EFFECT OF SOCIAL AND ECONOMIC SERVICE SPENDING ON SMEs' GROWTH IN NIGERIA

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Abstract
Despite the efforts of the government to develop the performance of SMEs in Nigeria, there are still major hurdles like poor infrastructure, limited access to affordable finance, and weak technological adoption. Therefore, this study investigated the effect of social and economic service spending on SMEs' growth in Nigeria. The study used the Bound test, ARDL and NARDL regression methods. Data estimated in the study were adopted from the CBN Statistical Bulletin and World Development Indicators for the period of 2000 to 2023. The findings of the study show that economic service spending has a significant effect on SME growth in Nigeria. The study recommends that the government should give more effort to both their economic and social service, specifically through human capital development and prioritising access to credit facilities, infrastructure development, and capacity improvement in ICT development, which could enhance SMEs' growth.

Keywords: SME, Social and economic spending service
Jel Code: L26, H50, O23

1. Introduction

Small and medium-sized enterprises (SMEs) are acknowledged globally for their unique contribution to economic development and for creating employment opportunities. SMEs are essential to the economy of Sub-Saharan Africa, representing over 90% of businesses, creating 80% of jobs, and driving economic growth. However, they face significant challenges, including limited access to finance, high costs, and the difficulties of operating in informal sectors. In Nigeria, SMEs face significant financial challenges. According to the European Investment Bank (EIB), which cited data from the Nigerian Development Bank, only 5% of Nigeria's 37 million small businesses, which contribute to 50% of the nation's GDP, have access to formal credit. In 2023, roughly 10 million small businesses, affiliated with the Association of Small Business Owners of Nigeria (ASBON), closed down, with lack of financing being one of the main reasons. This figure represents 25% of registered SMEs (Ecofin agency, 2025). Economic growth in Nigeria is hindered by structural issues such as inadequate infrastructure, limited foreign exchange capacity, and barriers to investment. This requires policy reform that will achieve an inclusive growth in the economy, thereby reducing poverty significantly by creating an enabling environment for small and medium enterprises. (USAID, 2020).

Small and Medium Enterprises play a vital role in Nigeria's economy, contributing significantly to employment generation, poverty reduction, and overall economic growth. Following government efforts on SMEs development through various initiatives like the Bank of Industry's low-interest loans (9% rate on N75bn fund), CBN intervention funds, and programs under the National Enterprises Development Programme (NEDEP) for training and finance access, plus direct grants (N50k for nano businesses), over the years, Nigeria's Micro Enterprises (ME) accounted for 96.9% while SME's accounted for 3.1% of the total number of businesses in the country. SMEs contributed about 46.3% to the national GDP, accounted for 6.21% of gross exports and employed over 84% of the total workforce as of 2020. In terms of ownership structure, 96.2% of MSMEs are sole proprietorships, while 3.3% are Partnerships, faith-based organisations (0.1%), and others (0.4%). In terms of gender, 67.1% of surveyed SMEs were owned by men, while 32.9% were owned by women. Also, about 86% SME owners were between the ages of 20 and 60. (PWC, 2024) Small and medium-scale enterprises (SMEs) in Nigeria contributed about 48% of the national GDP in 2015. With a total number of about 17.4 million dollars, it accounts for about 50% of industrial jobs and nearly 90% of the manufacturing sector, in terms of the number of enterprises (Esiri & Omomia, 2020).

Just like Nigeria, Algeria is also a member of the OPEC countries, and its SME is constantly growing, which has made considerable progress in recent years. The Algerian government supports the SME sector by investing in private sector companies through the National Investment Development Agency. While 2016 saw a 9.6% reduction to 7185 in the number of such investments, the amount invested increased by 24.8% to AD1.8trn ($14.9bn), and the number of jobs supported by these firms grew by 9.1% to 164,000. In 2011, the authorities launched a national programme worth AD380bn ($3.2bn) to revamp the country's SME sector, with a target of more than tripling the number of SMEs from just over 600,000 to approximately 2m by 2025. Although this programme benefited more than 20,000 SMEs across multiple sectors, it was judged in many quarters to be falling short of its objectives. With this in mind, the government stepped up its efforts to stimulate the SME sector in 2017 (Bouri, 2017) (Khaidher et al., 2019).
SMEs means small and medium enterprises. SMEs' growth is measured by their contribution to GDP, which is calculated as the percentage of SMEs' activities added to the aggregate goods and services produced in a year. In this study, public social and economic spending is defined as government spending on social and economic services. According to the CBN Statistical Bulletin (2022), economic service entails spending on agriculture, infrastructure and communication, while social services entail spending on education and health. ICT spending over the years has been considered to transform Nigeria into a knowledge-based economy, which is a significant requirement to enhance SMEs' performance, and thereby leading to innovation, an effective business model that will, in turn, enhance economic growth (Etim et al., 2023). The objective of the study is to investigate the effect of social and economic service spending on SMEs' growth in Nigeria.

2. Empirical Review

Mvula and Hapompwe (2025) assessed the growth challenges and opportunities of small and medium-sized enterprises (SMEs) in Zambia using a mixed-methods approach, integrating qualitative and quantitative research approaches. They found out that the challenges of SMEs include outdated technology, insufficient government support, and a lack of strategic knowledge. This identifies the needful

role of the government to influence SME growth. Kassa (2021) researched the socioeconomic determinants of SME using cross-sectional data and concluded that SME growth is significantly influenced by access to finance, family business background and interest rate. However, the paper only conducted micro research on the SME, thereby leaving out important socio-economic indicators. Therefore, this study aims to fill the gap in modelling SME at the macro level using time series data. Chin and Lim (2018) identified the following: Human capital development, market access, innovation, infrastructure, and access to financing as the focus areas of development programs required to develop the performance of SMEs in Malaysia. However, the study neglected the macroeconomic environment, which could have been proxied with key macroeconomic variables. According to the work of Subhan et al. (2014), which shows that innovation plays a significant role towards the development of small and medium-scale enterprises, and in turn contributes to the economic growth of Pakistan. Innovation without a stable economic environment may not be sustainable; the study neglected the macroeconomic factors. Environmental factors, technology and product diversification have a positive impact on SMEs' contribution to GDP and employment creation. (Sarwoko & Frisdiantara, 2016) Government efforts over the years to develop the economy through the objective of expanding more capital projects, such as public spending on infrastructure, productive facilities for agricultural produce, and ICT development, so far have been far from successful. Empirical review on SME shows that there has been very little research on the drivers of SMEs' growth. This study adds to the research gap by investigating the social and economic services on SMEs growth in Nigeria. Also, the study fills a methodological gap by conducting a comparative analysis on ARDL and NARDL methods to model SME.

3. Methodology

The study built an SME model from the endogenous growth model, which states that economic growth is propelled by endogenous factors, rather than exogenous forces alone. SMEs are a contributor to economic growth, which justifies the appropriateness of this choice of theoretical framework. Therefore, this is specified in Equation 1, where SME is the regressand while government social service spending (GS), government economic service spending (GE) and control variables (CV) are vectors of the regressors. Equation 1 is re-specified to express the vectors' space respectively; this is presented in Equation 2.

$$SME_t = c + \lambda_i GS_t + \gamma_i GE_t + a_i CV_t + \mu_t \quad (1)$$

$$SME_t = c + \lambda_1 GVE_t + \lambda_2 GVH_t + \gamma_1 GVA_t + \gamma_2 GVI_t + \gamma_3 GVC_t + a_1 AER_t + a_2 POP_t + a_3 ADC_t + a_4 CRE_t + \mu_t \quad (2)$$

A stationarity test is conducted on a trending series before running a regression to prevent spurious outcomes and thereby satisfy the conditions of the classical linear regression assumption. Regression involving non-stationary series can falsely imply the existence of a statistical relationship between the explained and unexplained variables. Augmented Dickey Fuller (ADF) and Philip's Peron (PP) methods will be used to test for the presence of stationarity of the series in this study. This is a prerequisite for analysing linear time series data, and thus will be followed by regression estimations.

Autoregressive Distributed Lags (ARDL) and Non-Linear Autoregressive Distributed Lags (NARDL) regression methods are used in this study because of their capability to control for the autocorrelation problem in time series econometrics. ARDL is a regression method that is applied for both short-run and long-run analysis. ARDL does not require all the variables to be in the same order of stationarity, unlike in the Johansen and VECM approach. ARDL incorporates variables that are stationary at levels and first differenced. NARDL is used to measure the asymmetric effects that a regressor has on the regressand. These are considered appropriate time series modelling approaches for this study because of their sophisticated features to analyse the effect of government spending on social and economic services on SMEs growth in Nigeria. A general ARDL model for the regression of SME growth is specified in Equation 3.

$$\Delta \mathbf{SME}_t = \beta_0 + \sum_{i=1}^{\Lambda} \omega \Delta \mathbf{SME}_{t-1} + \sum_{i=1}^{\Lambda} \beta_1 \Delta \mathbf{GVE}_{t-1} + \sum_{i=1}^{\Lambda} \beta_2 \Delta \mathbf{GVH}_{t-1} + \sum_{i=1}^{\Lambda} \beta_3 \Delta \mathbf{GVA}_{t-1} + \sum_{i=1}^{\Lambda} \beta_4 \Delta \mathbf{GVI}_{t-1} + \sum_{i=1}^{\Lambda} \beta_5 \Delta \mathbf{GVC}_{t-1} + \sum_{i=1}^{\Lambda} \beta_6 \Delta \mathbf{AER}_{t-1} + \sum_{i=1}^{\Lambda} \beta_7 \Delta \mathbf{POP}_{t-1} + \sum_{i=1}^{\Lambda} \beta_8 \Delta \mathbf{ADC}_{t-1} + \sum_{i=1}^{\Lambda} \beta_9 \Delta \mathbf{CRE}_{t-1} + \mathbf{eSME}_{t-1} + \Phi_1 \mathbf{GVE}_{t-1} + \Phi_2 \mathbf{GVH}_{t-1} + \Phi_3 \mathbf{GVA}_{t-1} + \Phi_4 \mathbf{GVI}_{t-1} + \Phi_5 \mathbf{GVC}_{t-1} + \Phi_6 \mathbf{AER}_{t-1} + \Phi_7 \mathbf{POP}_{t-1} + \Phi_8 \mathbf{ADC}_{t-1} + \Phi_9 \mathbf{CRE}_{t-1} \quad (3)$$

Table 3.3 presents the properties of the specified variables. It is correct to measure SMEs' growth with the share of manufacturing to GDP because the key sectors where SMEs are concentrated include the trade sector and the manufacturing sector. (Levashova, 2022), Government spending on health and education are investment in human capital reflecting the government's effort on social development. Economic service spending of the government is to provide resourceful access to people, such as infrastructure, agriculture, and communication. The study used the average exchange rate to capture the level of economic stability. The population within the range of 15-64 captures the working population. The credit facility is used to show the level of access to the credit facility. The average data subscription is used to measure the level of online communication.

3.3 The Data

S/N	Variables	Measurement index	Source	Period
1.	***SME** (small and medium scale contribution to economic growth)*	*Manufacturing, value added (% GDP)*	*World Development Indicator*	*2000-2023*
2.	***Social service spending***			
	i. ***GVE** (government spending on education)*	*Expenditure on education*	*CBN Statistical Bulletin*	*2000-2023*
	ii. ***GVH** (government spending on health)*	*Expenditure on health measures is billions of dollars*	*CBN Statistical Bulletin*	*2000-2023*
3.	***Economic service spending:***			
	iii. ***GVA** (government spending on agriculture)*	*Expenditure on agriculture, in billions of dollars*	*CBN Statistical Bulletin*	*2000-2023*
	iv. ***GVI** (government spending on infrastructure)*	*Expenditure on roads and construction, measured in billions of dollars*	*CBN Statistical Bulletin*	*2000-2023*
	v. ***GVC** (ICT spending by Government)*	*Transport & communication, measures in billions of dollars*	*CBN Statistical Bulletin*	*2000-2023*
4.	***Control variables***			
	vi. ***AER** (Average exchange rate)*	*Average exchange rate*	*CBN Statistical Bulletin*	*2000-2023*
	vii. ***POP** (Population)*	*Population ages 15-64 % of total population*	*World Development Indicator*	*2000-2023*
	viii. ***CRE** (Credit facility)*	*Monetary sector credit to private sector (% GDP)*	*World Development Indicator*	*2000-2023*
	ix. ***ADC** (Average data subscription)*	*Mobile cellular subscription (per 100 people)*	*World Development Indicator*	*2000-2023*

Source: Authors' compilation (2025)

3.4 Evaluation criteria

Diagnostic tests are imperative in statistical analysis in order to ensure the validity and reliability of the results for decision-making and forecasting purposes. R-Square measures the percentage of variance of the regressand that is explained by the regressors. F-Statistics measures the overall significance of the model. (Hill, Griffiths, & Lim, 2018) Breusch-Pagan Godfrey Heteroskedasticity, Breusch-Godfrey serial correlation LM test, and Jarque-Bera statistics will be used for residual diagnostics (Verbeek, 2004). The cumulative sum of squares test (CUSUM) is used to test for the stability of the estimated parameters, that is, a procedure to detect variance changes based on an iterated cumulative sum of squares function. (Inclan & Tiao, 1994).

4 Empirical Results and Discussion

4.1 Summary of Descriptive Statistics

Features	SME	GVE	GVH	GVA	GVI	GVC	AER	POP	ADC	CRE
Mean	10.42439	308.8622	189.3766	39.42191	100.4194	31.25403	127.8772	53.25091	54.16780	11.90020
Median	9.642380	330.4950	187.9884	36.50227	93.32695	29.68047	103.8550	53.03162	61.91288	11.83253
Maximum	15.36380	752.9764	468.6388	87.68955	234.0069	90.02793	286.2550	55.47961	101.6858	19.62560
Minimum	6.552817	39.88260	15.21808	6.335779	4.991095	3.034679	77.21021	52.52708	0.024420	8.084343
Std. Dev.	2.547141	225.7641	146.5476	25.43840	75.05461	19.99375	52.53114	0.813381	36.39932	3.037969
Skewness	0.438294	0.535420	0.542054	0.398027	0.296610	1.094147	1.400797	1.477464	-0.299277	0.831652
Kurtosis	1.994025	2.049581	2.003784	2.001435	1.843865	4.407062	4.370818	4.230969	1.607660	3.563450
Jarque-Bera	1.780391	2.049993	2.167738	1.630833	1.688558	6.768454	9.728077	10.24689	2.296875	3.084053
P-values	0.410575	0.358798	0.338284	0.442455	0.429867	0.033904	0.007719	0.005955	0.317132	0.213947
Sum	250.1853	7412.693	4545.039	946.1257	2410.066	750.0967	3069.052	1278.022	1300.027	285.6048
S.S. Dev	149.2224	1172297.	493952.8	14883.58	129563.5	9194.249	63468.97	15.21655	30472.93	212.2729
Observation	24	24	24	24	24	24	24	24	24	24

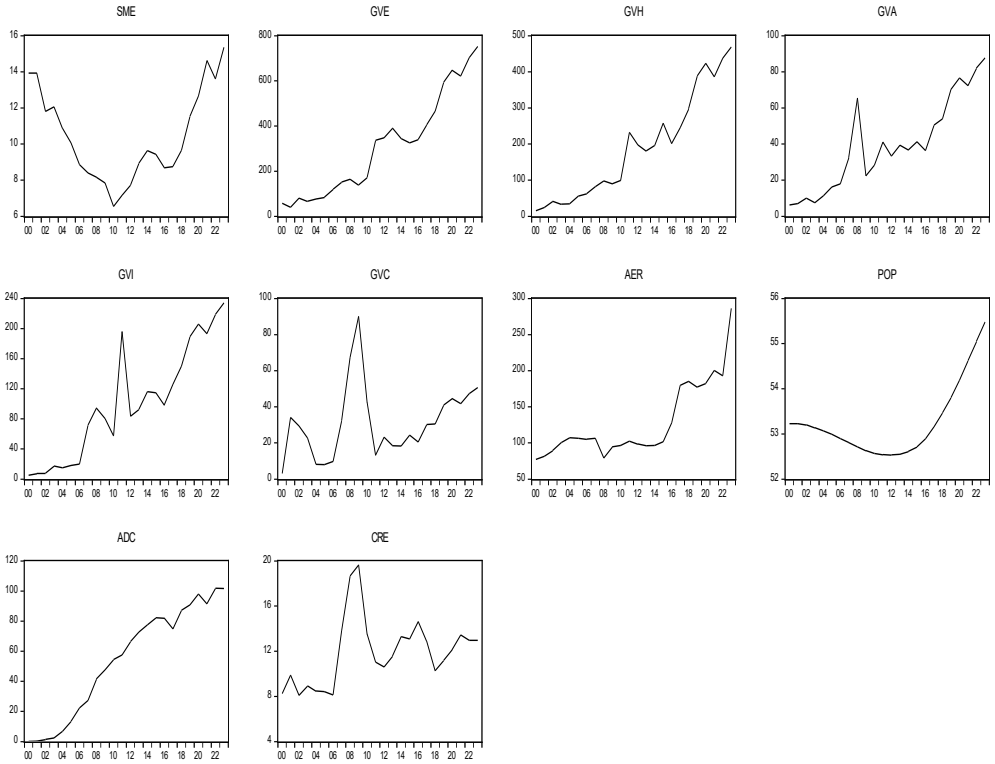
Source: Authors' Computation 2025

The summary statistics show that some of the series distributions (by mean, median, maximum, and minimum values) are large. The distribution of GVE, GVH, GVI, AER, ADC is much larger than the remaining variables, while GVA, GVC and POP are larger than SME and CRE. This is followed by measures of dispersion, specifically standard deviation, which shows how the series are dispersed from their corresponding mean values. The standard deviation of GVE and GVH is too large, followed by GVI, AER, ADC and GVA, which shows the dimension of how the distribution of those series deviates from their mean, respectively. All the variables skewed to the right, except the ADC, because of its negative sign. This means that all the series have a long right tail except the ADC. GVC, AER, POP, and CRE are leptokurtic, which implies the series have relatively high peaks. While SME, GVE, GVH, GVA, GVI and ADC are platykurtic, which means the series have fewer outliers in their series. Nevertheless, that is just a statistical problem which can be corrected by resorting to some mathematical techniques, such as logging the variable in order to correct these misalignments.

4.2 Graphical Analysis

Figure 4.1 presents the graphical analysis of all the specified variables in their natural forms. GVE, GVH, GVA, GVI, AER, and ADC display a general trend in their series. However, SME and POP show similar movement in their series. And finally, GVC and CRE display a similar outlier in their series.

Figure 4.1: **Trend Analysis**



4.3 Unit root test

Variables	Augmented Dickey Fuller (ADF)			Philips Perron (PP)			Constant	Linear Trend
	I[0]	I[1]	I[2]	I[0]	I[1]	I[2]		
SME	0.8592	0.0279*	-	0.7069	0.0232*	-	0.0000	0.4968
GVE	0.5889	0.0132*	-	0.5403	0.0130*	-	0.1064	0.0000
GVH	0.2848	0.0034*	-	0.3538	0.0000*	-	0.0313	0.0000
GVA	0.0826*	0.0002*	-	0.0824	0.0000*	-	0.6578	0.0000
GVI	0.0085*	-	-	0.0085*	-	-	0.3189	0.0000
GVC	0.0371*	-	-	0.1385	0.0086*	-	0.0136	0.1136
AER	0.9857	0.0759	0.0128*	0.9903	0.0800	0.0037*	0.0001	0.0000
POP	0.0584	0.4312	0.9998	1.0000	0.2300	0.8728	0.0000	0.0026
LPOP	0.0479*	-	-	1.0000	0.2380	0.8900	0.0000	0.0027
ADC	0.8422	0.0016*	-	0.8000	0.0015*	-	0.2096	0.0000
CRE	0.0428*	-	-	0.2263	0.0240*	-	0.0000	0.0665

Source: Authors' Computation 2025

Unit root test is a preliminary test for the ARDL and NARDL regression to ensure that the series that will be regressed using ARDL and NARDL methods are of I(0) and I(1) order only. The study considers the ADF and PP methods to conduct the stationarity test for the study. GVI is stationary at a level under the two methods. SME, GVE, GVH, GVA and ADC are all stationary at first difference under the two methods. GVC and CRE are stationary at level under ADF, while stationary at first difference under PP. The AER series is stationary after taking its second

difference under the two methods. And finally, POP only became stationary after taking its logarithm under ADF, and not stationary after taking its differences and logarithmic transformation under PP. Therefore, the findings of the stationarity test conducted show that SME, GVE, GVH, GVA, GVI, GVC, ADC and CRE meet the requirement of ARDL and NARDL regression. However, the series AER and POP are dropped on this basis, since their stationarity tests show that they are not suitable for ARDL and NARDL regression, and besides, the two variables are just part of the controlled variables.

4.4 Bound tests on ARDL and NARDL models

	ARDL		NARDL	
F Statistic (k)	9.297689 (7)		25.66180 (9)	
Sig	**I(0)**	**I(1)**	**I(0)**	**I(1)**
10%	2.03	3.13	1.88	2.99
5%	2.32	3.5	2.14	3.3
2.5%	2.6	3.84	2.37	3.6
1%	2.96	4.26	2.65	3.97

Source: Authors' Computation 2025

Table 4.4 presents the output of the bound tests conducted on the two methods of analysis. The F-Statistics 9.297689 and 25.66180 for both models, that is, the ARDL and NARDL models respectively, are significantly larger than both critical values under the two methods used in this study, at 1%, 2.5%, 5% and 10% level. The upper bound is denoted by I(1) while the lower bound is denoted by I(0). Since each F-statistic is greater than both the upper and lower bounds, it means there is a co-integrating relationship between the dependent and independent variables, of course, for the two models (ARDL & NARDL). This gives justification to proceed with the Error Correction Regression.

4.5 Error Correction Regressions

Table 4.5 presents the Error correction regressions, which show the estimates of the short-run dynamic regressions conducted using ARDL (1,1,0,0,0,0,1,1) and NARDL (1,1,1,1,0,1,1,1,1,1) models, respectively. Under the ARDL Model, the error correction term, which is negative, less than one and significant at 1%, 5% and 10%, shows about 32% speed of adjustment from disequilibrium to equilibrium towards the long run. Government spending on education, which is denoted with GVE, is significant at 5% and negative, which implies that an increase in government spending on education by 1% will cause a reduction in SME growth by 1.36%. This is followed by ADC, which is used to control for access to internet facility, which shows that an additional increase in ADC by 1% will cause SME growth to reduce by 5.4%. An increase in monetary sector credit to the private sector (CRE) by 1% will cause SME growth to reduce by 53%.

Table 4.5 Error Correction Regressions

ARDL (1,1, 0, 0, 0, 0, 1, 1) model					NARDL (1,1, 1, 1, 0, 1, 1, 1, 1) model				
variables	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**	**variables**	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	8.649225	0.786049	11.00342	0.0000	C	1.901853	0.108609	17.51099	0.0004
D(GVE)	-0.013610	0.002569	-5.297602	0.0003	D(GVE_POS)	-0.022048	0.001933	-11.40853	0.0014
D(ADC)	-0.054063	0.016793	-3.219363	0.0082	D(GVE_NEG)	0.004561	0.003091	1.475749	0.2365
D(CRE)	-0.531756	0.071742	-7.412045	0.0000	D(GVH)	-0.033469	0.001944	-17.22082	0.0004
CointEq(-1)*	-0.317258	0.028757	-11.03246	0.0000	D(GVI)	0.041602	0.002278	18.25918	0.0004
					D(GVC)	0.060631	0.003870	15.66694	0.0006
					D(ADC)	-0.041935	0.006015	-6.971415	0.0061
					D(CRE_POS)	-0.850983	0.044787	-19.00059	0.0003
					D(CRE_NEG)	-0.217390	0.035291	-6.159934	0.0086
					CointEq(-1)*	-0.343617	0.010725	-32.03860	0.0001
R-squared	0.890883	**Mean dependent var**		0.062191	**R-squared**	0.993034	**Mean dependent var**		0.065384
Adjusted R-squared	0.866635	**S.D. dependent var**		1.104394	**Adjusted R-squared**	0.987810	**S.D. dependent var**		1.130274
S.E. of regression	0.403316	**Akaike info criterion**		1.211466	**S.E. of regression**	0.124794	**Akaike info criterion**		-1.021352
Sum squared resid	2.927945	**Schwarz criterion**		1.458313	**Sum squared resid**	0.186882	**Schwarz criterion**		-0.525423
Log likelihood	-8.931863	**Hannan-Quinn criterion.**		1.273548	**Log likelihood**	21.23487	**Hannan-Quinn criterion.**		-0.904526
F-statistic	36.74012	**Durbin-Watson stat**		2.510514	**F-statistic**	190.0737	**Durbin-Watson stat**		3.008004
Prob(F-statistic)	0.000000				**Prob(F-statistic)**	0.000000			

Source: Authors' Computation 2025

The R-Square is closer to 1, which implies the model is a good fit; that is, 89% variation in SME growth is explained by variation in the corresponding regressors in the ARDL model. The probability of the F-statistic is less than 5%, which implies overall significance of the model. Furthermore, the study conducts NARDL in order to account for the asymmetric effect of these regressors on the regressand. For instance, ARDL only tells us what happens to SME growth if GVE increases and not when it declines. While NARDL accounts for what happens to SME if GVE reduces. The study estimated error correction regression using the NARDL (1,1,1,1,0,1,1,1,1,1) model to account for the degree of

asymmetry of the effect of government social and economic service spending on SME growth in Nigeria. The ECT is negative, less than 1 and significant, and it implies that there is about 34.4% speed of adjustment of disequilibrium to equilibrium in the long run. Just like in ARDL (1,1,0,0,0,0,1,1), an increase in GVE will cause a reduction in SME. In the same vein, a decrease in GVE will cause a decrease in SME growth. An increase in CRE by 1% will cause a reduction in SME growth by 85%, while a decrease in CRE will cause a decrease in SME growth by 22%. The R- Square is 99%, which implies the model is fit excellently to make statistical conclusions. The probability value of the F-Statistics significant, which implies the overall goodness of the model. Going by the values of the R^2 for the two models, 89% and 99.3% respectively, the NARDL (1,1,1,1,0,1,1,1,1,1) model is a stronger model than the ARDL (1,1,0,0,0,0,1,1) model.

4.6 Conditional Error Correction Regressions									
ARDL (1,1, 0, 0, 0, 0, 1, 1) model					NARDL (1,1, 1, 1, 0, 1, 1, 1, 1, 1) model				
variables	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**	**variables**	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	8.649225	1.749876	4.942765	0.0004	C	1.901853	1.535887	1.238277	0.3037
SME(-1)*	-0.317258	0.113963	-2.783856	0.0178	SME(-1)*	-0.343617	0.125828	-2.730838	0.0719
GVE(-1)	9.45E-05	0.004971	0.019009	0.9852	GVE_POS(-1)	0.001966	0.004327	0.454347	0.6804
GVH**	-0.016687	0.010962	-1.522312	0.1561	GVE_NEG(-1)	-0.019114	0.010005	-1.910393	0.1521
GVA**	0.021402	0.020290	1.054785	0.3141	GVH(-1)	-0.054387	0.021501	-2.529559	0.0855
GVI**	0.028994	0.011337	2.557587	0.0266	GVA**	0.054473	0.015845	3.437926	0.0413
GVC**	0.063367	0.020650	3.068592	0.0107	GVI(-1)	0.054772	0.023896	2.292142	0.1057
ADC(-1)	0.034495	0.036386	0.948032	0.3635	GVC(-1)	0.123592	0.027707	4.460725	0.0210
CRE(-1)	-0.766942	0.245286	-3.126729	0.0096	ADC(-1)	0.086630	0.058883	1.471211	0.2376
D(GVE)	-0.013610	0.006154	-2.211560	0.0491	CRE_POS(-1)	-1.259677	0.376880	-3.342387	0.0443
D(ADC)	-0.054063	0.031117	-1.737431	0.1102	CRE_NEG(-1)	-1.238090	0.290090	-4.267946	0.0236
D(CRE)	-0.531756	0.199604	-2.664057	0.0220	D(GVE_POS)	-0.022048	0.006636	-3.322384	0.0450
					D(GVE_NEG)	0.004561	0.012168	0.374873	0.7327
					D(GVH)	-0.033469	0.014421	-2.320907	0.1030
					D(GVI)	0.041602	0.016062	2.590155	0.0811
					D(GVC)	0.060631	0.019316	3.138875	0.0517
					D(ADC)	-0.041935	0.022079	-1.899315	0.1537
					D(CRE_POS)	-0.850983	0.263032	-3.235284	0.0480
					D(CRE_NEG)	-0.217390	0.157463	-1.380580	0.2613

Source: Authors' Computation 2025

4.6 Conditional Error Correction Regressions

Table 4.6 presents the Conditional Error Correction regressions, which show the estimates of the Long run dynamic regressions conducted using ARDL (1,1,0,0,0,0,1,1) and NARDL (1,1,1,1,0,1,1,1,1,1) models. The coefficient of the lagged regressand *SME(-1)* is negative and significant, which is evidence of error correction in the model, and it corrects disequilibrium at 32% and 34% in the ARDL and NARDL models, respectively. Under the ARDL Model, 1% increase in government spending on infrastructure will cause SME to grow by 2.8%, while a 1% increase in government spending on ICT will cause *SME* to grow by 6.3%. The result is economically desirable because it supports government economic service spending, which will significantly influence SME growth in Nigeria. Credit to the private sector by the monetary sector *D(CRE)* is significant and negative. This implies that a 1% increase in *CRE* will cause *SME* growth to reduce by 53%. Government spending on Education *D(GVE)* is significant and negative, implying an inverse influence on SME growth. In other words, a 1% increase in government spending on education will cause SME growth to reduce by 1.4%. Under the NARDL Model, CRE is significant with its asymmetric effects. A 1% increase in credit to the private sector by the monetary sector will cause a reduction in SME growth. While a 1% decrease in credit to the private sector by the monetary sector will cause SME to grow. This is followed by government spending on Agriculture *GVA*; A 1% increase in government spending on Agriculture will cause SME to grow by 5.4%. Also, a 1% increase in government spending on ICT *GVC(-1)* will cause SME to grow by 2% in the long run. The different dimensions of relationships between SME and its corresponding determinants fill the gap of revealing the degree of influence of each explanatory variable component on the explained variable.

4.7 Results of diagnostic tests

Test	ARDL		NARDL	
	Statistics	**P-Value**	**Statistics**	**P-Value**
Serial correlation	9.763095	0.0076	19.52787	0.0001
Heteroscedasticity	16.04999	0.1393**	10.78392	0.9033**
Normality	0.780141	0.677009**	6.263283	0.043646

Source: Authors' Computation 2025

Table 4.7 presents the results of the diagnostic tests conducted for the study. The ARDL (1,1,0,0,0,0,1,1) model passed the heteroskedasticity and normality test, which implies that the series are normally distributed, and there is an absence of heteroskedasticity. However, the model shows the presence of autocorrelation, possibly because the model possesses some autoregressive features, such as the lagged variables. According to Ibrahim (2017), autoregressive models attribute the feature of controlling changing variances in model estimation. It is capable of automatically correcting itself for serial correlation. NARDL (1,1,1,1,0,1,1,1,1,1) model passed the heteroscedasticity, but did not pass the serial correlation and the normality test. The normality is due to the traced to the adjustment made when estimating the non-linear model.

This is followed by the recursive test conducted as presented in Figures 4.3 and 4.4, showing that the models are structurally stable since the CUSUM of squares lies within the plot of the critical region of 5% level. The stability validates the consistency of the short-run and long-run estimates, which ensure the reliability of the statistical findings of the models.

Figure 4.3: Stability test

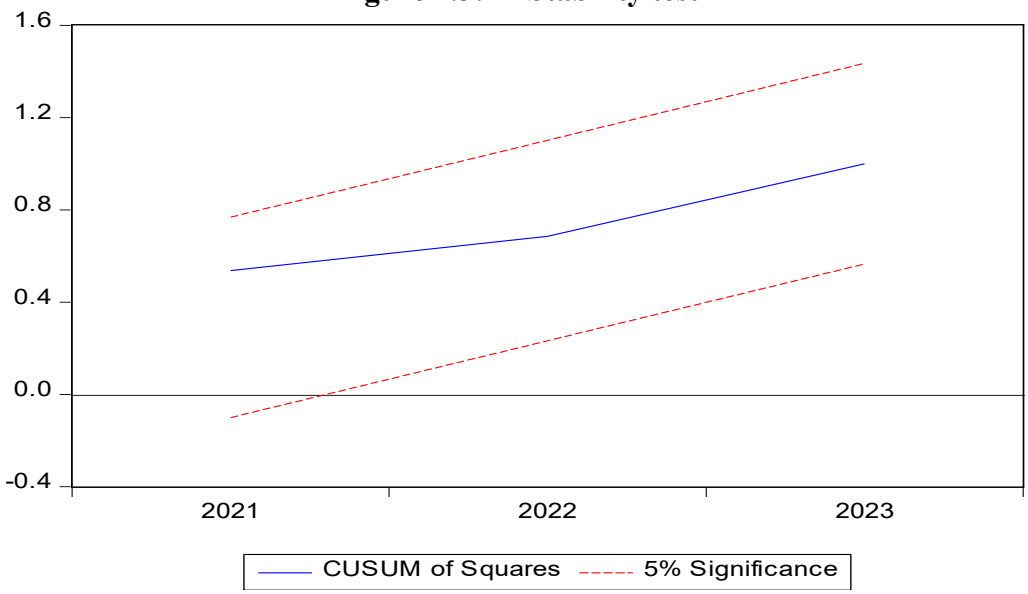
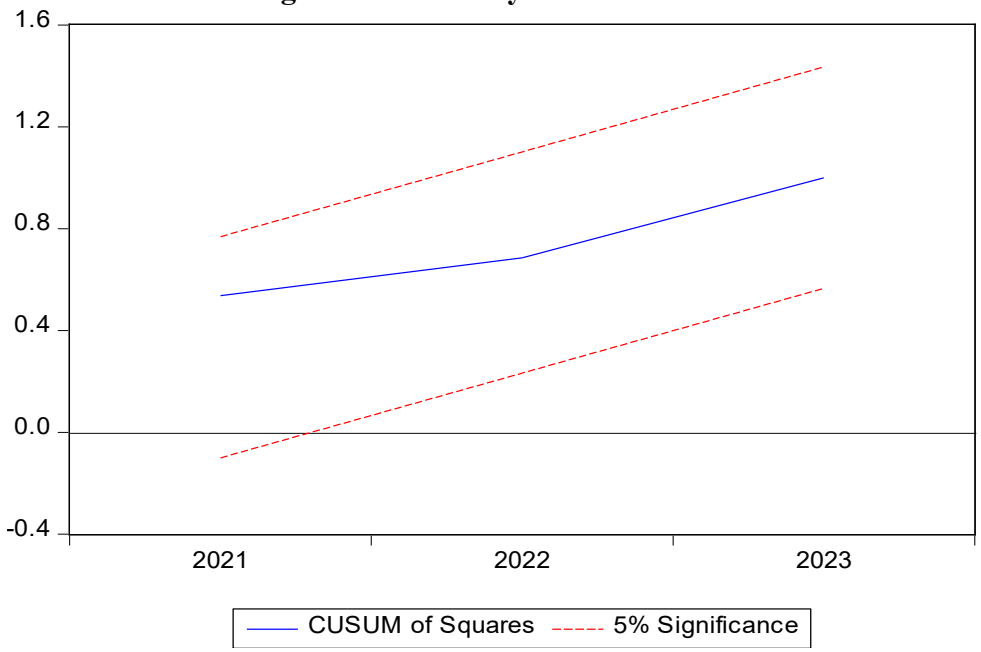


Figure 4.4: Stability test



5.0 Conclusion and Policy Recommendations

The statistical findings support the stylised facts that the government spending on economic services is more vital for the development of SMEs' contribution to GDP in Nigeria. Notwithstanding, more efforts on government social and economic service spending will be made to stimulate the development of SME in Nigeria. The study therefore focuses its recommendations on how government spending on economic services empirically enhances SME's growth. Starting with infrastructure, more spending on new infrastructure, completion of all infrastructural work-in-progress and maintenance of the existing ones is needed as part of economic service identified as a factor that influences SME's growth. Agriculture has been the most important option of the diversification process (being a relief from over-reliance on oil) for Nigeria to achieve inclusive economic growth, as it features prominently in the economy, generating a huge figure in GDP. Apart from putting into consideration that the national population has been growing over time, expansion in the agricultural sector through public spending will not only alleviate hunger, but at the same time influence the contribution of the SMEs. A more significant amount of government ICT spending will lead to digital transformation, which is capable of increasing job creation in the form of SMEs.

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