statistics indicates that there is likely presence of autocorrelation in the model.

4.5 Error Correction Model
The error correction model measures the speed of adjustment to equilibrium. The error correction model (ECM) is significant if it has a negative sign in either over parameterized or Parsimonious ECM. This implies that the present value of the dependent variable adjusts rapidly to changes in the independent variable. A higher percentage of ECM indicates a feedback of that value or an adjustment of that value from the previous period disequilibrium of the present level of dependent variable and the present and past level of the independent variables. The over parameterized ECM is being made by leading and lagging each variable while the parsimonious ECM consider the variables that adjust rapidly to equilibrium between the leading and the lagged variables. The table 5 below shows the result of parsimonious ECM conducted on the explanatory variables.

Table 6: Parsimonious Error Correction Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.758292	0.378458	2.003636	0.0588
LNGDP(-1)	1.004976	0.042325	23.74404	0.0000
LNINT	-0.191138	0.086725	-2.203951	0.0394
LNCPS	0.014808	0.033468	0.442451	0.6629
LNSMEC	0.002184	0.010998	0.198558	0.8446
LNINFL	-0.196354	0.064708	-3.034439	0.0065
ECM(-1)	-0.491639	0.193390	-0.473855	0.0407
R-squared	0.998600			
Adjusted R-squared	0.998180			
F-statistic	23.78127			
Prob(F-statistic)	0.000000			
Durbin-Watson	2.600115			

Source: Researcher's computation (2024) using E-views 10.0

The coefficient of the ECM term which measures the speed of the adjustment of the dependent variables at which equilibrium is restored, (-0.491639) is significant and correctly signed (negative) at 5 percent level, and therefore confirms our earlier proposition that the variables are co-integrated. The speed suggests that economic growth in Nigeria adjusts rapidly to the long-run equilibrium changes in the explanatory variables and it gives the proportion of the disequilibrium error accumulated in the previous period that is corrected in the current period. The speed implies that 49 per cent of any disequilibrium in the economic growth process is corrected within a lag (one year in this study). This result is in agreement with Chan and Elston (2013), Adenyeji and Lenrewaju (2014) and Akhuemonkhan and Rose (2012)

The coefficient of multiple determinations (R^2) shows that about 99 percent of the total variation in the dependent variable (GDP) is explained by the changes in the explanatory variables (CPS, SMEC, INT and INFL) of the estimated model. This implies that the estimated model has a good fit in the long -run. The adjusted coefficient of determinations (adj. R^2) also shows that the regressors explain over 99 percent of the systematic variation in the dependent variable. The F statistic of 23.78127 indicates that the parameters of the estimated model are jointly or simultaneously statistically significant. Hence, inference from the estimated results could be taken as valid for policy sake.

Durbin-Watson statistic ratio of 2.600115 indicates absence of serial correlation. This indicates that the unit root test has effectively screened the time series variables to achieve stationarity.

Interest rate reduces gross domestic product as shown by the coefficient of -0.191138 and probability of 0.0394, which is significant to explain gross domestic product within the period of the study. The negative relationship between interest rate and economic growth in the long run implies that increase in interest rate by the financial bodies in the country fails to transform into increase in the level of economic growth. This is due to the fact that high interest rate discourages investors from borrowing as it lengthens the gestation period of investment.It means that a one percent increase in interest rate in the country, Gross Domestic Product will decrease by 19 percent. As a result of this, study does not accept the null hypothesis. The result is in line with the study conducted by Chan and Elston (2013) which states that a relationship exists between interest rate and gross domestic product in Nigeria.

The empirical findings of the study also revealed that, credit to private sector (CPS) is positively related to gross domestic product in the long-run meaning that increasing trend in credit to private sector makes firms to generate more funds to finance for output expansion as shown by the coefficient of 0.140808. This implies that for every one percent increase in CPS, gross domestic product increase by 0.014808 units. This signifies that credit to private sector helps to improve GDP in the Country. This makes the study to reject the null hypothesis that states credit to private sector has no significant impact on gross domestic product in Nigeria. This study agrees with the study conducted by Lawal (2011),Glos (1976), Isemin (1998), Ndedi (2013) and but contrary to that of Makinde (2013).

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Small and Medium Enterprises Contribution within the period of the study shows that there is a positive but not significant relationship between SMEC and gross domestic product as the coefficient is 0.002184 and P value of 0.8446. This indicates that a unit change on the value, on the average increased GDP by 0.002184 units. This shows that there is positive relationship between SMEC and economic growth in Nigeria for the period of time considered in this study. The result was in line with the findings of Kanitar (1994), Okpara (2011), Miltra and Abubakar (2011), Misango and Ongiti (2013) and Kodithuwakku and Rosa (2002), but contradict the result of Osotimehen (2012).

The parsimonious result in table 6 shows that, inflation rate has negative and significant relationship with gross domestic product within the period of the study as indicated by the coefficient of -0.196354 and the P-Value of 0.0065. The implication of this result is that, a unit increase in inflation rate in the State, GDP decreases by about 20 percent. But however, some economic theorists believed that inflation relates positively to economic growth/GDP. The economic effect of this situation may be increase in the cost of input as well as reducing the purchasing powers of the households thereby leading to a decline in the demand of firms' products.

5.CONCLUSION AND RECOMMENDATION
The main objective of this study is to examine the impact of small and medium enterprises on economic growth in Nigeria. Augmented Dickey-Fuller (ADF) Unit Root Test, Johansen Cointegration test and Error Correction Mechanism (ECM) were used for the empirical examinations.

The result of the ADF unit root test shows that the stationarity of all the variables has been established which a pre-requisite for the cointegration test. Johansen cointegration test indicates that the residual is stationary at 5% significance level, implying that a long-run relationship exists among the variables. The coefficient of multiple determinations R^2 and Adj R^2 in the parsimonious model and the coefficient of the lagged error correction term suggest that the explanatory variables have a significant impact on the Nigerian economic growth. The explanatory variables in the study explain a greater proportion in changes in gross domestic product, however, it was realized that Credit to private sector (CPS) and Small and medium enterprises contribution (SMEC) were insignificant thereby presaging that CPS and SMEC have not adequately impacted on GDP in Nigeria. On the other hand, inflation (INFL) and interest rate significantly influenced GDP, although rates have significant inverse relationship with GDP implying that it is a constraint to economic growth in the long run in Nigeria. The study therefore concludes that SMEs contribute to economic growth in Nigeria.

Recommendations
Based on the findings of the research, the study recommends the following policy measures to help government achieve the desired GDP growth in Nigeria.
i.   This study recommends that government should implement measures (low interest rates) that would broaden the borrowing base rather than increasing rate. This involves measures that would eliminate variations in the cost of borrowing between and among money deposit banks in the Country.
ii.   Nigerian government should intensify efforts in reducing the barriers to ease of business to enable smaller firms to stand up in competition with other bigger businesses in the Country.
iii.   Government should also put more effort to curb inflation to give more confident to investors.

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