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AGGREGATE DEMAND AND THE PERFORMANCE OF SMALL AND MEDIUM SCALE ENTERPRISES IN NIGERIA

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Abstract

This study attempts to investigate the rudimentary economic factor that affects the performance of Small and Medium Scale Enterprises (SMEs) in Nigeria; this has been necessitated by the numerous amount of SMEs that go moribund annually in the country and the obvious ineffectiveness of the supply-side policy recommendations of related studies. The study which spans the period 2001–2022 identified aggregate demand as the core determinant of the performance of SMEs in the country and employed the Autoregressive Distributed Lag (ARDL) technique in analyzing the secondary data used in the study. The findings of the study reveal that wage rate and aggregate demand positively affect the performance of SMEs in Nigeria in the short-run and long-run. The study concludes that government's policies that are directed towards increasing aggregate demand can also improve the performance of SMEs. In that light, the study recommends more frequent upward review of minimum wage such that the rate of increase in average wage rate outperforms rate of increase in inflation rate.

Keywords: Aggregate demand, SMEs, Enterprise fluctuations, Nigeria
Gel Codes: E64, E32

INTRODUCTION

Small and medium scale industries (SMEs) play a vital role in the economic landscape of developing countries. They are not only responsible for creating jobs and generating foreign exchange through exports, they also contribute significantly to government revenues via tax payments. In Nigeria, SMEs account for approximately 70% of industrial employment and around 17.4 million of these enterprises contribute nearly 48% to the national GDP over the past five years. They represent about half of the industrial jobs and nearly 90% of manufacturing activities in terms of the number of businesses (National Bureau of Statistics, 2022; SMEDAN, 2021).

However, despite their substantial contributions to national growth, SMEs face significant challenges that threaten their survival, as highlighted by increasing business closures. Since 2017, about 1.9 million SMEs have shut down in Nigeria. This troubling trend has been linked to a variety of issues. One major factor is the continuous devaluation of the local currency, which diminishes the purchasing power of individuals' savings, thereby lowering overall demand. Furthermore, the credit landscape for SMEs is riddled with market failures and imperfections, with an annual financing gap estimated at N617.3 billion as of 2020. Additionally, inadequate infrastructure, particularly unreliable power supply, escalates production costs; SMEs typically receive only 1 to 5 hours of electricity per day. Alarmingly, around 1 in 7 businesses that cease operations cite power supply issues as their primary challenge (International Monetary Fund, 2021;

Mokaddem, 2006; PricewaterhouseCoopers, 2021).

Efforts to tackle the persistent challenge of poor SME performance, often leading to bankruptcy, have focused heavily on training and re-training youth in skill acquisition and enhancement. This approach has continued for decades, despite its limited success in halting this negative trend. Since the early 1970s, over 1.9 million SMEs have shut down. While there was a slight decrease in the number of closures—from 41,543 in 2017 to 39,654 in 2020—the figures remain troubling (SMEDAN, 2021). Numerous studies highlight that access to credit and infrastructure development are primary hurdles for SMEs in Nigeria. Although this perspective holds some truth, data suggests that these may not be the most critical factors influencing SME performance. Notably, there are successful SMEs operating despite the challenges posed by poor infrastructure and limited access to credit (Umeghalu, Imoagwu, Okafor & Ezeoke, 2021).

The vicious cycle of poverty theory posits that low income constraints affect supply, demand, and market dynamics within an economy. Specifically, low income results in low demand; this diminishes investment, which subsequently lowers productivity, perpetuating a cycle that continues to suppress income levels. It can be argued that SME performance is significantly influenced by aggregate demand, which is ultimately shaped by average real income. A low average wage translates to low aggregate demand, indicating that the economic environment may be insufficient to sustain the multitude of SMEs run by a large number of self-employed individuals. This situation suggests that many SMEs are competing for a share of the aggregate demand that is insufficient to provide adequate support for them (Keynes, 1936; Onwuka, 2011; Todaro & Smith, 2011).

This study aims to uncover the key factors behind the poor performance of SMEs in Nigeria, highlighted by the widespread closure of businesses in the sector. It specifically focuses on assessing how aggregate demand and wage rates influence SME performance in the country. Notably, the resilience of certain firms that continue to thrive, despite the severe challenges identified in past research, indicates that there is a significant gap in the existing literature that this study seeks to address.

This study cover the period from 2001 to 2022, a timeframe that offers valuable insights into the general performance trends of SMEs in Nigeria. This period is long enough to capture the necessary data while accounting for the economic fluctuations experienced. It is important to note that this study deliberately excludes the era of the Structural Adjustment Programme (SAP) and the rolling development plans that ran from the mid-1980s to the mid-1990s, as their adverse impacts could skew the findings.

STYLIZED FACTS

Small and Medium Scale Enterprises and the Nigerian Economy

Despite the debates surrounding their definitions, one thing is clear: small and medium enterprises (SMEs) play a vital role in the Nigerian economy. A quick look at the distribution of SMEs in Nigeria shows that around 50% are involved in distributive trade, 10% in manufacturing, 30% in agriculture, and the remaining 10% in various other services. SMEs contribute approximately 10% of the manufacturing output and account for 70% of industrial employment in the country. These enterprises are key to fostering industrial and economic development by leveraging local resources to produce intermediate goods and enhance rural technology. It's no wonder SMEs are often seen as the driving force behind the country's economic growth, offering significant opportunities for job creation, income redistribution, and rural advancement (Oluboba, 2011).

In Nigeria, small and medium enterprises (SMEs) are recognized as a crucial foundation for the nation's economy. This sector is essential for the country's sustainable development. While the petroleum industry plays a significant role, agriculture—largely driven by SMEs—remains vital, providing employment for around 70% of the labor force. Reports show that agriculture contributes approximately 35% to Nigeria's gross domestic product (GDP). Most processing industries in this sector are small-scale, often classified as cottage industries involved in agro-allied processing. Small fabricators are the primary providers of machinery to these processors, and they are widespread across the country. When factoring in the output from these SMEs, their overall contribution to the GDP likely exceeds 60%. The government has focused on supporting small enterprises due to their potential to create jobs and reduce poverty, highlighting the importance of fostering their growth and development in Nigeria (NBS, 2021; PwC, 2021).

Nevertheless, SMEs in Nigeria often fall short of the economic expectations that have accompanied significant government support. Their lack of success can be largely attributed to several challenges, including high capital costs, the government's inability to create, implement, and enforce supportive policies, a poor operating environment marked by insufficient and deteriorating infrastructure, inherent structural issues that hinder efficiency, and limited access to crucial information about viable projects (Ojo, 2006; Oluboba, 2011; Onugu, 2005).

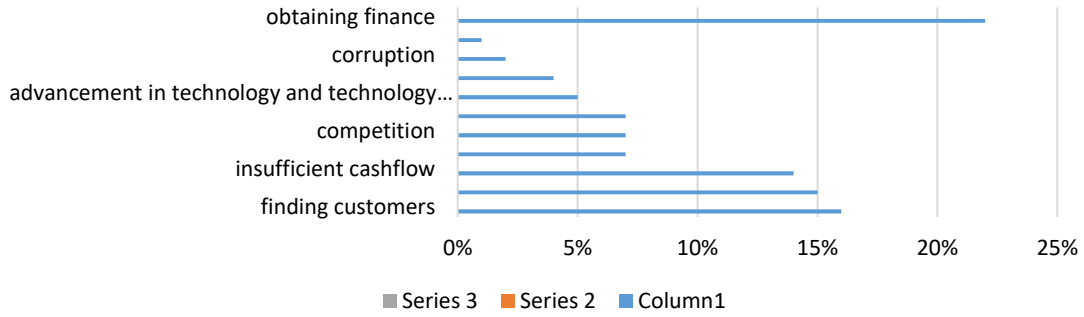
Infrastructural Development and the Performance of SMEs in Nigeria

Nigeria's significant infrastructure challenges have resulted in higher production costs, with electricity being the largest expense for businesses in the industry. The country's power sector faces numerous hurdles, from operational inefficiencies to inadequate infrastructure, all contributing to an unreliable power supply that impacts business profitability and sustainability. It

is estimated that the lack of dependable electricity costs the Nigerian economy around USD29 billion annually. Research from the Centre for Democracy Development (CDD) indicates that small and medium-sized enterprises (SMEs) receive only 1 to 5 hours of electricity daily, creating a drastic supply shortage that endangers their survival. This electricity shortfall leads to an estimated 1 in 7 businesses exiting the market (IMF, 2021; Oluboba, 2011; Onugu, 2005; PwC, 2021).

A 2020 survey highlights the key challenges facing SMEs in Nigeria. The leading issue is access to finance, as cited by 22% of respondents, followed closely by finding customers at 16%. Infrastructure deficits were mentioned by 15%, and insufficient cash flow by 14%. Other concerns included multiple taxation, competition, and an unskilled workforce, each at 7%. Additionally, 5%, 4%, 2%, and 1% of respondents pointed to technological changes, regulatory issues, corruption, and an inefficient judiciary as pressing problems for SMEs (SMEDAN, 2021).

Figure 1: The major problems facing SMEs in Nigeria according to PwC's Survey, 2021



Source: Researcher's compilation from PwC's Survey Report, 2021

In addition to the challenges posed by inadequate power supply and low internet penetration, factors such as outdated production techniques and the high cost of credit are significant barriers affecting the efficient operation of SMEs in Nigeria. Despite these obstacles, some companies are thriving, highlighting that not all industries are equally affected. Interestingly, the successful firms come from a variety of sectors, indicating that poor performance isn't solely determined by industry type but rather by the size of the firms. Most of the well-performing businesses hold substantial market shares, suggesting that the challenges mentioned are not the primary reasons for the short lifespan of SMEs in Nigeria and other developing nations (Ogujiuba et al., 2004; Osalor, 2012).

When firms are sufficiently large, they enjoy patronage that affords them the turnover and profitability required to cover for the costs incurred in the course of production of goods or rendering services, even in climes where the cost of production is relatively higher due to the

absence of core social infrastructure. This tends to make aggregate demand the necessary and sufficient factor that engenders the profitability and survival of businesses, especially the smaller ones.

Aggregate Demand and Performance of SMEs in Nigeria

Aggregate demand refers to the total demand for goods and services within an economy, encompassing contributions from households, businesses, the government, and international trade. There is typically a direct relationship between aggregate demand and the performance of small and medium-sized enterprises (SMEs). When demand rises for products made by SMEs—whether from consumers, businesses, or government contracts—and when exports increase, these businesses are compelled to ramp up production. This often translates into more jobs as they expand their operations, benefiting the overall economy. On the other hand, a decline in demand can significantly hinder the performance of these smaller firms (Keynes, 1936).

The interplay between demand and SME performance is crucial, as demand influences sales, revenue, and growth potential. An uptick in demand generally leads to greater consumer spending, which in turn bolsters sales for SMEs. Higher sales volumes enhance revenues and profitability, reflecting a robust economy characterized by elevated consumption. This scenario provides SMEs with a chance to leverage expanding markets. Those SMEs that can adeptly cater to increased consumer demand during these times are positioned to thrive (Keynes, 1936).

As demand for their products and services grows, SMEs often find themselves with greater pricing power. This allows them to potentially raise their prices, improving their profit margins. Such pricing power not only helps SMEs cover their expenses but also enables them to invest in research and development, thereby bolstering their competitive edge. Furthermore, heightened demand can boost investor confidence and facilitate easier access to financing. Lenders are typically more inclined to extend loans and credit to SMEs experiencing strong performance. Access to better financing options allows these businesses to invest in growth initiatives, upgrade operations, and secure essential resources, enhancing their overall performance.

How can Aggregate Demand be Effectively Increased?

In the realm of theoretical macroeconomics, fiscal policy tools, particularly taxes and government spending, are typically leveraged to boost aggregate demand within an economy. However, their effectiveness often falls short of expectations, leading to speculation about the existence of more impactful alternatives. Attempts to enhance government revenue and expenditure face significant challenges when their sources lack flexibility.

Government revenue is generated from both tax and non-tax channels. Non-tax revenue, which includes earnings from natural resource exploitation, constitutes a substantial portion of the income

for governments in developing countries. Unfortunately, this revenue is often inadequate to meet the needs of their citizens, unless in cases of nations with well-performing investment funds. The limited earnings and the consequent struggles of these governments to provide for their citizens stem from low tax revenues. This low tax base suggests that many individuals are either not actively participating in the economy or that their economic activities are primarily occurring in the informal sector. In either scenario, the core issue revolves around low income. Furthermore, governments tend to overlook the concerns of low-income earners, resulting in economies that underperform and exhibit persistently high unemployment rates, serving as a clear indication of this issue (Ilo, Soyebo & Olowefela, 2023; Nwogwugwu & Umeghalu, 2021).

The level of government expenditure is closely tied to government income, which encompasses tax revenues, earnings from natural resources exports, returns from government investments, and loans from both domestic and international sources. As a legally recognized entity, governments can secure significant loans; however, the extent of borrowing is dictated by a country's creditworthiness. This creditworthiness hinges on a nation's ability to repay, primarily determined by factors such as productivity, indicated by the size and growth rate of its gross domestic product (GDP), the share of tax revenues relative to GDP, and various socioeconomic elements like the prevalence of corruption and the quality of institutions (Etale & Light, 2021).

From the foregoing, it becomes evident that the survival of businesses heavily relies on aggregate demand, which in turn, is significantly influenced by the average real earnings of the general population. This perspective may differ from the views of neoclassical economists, who contend that aggregate demand is primarily driven by government spending and taxation. However, it's important to recognize how crucial average real income is when we consider the effects of government actions on both demand and supply. Therefore, one effective way to boost aggregate demand is by ensuring that increases in average real income are distributed fairly across the population (Ilo et al., 2023).

LITERATURE REVIEW

The government's initiative to enhance economic performance focuses on the supply side of the economy by promoting productivity through skill acquisition programs and support for small and medium enterprises (SMEs). However, this supply side emphasis overlooks the demand side of the economy, which may explain why increases in aggregate supply do not always translate to higher total output. In his influential work, "General Theory of Employment, Interest, and Money," Keynes highlighted the critical role of aggregate demand, which represents the total spending in an economy, in driving economic activity and employment levels. He advocated for proactive government intervention to boost aggregate demand during economic downturns, asserting that low demand could result in extended periods of elevated unemployment and reduced output (Keynes, 1936).

Wage efficiency theory aligns with this perspective, suggesting that enhancing aggregate demand can lead to an increase in total output. This theory posits that offering higher wages can elevate both productivity and efficiency. When employers provide wages above the market equilibrium, it can motivate employees to perform better and attract a more skilled workforce. Similarly, Ragnar Nurkse's vicious cycle of poverty theory underscores the importance of the demand side by arguing that inadequate income fosters and sustains poverty—a challenge that affects supply and market dynamics. SMEs often struggle to thrive even with higher output when income levels remain low and stagnant (Onwuka, 2011; Todaro & Smith, 2011).

The finance gap theory proposed by Bolton identifies two significant hurdles facing small and medium-sized enterprises: a lack of knowledge about available financing sources and difficulty in meeting the loan requirements of external financiers. He indicated that SMEs often have limited access to external funds partly due to external financiers' limited understanding of entrepreneurs and their ventures. As a result, many SMEs turn to personal savings, friends, or family for capital. Finally, the infrastructure theory, which draws from economics, sociology, and urban planning, emphasizes that the development of both physical and non-physical infrastructure is vital for economic growth and performance. The availability of infrastructure is instrumental to the success and effectiveness of SMEs, underpinning their contributions to overall economic stability and growth (Todaro & Smith, 2011).

There is a wealth of empirical research boasting intriguing insights; however, many of these studies primarily focus on the supply side of the economy. Babandi (2019) utilized a multi-case qualitative approach to explore the pathways to establishing a thriving small business in Nigeria. Through interviews with managers from successful small businesses, he discovered that ongoing government intervention and support play a crucial role in alleviating the challenges faced by this sector. His findings effectively address key questions: what tools, policies, and strategies do successful small business managers employ to surmount these challenges?

In another study, Nwankwo and Kanyangale (2019) set out to examine the impact of market orientation (MO) on the sustainability of manufacturing SMEs in Nigeria. Employing a positivistic approach and a descriptive survey design, they collected data from 387 randomly selected owners-managers of manufacturing SMEs. The results indicated that MO significantly enhances the survival chances of SMEs in Nigeria.

Amenawo, Udoka, and James (2019) took a closer look at the influence of financial risk on the performance of SMEs in Nigeria. To conduct their analysis, they gathered secondary data from the Central Bank of Nigeria's statistical bulletin spanning from 1986 to 2017. Using the autoregressive distributed lag (ARDL) technique, the researchers found a negative and insignificant long-term relationship between financial risk and SME performance. However, they did identify that

exchange rate risk, liquidity risk, interest rate risk, and inflation risk considerably undermine SMEs in both the short and long term. Ultimately, the study concludes that financial risk has a detrimental impact on SME performance in Nigeria.

Awoyemi and Makanju (2020) sought to uncover the growth potential for financing SMEs in Nigeria, while also addressing the barriers that hinder this growth. They employed descriptive analysis along with simple percentages and deductive methods to describe the growth prospects associated with financing SMEs, as well as the challenges they encounter. Their findings reveal that SMEs continue to struggle with accessing funding due to various obstacles. A significant challenge is that financial institutions often perceive many SMEs as high-risk debtors lacking creditworthiness. The study highlights a concerning decline in financial support in the form of loans to SMEs in recent years, which ultimately hinders their growth prospects.

Inim, Udoh, and Ede (2020) investigated the influence of taxation on the growth of small and medium-sized enterprises (SMEs) in Nigeria during the period from 2007 to 2019. They sourced their secondary data from the Central Bank of Nigeria's Statistical Bulletin and reports from SMEDAN. Utilizing the Ordinary Least Squares (OLS) method for data analysis, their findings indicate that both company income tax and value-added tax negatively and significantly impact the growth of SMEs in Nigeria. Conversely, customs and excise duties exhibited an insignificant negative effect on this growth.

Trung (2021) sought to identify the factors influencing Vietnamese SMEs listed on the Hanoi Stock Exchange and the Ho Chi Minh City Stock Exchange, applying the Generalized Method of Moments over the decade, from 2009 to 2019. The study concluded that the six independent variables analyzed significantly and positively affect the performance of SMEs. A noteworthy contribution of this research is the introduction of the leverage ratio as a performance improvement tool for SMEs and the incorporation of national governance quality as a means to enhance their efficiency.

Etale and Light (2021) assessed the impact of SME development on Nigeria's economic growth from 2000 to 2018, again employing the Ordinary Least Squares technique. The findings of the study indicate that the aggregate asset base and capitalization of SMEs have negligible effects on GDP. In a more recent study, Ilo et al. (2023) explored the effects of monetary policy on the performance of SMEs in Nigeria, analyzing data from 1981 to 2020 using the Autoregressive Distributed Lag (ARDL) model. Their findings reveal that monetary policy has not effectively promoted SMEs' performance in Nigeria.

Lastly, Gajere (2023) examined how strategic orientations—namely market, learning, and entrepreneurial orientations—affect the performance of SMEs in Nigeria, also considering whether

competitive intensity acts as a moderating factor in this relationship. Motivated by the persistent decline in SME performance and its repercussions for national development, this study employed a cross-sectional design with a sample of 213 SMEs. The analysis was conducted using PLS-SEM, confirming the reliability of the measurement instruments. Ultimately, the study found that only the market orientation dimension significantly enhances SME performance, whereas learning and entrepreneurial orientations did not effectively predict performance. Additionally, competitive intensity did not moderate the relationship between strategic orientation and SME performance in Nigeria, leading to significant theoretical and practical implications being discussed.

RESEARCH METHODOLOGY

Theoretical Framework

The foundation of this research is anchored on the "vicious cycle of poverty theory" put forth by Nurkse. This theory posits that poverty can perpetuate itself because those living in poverty often lack the essential resources and opportunities to break free. Specifically, low income creates shortages that reverberate across the demand, supply, and market aspects of the economy. This imbalance can hinder investments in both human and physical capital, ultimately stifling productivity and economic growth. In the Nigerian context, this theory notably affects the overall demand for products offered by small and medium-sized enterprises (SMEs), as well as the survival rate of these businesses ((Keynes, 1936; Todaro & Smith, 2011).

When individual and households earnings are low, their disposable income tends to be limited, which in turn decreases their ability to purchase goods and services from SMEs. This shrinkage in consumer demand can adversely affect the profitability and long-term viability of these enterprises. Consequently, SMEs may find it difficult to grow, invest in research and development, or expand their workforce.

Empirical Model Specification

Reflecting the principles of the vicious cycle of poverty theory and aligning with the work of Ilo et al. (2023), which highlights the performance of SMEs as being closely tied to government fiscal policy, this study introduces a modified approach and specifies its model as follows:

$$SMEO = f(AGD, PWS, MWR, CRF, IFR) \quad (1)$$

The econometric form of the model is as stated hereunder:

$$SMEO = \beta_0 + \beta_1 AGD + \beta 2PWS + \beta 3MWR + \beta 4CRF + \beta 5IFR + \varepsilon \quad (2)$$

To illustrate the ARDL modelling approach, equation 2 is rewritten as follows:

$$\Delta SMEO = \alpha + \sum_{i=1}^{k} \beta j \Delta AGD_{t-i} + \sum_{i=1}^{k} \delta j \Delta PWS_{t-i} + \sum_{i=1}^{k} \phi k \Delta MWR_{t-i} + \sum_{i=1}^{k} \lambda m \Delta CRF_{t-i} + \sum_{i=1}^{k} \gamma m \Delta IFR_{t-i} + i$$
$$+\eta 1 SMEO_{-1} + \eta 2 AGD_{t-1} + \eta 3 PWS_{t-1} + \eta 4 MWR_{t-1} + \eta 5 CRF_{t-1} + \eta 6 IFR_{t-1} + \mu t \quad (3)$$

Where SMEO = Performance of SMEs; AGD = Aggregate demand; PWS = Power supply; MWR = Wage rate; CRF = Credit Facilities; and IFR = Inflation rate; β_0 = Constant term; β_1, β_2, β_3, β_4, β_5 = coefficients of the independent variables; and Ɛ = Error term.

Data and Data Sources

The study utilized secondary data collected from various reports and bulletins issued by international organizations, covering the period from 2001 to 2022. These sources include the International Monetary Fund (IMF), the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), the Central Bank of Nigeria (CBN), and the World Bank. SMEs Output (SMEO) represents the performance of small and medium enterprises in Nigeria, which can be gauged through their sales or revenue generation. Aggregate Demand (AGD) reflects the total spending in the economy, encompassing expenditures by individuals, the government, and firms. To represent this concept, the growth rate of GDP was employed, given that SMEs account for a significant share of economic activity in Nigeria.

Minimum Wage Rate (MWR) indicates the legally established minimum compensation that employers must provide to their workers. It serves as a proxy to evaluate how wage levels affect SMEs, as labor costs constitute a vital part of their operational expenses. Analyzing MWR allows us to explore how changes in minimum wages can influence the profitability and financial sustainability of SMEs. Power Supply (PWS) pertains to the total electricity available to SMEs, with its unreliable nature justifying its role as a control variable. A considerable amount of SMEs' earnings often goes toward alternative energy sources due to inconsistent power supply. A proxy for this was established through the percentage of the population with reliable electricity access, highlighting the importance of both availability and consistency.

Credit Facility (CRF) denotes the accessibility and affordability of financial resources for SMEs. The lending rate, or the interest charged on loans offered to SMEs, serves as the proxy for measuring this access. Elevated lending rates can restrict SMEs' abilities to invest and expand, thereby impacting their growth potential. Lastly, the Inflation Rate (IFR) is a measure of the general price increase over time. Including the inflation rate as a control variable allows us to consider its potential effects on SMEs' performance, given that inflation can influence production costs, consumer purchasing power, and overall economic stability, all of which ultimately affect SMEs.

Estimation Technique and Procedure

Several preliminary tests were conducted to assess the unbiasedness of the study's data. Descriptive statistics were utilized to evaluate the normal distribution of the data, which also proved valuable in identifying any outliers present in the dataset. This assessment included various measures of central tendency like mean and median, as well as dispersion metrics such as minimum, maximum, standard deviation, alongside measures of normality including skewness, kurtosis, and the Jarque-Bera test.

Given the potential for misleading results in time series data, which can display significant upward or downward trends without reverting to a constant mean, the data's stationarity was analyzed using the unit root test. Specifically, the Augmented Dickey-Fuller (ADF) unit root test was chosen for this purpose, as it accounts for serial correlation. Additionally, a cointegration test was conducted to determine whether certain sets of non-stationary time series variables share long-run equilibrium relationships. These tests are crucial for understanding the sensitivity between multiple variables.

To explore these long-run relationships among the study's variables, the ARDL bounds testing approach was implemented. The methodology developed by Pesaran et al. (2001) was particularly suitable for analyzing the impact of aggregate demand on SME performance. This approach offers advantages over alternative methods, especially in small samples. By establishing bands of critical values, it effectively differentiates between stationary and non-stationary variables, eliminating the need to classify them as I(1) or I(0).

DATA ANALYSIS AND RESULT PRESENTATION

The time series data used in this study is available in Appendix 1. Below is a summary of the analyses and preliminary tests conducted throughout the research.

Descriptive Statistics

As shown in Table 1, the descriptive statistics include the mean, median, minimum, maximum, kurtosis, standard deviation, and skewness for the variables under consideration. The results indicate varying distributions. Specifically, the output of small and medium enterprises (SMEO), power supply (PWS), and inflation rate (IFR) exhibit negative skewness, suggesting that their values are generally lower than the sample mean. Conversely, aggregate demand (AGD), minimum wage rate (MWR), and credit facility (CRF) display positive skewness, indicating that their values are typically higher than the sample mean.

Table 1: Summary of Descriptive Statistics Result

	SMEO	AGD	PWS	MWR	CRF	IFR
Mean	156.2559	5.227273	51.55909	14500.00	17.61364	12.33636
Median	178.2600	6.000000	52.35000	18000.00	16.90000	12.35000
Maximum	275.8100	15.30000	59.90000	30000.00	24.80000	18.90000
Minimum	33.34000	-1.800000	43.10000	5500.000	11.50000	5.400000
Std. Dev.	75.19489	3.741426	4.867155	9433.981	2.972140	3.654944
Skewness	-0.378874	0.294447	-0.138882	0.461405	0.598278	-0.051560
Kurtosis	1.872618	4.067075	2.021679	1.874862	3.711124	2.225128
Jarque-Bera	1.691409	1.361659	0.948076	1.941054	1.775988	0.560138
Probability	0.429255	0.506197	0.622484	0.378883	0.411480	0.755731
Sum	3437.630	115.0000	1134.300	319000.0	387.5000	271.4000
Sum Sq. Dev.	118739.7	293.9636	497.4732	1.87E+09	185.5059	280.5309
Observations	22	22	22	22	22	22

Source: Researcher's computation using E-Views 10, 2025

Small and medium enterprises output (SMEO), power supply (PWS), minimum wage rate (MWR), and inflation rate (IFR) data exhibit a platykurtic distribution, characterized by kurtosis values below 3. In contrast, the data for credit facilities (CRF) and aggregate demand (AGD) show a leptokurtic distribution, with kurtosis values exceeding 3. According to the Jarque-Bera statistics, all variables are normally distributed, as they exceed the significance level of 0.05.

Table 2: Summary of Correlational Matrix

Variables	Correlation Coefficients	Decision
LSMEO and AGD	-0.505952	Strong Negative Correlation
LSMEO and PWS	0.794141	Strong Positive Correlation
LSMEO and LMWR	0.770394	Strong Positive Correlation
LSMEO and CRF	-0.821514	Strong Negative Correlation
LSMEO and IFR	-0.208590	Weak Negative Correlation
AGD and PWS	-0.636030	Strong Negative Correlation
AGD and LMWR	-0.652377	Strong Negative Correlation
AGD and CRF	0.596443	Strong Positive Correlation
AGD and IFR	-0.108584	Weak Positive Correlation
PWS and LMWR	0.778908	Strong Positive Correlation
Variables	**Correlation Coefficients**	**Decision**
PWS and CRF	-0.682091	Strong Positive Correlation
PWS and IFR	-0.035434	Weak Negative Correlation
LMWR and CRF	-0.656270	Strong Negative Correlation
LMWR and IFR	0.041931	Weak Positive Correlation
CRF and IFR	0.106737	Weak Positive Correlation

Source: Researcher's computation using E-Views 10, 2025

Correlation Analysis

The correlation analysis results presented in Table 2 outline the correlation coefficients, which assess the strength of the relationship between the variable pairs under study. The correlation

values range from -1.0 to 1.0, where -1.0 indicates a perfect negative correlation and 1.0 signifies a perfect positive correlation. A summary of these results can be found in Table 2.

Unit Root Test

Based on the findings from the Augmented Dickey Fuller unit root test presented in Table 3, it appears that the output of small and medium enterprises (SMEO), aggregate demand (AGD), and power supply (PWS) are stationary at level {1(0)}. In contrast, the minimum wage rate (MWR), credit facilities (CRF), and inflation rate (IFR) show stationarity at the first order {1(1)}.

Table 3: Augmented Dickey-Fuller (ADF) Unit Root Test

VARIABLES	ADF	Critical 5%	Order	Remarks
Dependent Variable Stationary at Level				
SMEO	-0.727332	-3.644963	I(1)	Reject H_0
Independent Variables Stationary at Level				
AGD	-4.644902	-3.644963	I(0)	Reject H_0
PWS	-5.061050	-3.644963	I(0)	Reject H_0
MWR	-2.542725	-3.644963	I(0)	Accept H_0
CRF	-2.008611	-3.644963	I(0)	Accept H_0
IFR	-3.029490	-3.658446	I(0)	Accept H_0
Independent Variables Stationary at First Difference				
MWR	-4.541902	-3.658446	I(1)	Reject H_0
CRF	-4.476930	-3.658446	I(1)	Reject H_0
IFR	-4.565356	-3.733200	I(1)	Reject H_0

Source: Researcher's Computation using E-views 10, 2025

Cointegration Test

A co-integration test was conducted to determine if a set of non-stationary time series variables exhibits a long-term equilibrium relationship. These tests help gauge the sensitivity between two or more variables.

Table 4: Summary of Long-run Coefficients

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGD	0.057746	0.053837	1.072608	0.3114
PWS	0.033018	0.060293	0.547622	0.5973
MWR	0.043197	0.316666	0.136412	0.8945
CRF	-0.128938	0.054378	-2.371137	0.0418
IFR	-0.039323	0.037785	-1.040700	0.3252
C	5.501946	3.601528	1.527670	0.1609

Source: Researcher's computation using E-Views 10, 2025

The ARDL bounds testing approach was utilized to explore the long-run relationship among the

variables examined. As obtained from the test result, the F-statistic for the joint significance of the lagged level variables of 4.211882 exceeds the upper bound of I(1) at a 5% significance level. Therefore, we reject the null hypothesis and affirm that a long-run relationship exists between the dependent variable and the independent variables being analyzed.

Panel A: Long Run Estimates

After confirming the existence of a long-term relationship among the variables of the study, we applied the ARDL model's long-run form to calculate the regression model coefficients. The estimated long-run coefficients of the independent variables are summarized in Table 4. The findings indicate that all the explanatory variables align with theoretical expectations and are statistically significant at the 5% level. In particular, we observed that aggregate demand, power supply, and minimum wage positively influence SME output. In contrast, credit facilities and the inflation rate exhibit a negative impact on SME output.

Panel B: Short Run Estimates (Error Correction Model)

Table 5: Summary of Short Run Coefficients (Error Correction Regression)

ECM Regression Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(AGD)	0.014579	0.005288	2.757163	0.0222
D(PWS)	0.000273	0.004082	0.066887	0.9481
D(LMWR)	0.144052	0.057177	2.519413	0.0328
D(CRF)	-0.037101	0.010596	-3.501405	0.0067
D(IFR)	-0.015913	0.003847	-4.135945	0.0025
CointEq(-1)*	-0.257550	0.036741	-7.009895	0.0001

Source: Researcher's computation using E-Views 10, 2025

The error correction modeling aims to align the long-term behavior of co-integrated variables with their short-term reactions, providing a dynamic analysis of these variables. In this model, we examine the differenced variables and include a one-period lag of the residuals from the co-integrating equation. This approach helps assess whether any short-term imbalances can be rectified in the long run. From the analysis in Table 5, it is apparent that aggregate demand, power supply, and minimum wage positively influence SME output. Conversely, credit facility and inflation rate show a negative relationship with SME output.

The coefficient of determination (R^2) of 0.815351 indicates that approximately 82% of the fluctuations in SME output can be attributed to the explanatory variables. Moreover, an adjusted R^2 of 0.753801 reveals that 75% of the variation in the dependent variable is explained by the

independent variables. The overall significance of the model is assessed using the F-test. The calculated F value of 4.211882 exceeds the critical F-table value of 2.90 at the 5% significance level, leading us to reject the null hypothesis and affirm that the relationships among the variables are significant.

To check for autocorrelation, we use the Durbin-Watson statistic. A value near 2 suggests no autocorrelation; the analysis yielded a Durbin-Watson statistic of 1.862030, indicating a lack of autocorrelation. Furthermore, we employed the Breusch-Godfrey Serial Correlation LM Test to evaluate serial correlation. With a p-value of approximately 0.3973, which exceeds the 5% significance threshold, we accept the null hypothesis, thereby ruling out the presence of serial correlation. This assures us that the variables in the model are reliable for making predictions.

Lastly, we tested for multicollinearity, which checks for a "perfect" linear relationship among the explanatory variables. A correlation coefficient over 0.8 would indicate multicollinearity, but results in Table 6 show coefficients below that threshold, confirming there is no multicollinearity within the dataset.

Table 6: Summary of Multicollinearity Test

Variables	Correlation Coefficients	Decision
LSMEO and AGD	-0.505952	No Multicollinearity
LSMEO and PWS	0.794141	No Multicollinearity
LSMEO and LMWR	0.770394	No Multicollinearity
LSMEO and CRF	-0.821514	No Multicollinearity
LSMEO and IFR	-0.208590	No Multicollinearity
GDPAGR and PWS	-0.636030	No Multicollinearity
Variables	Correlation Coefficients	Decision
AGD and LMWR	-0.652377	No Multicollinearity
AGD and CRF	0.596443	No Multicollinearity
AGD and IFR	-0.108584	No Multicollinearity
PPAE and LMWR	0.778908	No Multicollinearity
PPAE and CRF	-0.682091	No Multicollinearity
PWS and IFR	-0.035434	No Multicollinearity
LMWR and CRF	-0.656270	No Multicollinearity
LMWR and IFR	0.041931	No Multicollinearity
LR and IFR	0.106737	No Multicollinearity

Source: Researcher's Computation using E-Views 10, 2025

The heteroscedasticity test was performed to determine whether the variance of the error for each observation remains constant. As obtained from the test result, the P(F) value is 0.1236, which suggests that the probability of the F-statistic exceeds the F-tabulated value at a 5% significance level. Therefore, we accept the null hypothesis, concluding that there is no heteroscedasticity present in the residuals, and the estimated data are reliable for prediction. Additionally, the normality test yielded a probability value of 0.491601, which also surpasses the

critical value at the 5% significance level, leading us to accept the null hypothesis and confirm that the residuals are normally distributed.

Evaluation of Estimates

In terms of evaluating estimates, we utilized the t-test to assess the statistical significance of each parameter. One-tailed tests were conducted at a 5% significance level, with results detailed in Table 7.

Table 7: Summary of t-statistics

Variables	t-calculated (t_{calc})	t-tabulated (t_{tab})	Conclusion
AGD	2.757163	2.11	Statistically Significant
PWS	0.066887	2.11	Not Statistically Significant
MWR	2.519413	2.11	Statistically Significant
CRF	-3.501405	2.11	Statistically Significant
IFR	-4.135945	2.11	Statistically Significant

Source: Researcher's Computation using E-Views 10, 2025

The t-statistics help assess whether the estimates hold significance. When the calculated t-values exceed the tabulated t-values for the independent variables, those coefficients are deemed significant. As shown in Table 7, all the coefficients for the independent variables are significant, with the exception of power supply.

CONCLUSION

This study aimed to explore the factors influencing the performance of SMEs in Nigeria. The motivation stemmed from the alarming number of SMEs that close down, as well as the inefficacy of supply-side policy recommendations from previous studies. Covering the period from 2001 to 2022, the research identified aggregate demand as the primary driver of SME performance in Nigeria. Utilizing the Autoregressive Distributed Lag (ARDL) technique for data analysis, the results indicate that both wage rate and aggregate demand have a positive impact on the performance of SMEs in Nigeria, in both the short-term and long-term. Specifically, an increase of one unit in aggregate demand or minimum wage is associated with increases of 0.06 and 0.043 in the number of SMEs in the long run, respectively. In the short term, these increases translate to 0.015 and 0.144, respectively. Notably, these estimates were found to be significant.

A key takeaway from the findings is the validation of the demand side's crucial role in the performance and survival of SMEs, an aspect often overlooked in discussions around the Nigerian economy. Aggregate demand, heavily influenced by average real income, significantly affects government tax revenue and expenditure—factors that are key to the support available for small business owners. In low-income countries like Nigeria, many SMEs face challenges not solely due

to the lack of credit, infrastructure, and other supply-side incentives but also owing to weak demand resulting from low average earnings among the populace.

To address this, the study recommends increasing average real income as a highly effective measure to bolster support for SMEs equitably. This could be pursued through minimum wage legislation. It's crucial to note that while nominal minimum wage levels may appear to rise over time, average real income has been on a decline in Nigeria. Consequently, any minimum wage revision must carefully consider the real value of the adjustments made.

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Appendix

Appendix 1: Data for Analysis

Year	SMEO	AGD (%)	PWS (kw)	MWR (N)	CRF (%)	IFR (%)
2001	33.34	5	43.1	5500	21.3	6.9
2002	34.94	5.9	43.9	5500	23.4	18.9
2003	45.62	15.3	44.6	5500	24.8	12.9
2004	50.27	7.3	52.2	5500	20.7	14
2005	65.2	9.3	46.1	5500	19.2	15
2006	84.33	6.4	46.9	5500	17.9	17.9
2007	114.29	6.1	47.6	5500	16.9	8.2
2008	133.57	6.6	50.1	5500	16.9	5.4
2019	163.02	6.8	50.3	5500	15.1	11.6
2010	141.6	8	49.9	5500	19	12.5
2011	176.16	8	48	18000	17.6	13.7
2012	199.1	5.3	59.9	18000	16	10.8
2013	222.47	4.2	53.2	18000	16.8	12.2
2014	249.64	6.7	55.6	18000	16.7	8.5
2015	275.81	6.3	54	18000	16.5	8
2016	236.65	2.7	52.5	18000	16.8	9
2017	194.35	-1.6	59.3	18000	16.9	15.7
2018	180.36	0.8	54.4	18000	17.6	16.5
2019	202.35	1.9	56.5	30000	16.9	12.1
2020	215.18	2.2	55.4	30000	15.4	11.4
2021	207.78	-1.8	55.4	30000	13.6	13.2
2022	211.6	3.6	55.4	30000	11.5	17

Source; Researcher's computation (2024), using data derived from WDI (2023), SMEDAN(2023), CBN Statistical BULLETIN (2024), World Bank Data(2024) and IMF(2023)