Empirical Analysis of the Impact of Service Sector on Economic Growth in Nigeria

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Abstract

In recent times, technological advancement in the manufacturing sector has adversely reduced potentials to employ large amounts of unskilled and semi-skilled labour especially in developing countries. Consequently, job and productivity growth have declined greatly. Reacting to this, some developing countries have sort alternative avenues to boost job and productivity growth. This paper argues that the service sector is a veritable alternative. To substantiate this claim, the study examine how Real Estate (RE), Professional, Scientific and Technological Services (PST), Public Administration (PA), Accommodation and Food Services (AFS), Arts, Entertainment and Recreation (AER), as well as Financial and Insurance (FI) subservice sectors impact on Nigeria's economic growth. The Augmented Dickey-Fuller unit root test, Johansen Cointegration test and Error Correction Mechanism technique were used to estimate the data set obtained from the CBN Statistical Bulletin for the period 1990-2021. Findings from the ADF test revealed that the variables became stationary after first difference, while the Cointegration test indicates that there are five cointegrating equations. It was also discovered that RE, PA and FI have positive and significant long run impact on economic growth in Nigeria. AFS and AER both have positive, but insignificant impact, while PST has a negative and insignificant impact on economic growth in Nigeria. The study thus, recommends amongst others that more investments in Real Estate should be encouraged, expansion of public administration should be upheld by government, and also, more appropriate financial reforms are required to boost the Nigeria financial sector in order to enhance its performance.

***Keywords**: Service sector, economic growth, real estate, public administration.*

1.0 Introduction

Over the years, the living standard of countries has been measured by economic growth. This measure has been upheld by Mankiw (2007) who argued that a country's standard of living depends on its ability to produce goods and services. Economic growth has been considered by many as sustained increase in production of goods and services. Palmer (2012) refers to economic growth as a situation in which an economy is able to produce additional quantities of goods and services,

due to its ability to increase its productive capacity. In a wider sense, it involves the increase of the Gross Domestic Product (GDP), Gross National Product (GNP) and National Income (NI), including the production capacity, expressed in both absolute and relative size, per capita, and encompassing also, the structural modifications of economy (Haller, 2012).

It is general consensus that economic growth is a prerequisite for economic development. In fact, it has been identified as the most powerful instrument that can be employed in curbing poverty and improving the quality of life especially in developing countries (Rodrik, 2007). Tejvan (2019) opined that faster economic growth comes with benefits in that, it expands the overall size of the economy and strengthens fiscal conditions; improve the fiscal outlook; increases average incomes; reduces unemployment; lowers government borrowing; leads to improved public services; increases investment level in a country; increases research and development; and leads to decline in absolute poverty. Given the enormous benefits economic growth holds, it is undoubtedly one of the most desired macroeconomic objectives of any country. To this end, many countries in the world, developing countries in particular aim at achieving increased economic growth.

Nigeria as one of the developing countries in the world has targeted increase in her economic growth overtime. However, since the early 1980s to 2021, the country's economic growth rate has fluctuated severally, and is characterized by eighteen (18) episodes of declining trends. Corroborating this, Abdullahi and Mukhtar (2020) noted that over the past one decade, Nigeria's economic growth has remained volatile. Again, Mukhtar, Mustapha, Shafiu, Kamal, and Mohammed (2021) described Nigeria's economic growth as an up and down convolution comprising periods of recessions described as two consecutive quarters of negative growth in 2016 and 2020. Statistics from World Bank (2022), show that the negative economic growths recorded in 2016 and 2020 were -1.6 percent and -1.8 percent respectively. These fluctuating and declining trends in Nigeria's economic growth has been attributed to incessant episodes of collapse in oil prices, inadequate diversification of the economy, poor infrastructure, over dependence on imports, corruption, inflation, high interest rate, inability to process raw goods to finished goods, and terrorism amongst others (Abba, Babaji & Habu, 2017; InfoGuide Nigeria, 2023).

Ever since the industrial revolution, which provoked the jettisoning of agriculture as the main stay of the economy, manufacturing has been the key driver of rapid

economic transformation. However, Ghani (2019) noted that technological improvements in the manufacturing sector also affected economic growth negatively. He argued that manufacturing today is not what it used to be, observing that in recent times, manufacturing has become much more capital-intensive and skill-intensive, with greatly diminished potential to absorb large amounts of unskilled and semi-skilled labour. He submits that this current development has affected job and productivity growth especially in developing countries. In response to this, several developing countries have sort for alternative ways that can ensure economic transformation, drive job growth and reduce poverty. In view of this, some developing countries have embraced economic activities in the service sector as an alternative way out.

The service sector of any nation has been described as the lifeline for the socio-economic growth of the economy. Philip and Semira (2020) observed that the sector is a major employer of labour in any country which involves the production of services instead of end products. Also, Ghani (2019) opined that the globalization of services provides alternative opportunities for developing countries to find niches beyond manufacturing, where they can specialize scale up and achieve explosive growth. The sector also contributes to productivity and economy-wide growth, as it provides essential inputs to other products and services. Many services have emerged as promising tradable services for developing countries, particularly with the development of telecommunications and information and communications technology (ICT) services. In addition, efficient services are catalysts for the expansion of regional and global value chains (UNCTAD, 2017).

In recent times, Nigeria's service sector has emerged as the highest contributor to the national output in the last decade and offers great potential to drive the diversification agenda of the government which has predominantly concentrated on agriculture and manufacturing (UKaid, 2020). The Nigerian services economy is among the fastest growing in the African continent. The sector has shown impressive gains amid tough economic circumstances. For instance, services now contribute the highest proportion of the overall domestic activities and economic growth moving from less than 30 percent of gross domestic product (GDP) in the 1990s to 50.79 percent of the GDP in 2010 and 53 percent in 2019 (CBN, 2021). Erick (2017) stated that the growth in the service industry which has helped in diversifying the Nigerian economy was spurred by favourable government policies and increased foreign direct investment.

As contained in the CBN Statistical Bulletin (2021), the Nigerian service sector comprises 13 economic activities namely: Trade, Accommodation and Food Services, Transportation and Storage, Information and Communication, Arts, Entertainment and Recreation, Financial and Insurance, Real Estate, Professional, Scientific and Technical Services, Administrative and Supportive Services, Public Administration, Education, Human Health and Social Services, and Other Services. Few studies in Nigeria such as Ubong and Joel (2021); Adetukunbo and Edioye (2020); Ishola and Olusoji (2020) have examined the relationship between service sector and economic growth in Nigeria. These studies however, focused on analyzing how health services, education, transport and storage, and information and communication subservice sectors affect economic growth in Nigeria. This study contributes to empirical knowledge by analyzing how other subservice economic activities affect economic growth in Nigeria. This study therefore, examines the impact the Nigeria service sector has on economic growth in the country. For the specific objectives, the study investigates how Real Estate, Professional, Scientific and Technological services, Public Administration, Arts, Entertainment and Recreation, Accommodation and Food Services and Financial and Insurance subservice sectors affect economic growth in Nigeria.

Following the introduction in section 1, the rest of the study is organized into four (4) sections. Section two presents the review of literature, while section three presents the research methodology. Section four contains the analysis of results and discussion of findings, while section five presents the conclusion and recommendations of the study.

2.0 Literature Review

2.1 Empirical Literature

Some scholars have tried to examine the relationship between service sector and economic growth. The findings however are mixed. For instance, curious about the economic reforms that have driven China towards modernization and open economy since 1978, Murselzade and Cavusoglu (2021) in their study examined the relationship that exists between economic growth and the service sector in China. Two service subsectors namely real estate and hotel and catering in China were used as proxy for the independent variable - service sector. The Autoregressive Distributed Lag Method (ARDL) was used to estimate time series data which were obtained from secondary sources. The result of the parameter

estimate indicate that the explanatory variables both have positive and significant impact on China's economic growth both in the long run and in the short run. They conclude in their study that there exists a positive nexus between the service sector and economic growth in China.

Ravneet and Parmod (2019) employed a static sense analysis to explain the contributions of service sector to the economic growth of India. Sectoral GDP data from 1950-51 to 2013-14 was used to estimate the contribution of service sector to aggregate output and growth in India. Furthermore, the study used seven-year moving averages on the original data to match these levels. Findings from the research show that though agriculture sector's share to India's national output was more than that of the services sector till the first-half of 1980s, service sectors contribution to growth as defined in the note, in static sense has been more than that of other two sectors in the country. Service sector contribution to growth continues to increase throughout, while the contributions of the industrial and agricultural sector have continued to decline. Their study concludes that in a static sense, India's economic growth has been largely driven by the services sector.

Jalil, Manan and Saleemi (2016) examined the contribution of business and household-related services to economic growth in Pakistan using data set from 1960 to 2014. The study tested Pugno's Hypothesis. The long run relationship between economic growth and services sector in Pakistan was tested using Johansen-Juselius cointegration test and the autoregressive distributed lag bounds test. From the test result it was discovered that there exists a long run relationship between service sector and economic growth in Pakistan. Result from the estimated cointegrating vector indicates that Pakistan's economic growth enjoys positive contribution from the services sector.

Using data obtained from the Central Bank of Nigeria statistical bulletin for the period 1981 to 2019, Ubong and Joel (2021) studied how the service sector in Nigeria impacts on the country's economic growth. The estimation techniques used in analyzing the data comprise of Augmented Dickey-Fuller unit root test, Granger Causality test, Vector Autoregressive (VAR) technique, Bounds test for long run relationships and vector error correction mechanism. It was revealed from the findings that Nigeria's economic growth and its services sector have a bidirectional causality. The result from VAR show that the service sector in Nigeria exhibits

weak exogeneity in forecasting economic growth in the country. Meanwhile, it was revealed that broad money supply and total government expenditure impacted significantly on economic growth in Nigeria. Evidence from result of the impulse response function show that there was a negative response by economic growth to shocks in the output of the service sector; while it was indicated by the variance decomposition test that gross domestic product (which served as proxy for economic growth) is strongly endogenous in forecasting its behaviour in the short run, while such declines in the long run. The Bound test for existence of long run relationship indicates that there exists a long run equilibrium relationship between the variables, while evidence from the error correction mechanism show that 88.3% of gross domestic product disequilibrium in the short run are corrected annually. Professional, scientific and technical services are discovered to be the major contributor to economic growth. Their study recommended among others the revitalization of the industrial sector, given that it serves as a veritable channel via which the service sector can impact positively on economic growth.

Following the neglect of service sector as an alternative for revenue generation, Adetukunbo and Edioye (2020) examines how Nigeria's economic growth responds to the dynamics of the nation's service sector. Annual time series data, endogenous growth model and autoregressive distributed lag technique were employed as data set, theoretical framework and estimation technique respectively. Findings from the study revealed that health service subsector and transportation and communication service subsector have a positive and significant relationship with economic growth in the country. It was also discovered that interactions between the subservice sectors and governance indicators indicate that the service subsectors have positive, but statistically insignificant relationship with economic growth. Their study concludes that education as a sub sector has no significant impact on economic growth in Nigeria. Given this finding, their study advocates for an increase in budgetary allocation to the education subsector as such would help the sector to contribute positively to economic growth. It was further recommended that frequent efforts be made in order to monitor government processes, so as to prevent bureaucratic bottlenecks that would hinder the service sector from contributing significantly to economic growth.

In investigating the causal relationship and impact of service sector on economic growth in Nigeria, Maryam (2020) employed the Ordinary Least Square (OLS), Augmented Dickey-Fuller test, Johansen Cointegration test and Granger Causality

test to estimate time series data set obtained from the Central Bank of Nigeria statistical bulletin for the period 1981 to 2019. The results of the parameter estimates indicate that transportation, health services, and information and communication all have a positive relationship with economic growth at the 5 percent level of significance, while education has a negative relationship with economic growth at the 5 percent level of significance. The study thus recommends that in order to boost the growth of GDP, government and private individuals should increase investment in the service sector, with more interest on the education subsector.

Uchechukwu and Elizabethh (2015) adopted a Vector Autoregressive (VAR) method to examine the contributions of Agriculture, Industry and services sectors to Gross Domestic Product in Nigeria. As revealed by the Augmented Dickey-Fuller unit root test, all the variables became stationary after first difference, that is, the variables are integrated of order one. Evidence from the granger causality test indicates that there exists a bilateral causality between gross domestic product and the industrial sector contribution to GDP. The result also reveals that both the agricultural sector and the services sectors have no causality relationship with GDP, and also, GDP does not Granger cause neither the Agricultural sector nor the Service sector. The study therefore recommended that it is essential for the Nigerian government to come up with strategic master plan to diversify the economy with the aim of boosting economic activities in the Agricultural and Service sectors, so as to increase their contributions to GDP.

In the same vein, Olusoji and Odeleye (2018) using quarterly data from 1981 to 2015 analyzed the contributions of the various sectors to economic growth in Nigeria. The study employed some non-oil components (agriculture, non-oil manufacturing and services) as the independent variables, while Gross Domestic Product was used as proxy for economic growth. The relationship between the dependent and the independent variables was analyzed using multiple regression analysis. From the results of the analysis, it was discovered that during the pre-rebasing period of 1981 to 2013, agricultural sector contributed more to GDP, followed by the service sector. The result however was slightly different when analyzed in the post-rebasing period of 1981 to 2015. The result in the post-rebasing period reveals an increase in the service sector's contribution to GDP. The study concluded that if more attention is given to the service sector, it has the potentials

to increase GDP in Nigeria. The study therefore recommends increased investments in the service sector in order to boost GDP growth rate.

Also, following the rebasing of the Nigerian economy, Ishola and Olusoji (2020) adopted a disaggregated model to examine the impact of service-industrial individual subsectors productivities on economic growth in Nigeria. Ordinary Least Square (OLS) method was used to analyze quarterly time series data for the period 2010 to 2016. The Augmented Dickey-Fuller unit root test and Phillips-Perron test were used to ascertain the stationarity of the variables, while the Johansen cointegration test was used to determine the long run relationship between the variables. Findings from their study show that; though services and the industrial sector contributed significantly to the growth of GDP in Nigeria, some subsectors such as professional, scientific and technical services, utilities, public administration, and transport were found to be insignificant and thus deficient in their contribution to GDP. Their study suggested that sector-specific policies would come in handy in strengthening the service and industrial sectors and hence, maximize their potentials.

Ehigiator (2017) adopted the service-led growth theoretical framework and descriptive statistics to analyze how the Nigerian service sector contributes to the economic growth of the country. The study revealed that for the past 15 years, the service sector has contributed significantly to Nigeria's Gross Domestic Product, capital imports, trade and employment. The study concludes that diversification per se was not a problem in the economy of Nigeria; rather it was failure in enhancing the performance of other economic sectors in the country. The study highlighted that Nigeria has a robust tertiary education system which is evident in the number of higher institutions across the country. However, the performance of this subsector has been be-devilled by weak infrastructural capacity and low funding. It was recommended therefore, that for sustained growth to be achieved through the service sector, there is the need to increase the provision made for education.

From the review of literature above, it is clear that there are mixed results as evident in the findings of various researchers. While some of the sub-service sector variables have statistically significant impact on economic growth, others are reported to have statistically insignificant impact on economic growth. This could be as result of the nature of data employed by the researchers which comprise of annual times series data and quarterly times series data, and also, the various

empirical techniques used by the different researchers which comprise of Ordinary Least Square technique (OLS), Augmented Dickey-Fuller unit root test, Phillips-Perron test, Johansen Cointegration test, Johansen-Juselius Cointegration test, Multiple Regression technique, Vector Autoregressive (VAR) method, Granger Causality test, Autoregressive Distributed Lag (ARDL) model, and the Autoregressive Distributed Lag Bound test for long-run relationship.

Also, from the review of literature, it was discovered that most of the studies conducted in Nigeria focused more on seven (7) (Professional, Scientific and Technical Services, Health Services, Transport Services, Education Services, Information and Communication Services, Utilities, and Public Administration), out of the 13 sub-service sectors which make up the service sector in Nigeria, as contained in the Central Bank of Nigeria Statistical Bulletin 2021. The other six (6) sub-service sectors (Trade, Accommodation and Food Services, Arts, Entertainment and Recreation, Financial and Insurance, Real Estate, Administrative and Supportive Services) have been relegated in terms of empirical analysis. This study therefore, contributes to knowledge by empirically examining the impact of four (4) of the relegated sub-service sectors (Real Estate, Arts, Entertainment and Recreation, Accommodation and Food Services, and Financial and Insurance) on economic growth in Nigeria. In addition, Professional, Scientific and Technical Services, as well as Public Administration sub-service sectors were included in the model because of how robust these sub-service sectors are.

3.0 Methodology

3.1 Research Design

This study adopts an expost facto research design to analyze the cause and effect relationship between the individual subsectors of the service sector and economic growth in Nigeria. This is because; the researchers have no intent of modifying the data set. The annual time series data for the variables are taken as given. Gross Domestic Product (GDP) is employed as proxy for economic growth in Nigeria, while Real Estate (RE), Professional, Scientific and Technological Services (PST), Public Administration (PA). Accommodation and Food Services (AFS), Arts, Entertainment and Recreation (AER), and Financial and Insurance (FI) subservice sectors serve as proxies for the independent variable (service sector).

3.2 Sources of Data

Given that the nature of the research requires secondary data, annual time series data for the dependent and independent variables are sourced from the Central Bank of Nigeria Statistical Bulletin, 2021 edition. The data set spans from the period 1990 to 2021. Other statistics are sourced from World Bank.

3.3 Model specification

The model specification involves the expression of the relationship between variables in both mathematical and econometric forms. It specifies which economic phenomenon will be explained empirically by a set of regressands. The mathematical model is specified as follows:

$GDP = f(RE, PST, PA, AFS, AER, FI)$…….(3.1)
The econometric model is specified below:
$GDP = \beta_0 + \beta_1 RE + \beta_2 PST + \beta_3 PA + \beta_4 AFS + \beta_5 AER + \beta_6 FI + \mu$…….(3.2)

Where; GDP = Gross Domestic Product (Proxy for economic growth)
RE = Real Estate
PST = Professional, Scientific and Technological Services
PA = Public Administration
AFS = Accommodation and Food Services
AER = Arts, Entertainment and Recreation
FI = Financial and Insurance
μ = Error term
β_0 = Intercept
β_1-β_6 = Slopes and also coefficients of the independent variables

The explanatory variables in the model make up 46.15 percent of the sub-service component. These variables have been included in the model, because of their growing contributions in the service sector. Besides, studies on the impact of sub-service variables such as Real Estate, Arts, Entertainment and Recreation, Accommodation and Food Services, and Financial and Insurance on economic growth in Nigeria to the best of the researchers knowledge are not available, hence their inclusion in the model.

3.4 Estimation Techniques

The study employed the Augmented Dickey-Fuller unit root test to test for the stationarity of the variables, while the Johansen cointegration test was conducted to determine if there exists any long run relationship between the dependent variable and independent variables. Furthermore, the Error Correction Mechanism technique was used to estimate the impact of service sector on economic growth in Nigeria, while the serial correlation test was conducted to test for autocorrelation between the variables. Finally, the normality test was conducted to ensure that the variables in the model are normally distributed.

4.0 Results and Discussion

4.1 Descriptive Statistics Result

Table 4.1: Descriptive Statistics

	GDP	RE	PST	PA	AFS	AER	FI
Mean	48050.41	3417.203	1624.963	1361.831	359.9294	78.88875	1493.692
Median	26748.53	2353.355	806.3500	1098.770	111.9750	14.41000	801.5350
Maximum	176075.5	9249.650	5017.460	3007.990	1490.140	291.2100	5300.710
Minimum	494.6400	12.72000	7.750000	22.17000	1.190000	0.070000	44.22000
Std. Dev.	52571.45	3457.396	1881.753	1117.281	483.8719	107.6392	1639.489
Skewness	0.956937	0.552646	0.744742	0.222415	1.160948	1.010468	0.877117
Kurtosis	2.706136	1.690667	1.952671	1.461337	2.865034	2.305909	2.447762
Jarque-Bera	4.999024	3.914697	4.420618	3.420476	7.212560	6.087929	4.509738
Probability	0.082125	0.141232	0.109667	0.180823	0.027153	0.047646	0.104887
Sum	1537613.	109350.5	51998.80	43578.60	11517.74	2524.440	47798.15
Sum Sq. Dev.	8.57E+10	3.71E+08	1.10E+08	38697811	7258091.	359172.2	83325615
Observations	32	32	32	32	32	32	32

Source: Author's Computation 2022

Table 4.1 above presents the descriptive statistics. The average of gross domestic product (GDP) is 48050.41, with a high standard deviation of 52571.45. This implies that the observations are widely spread from the mean. The positive skewness implies that GDP lie to the right of the mean, while the kurtosis which is less than three (3) indicates that the distribution is flat (platykurtic) relative to normal distribution.

Real Estate (RE) has an average of about 3417.203 with a high standard deviation of 3457.396. This also implies that the observations are widely spread from the mean. The positive skewness implies that RE lie to the right of the mean. Its kurtosis

is less than three and thus indicates that the distribution is flat (platykurtic) relative to normal distribution. Further information from the table show that the means of Professional, Scientific and Technological services (PST), Public Administration (PA), Arts, Entertainment and Recreation (AER), Accommodation and Food Services (AFS) and Financial and Insurance (FI) are 1624.963, 1361.831, 359.9294, 78.88875 and 1493.692 respectively. Their respective high standard deviations which stood at 3457.396, 1881.753, 1117.281, 483.8719, 107.6392 and 1639.489 indicate that the observations are widely spread from their means. Their respective positive skewness point to the fact that PST, PA, AER, AFS and FI all lie to the right of the mean, while their kurtoses which is less than three suggests that the distribution is flat (platykurtic) relative to normal distribution.

From the above, it is clear that all the variables are positively skewed and at the same time normally distributed. This is because the Jarque-Bera test value and the probability value are not statistically significant at 5% level of significance.

4.2 Unit Root Test

The Augmented Dickey-Fuller Unit root test was conducted to test for the stationarity of the variables in order to avoid spurious regression and biased conclusion. The test result for the unit root is presented in table 4.2 below

Table 4.2: Augmented Dickey-Fuller Unit Root Test

Variables	*@ Levels*		*@ Ist Difference*		*I(d)*
	ADF Stat	*ADF 95%*	*ADF Stat*	*ADF 95%*	
Log(RGDP)	-1.642688	-3.580623	-3.985836	-3.580623	I(1)
Log(RE)	-0.812045	-3.562882	-5.916189	-3.622033	I(1)
Log(PST)	-0.257017	-3.562882	-3.972886	-3.568379	I(1)
Log(PA)	-1.712642	-3.562882	-5.783814	-3.568379	I(1)
Log(AFS)	-0.992687	-3.562882	-4.897618	-3.568379	I(1)
Log(AER)	-0.699759	-3.562882	-3.819916	-3.568379	I(1)
Log(FI)	-1.532251	-3.562882	-5.473336	-3.568379	I(1)

Source: Author's Computation 2022 using E-Views 10

As observed in table 4.2 above, none of the variables were stationary at levels. However, all the variables became stationary after their first difference. In other words, all the variables are integrated of the same order, that is, integrated of order one (I(1)).

4.3: Cointegration Test

Following the result in table 4.2 above, we go ahead to conduct the cointegration test, in order to confirm if the variables have any long run relationship or not. To achieve this, we employ the Johansen cointegration test, and the result is presented in table 4.3 below.

Table 4.3: Johansen Cointegration Test

Unrestricted Cointegration Rank Test (trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.989395	383.4791	125.6154	0.0000
At most 1 *	0.964502	247.0874	95.75366	0.0000
At most 2 *	0.876527	146.9393	69.81889	0.0000
At most 3 *	0.784623	84.18732	47.85613	0.0000
At most 4 *	0.650521	38.12630	29.79707	0.0044
At most 5	0.175762	6.586975	15.49471	0.6261
At most 6	0.025928	0.788104	3.841466	0.3747

Unrestricted Cointegration Rank Test (maximum eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.989395	136.3917	46.23142	0.0000
At most 1 *	0.964502	100.1481	40.07757	0.0000
At most 2 *	0.876527	62.75203	33.87687	0.0000
At most 3 *	0.784623	46.06102	27.58434	0.0001
At most 4 *	0.650521	31.53933	21.13162	0.0012
At most 5	0.175762	5.798871	14.26460	0.6392
At most 6	0.025928	0.788104	3.841466	0.3747

Source: Author's Computation 2022 using E-Views 10

From table 4.3 above, the trace statistics and the maximum Eigenvalue statistics show that, there are five (5) cointegrating equations. This implies that the variables have a long run relationship. With this information, we go ahead to estimate the error correction mechanism and the result is presented in table 4.4 below.

4.4: Error Correction Mechanism

The table below presents the result of the error correction mechanism.

Table 4.4: Error Correction Mechanism

ECM Estimates

Variables	Coefficient	Std. Error	t-Stat	Prob.
C	0.009343	0.028932	0.322940	0.7497
DLOG(RE)	0.205340	0.096633	2.124954	0.0446
DLOG(PST)	-0.086915	0.093520	-0.929377	0.3623
DLOG(PA)	0.174802	0.065938	2.650995	0.0143
DLOG(AFS)	0.159918	0.119612	1.336973	0.1943
DLOG(AER)	0.151617	0.077493	1.956533	0.0627
DLOG(FI)	0.311340	0.074562	4.175599	0.0004
ECM(-1)	-0.330869	0.175006	-1.890621	0.0713

R-squared 0.711223	Mean dependent variable 0.189511
Adj R-squared 0.623334	S.D. dependent variable 0.119154
S.E. of regression 0.073128	Akaike info criterion -2.175569
F-statistic 8.092315	Prob(F-stat) 0.000056

Source: Author's Contribution 2022 using E-Views 10

As observed in table 4.4, Real Estate has a positive and statistically significant long run impact on gross domestic product in Nigeria. A unit increase in real estate increases economic growth by approximately 0.205 units in the long run. Professional, Scientific and Technological Services is seen to have a negative but statistically insignificant impact on gross domestic product in the long run. This is evident as shown by the probability value of 0.3623, which is more than the 5 percent level of significance. The result shows that as Professional, Scientific and

Technological services increase by 1 unit, gross domestic product decreases insignificantly by approximately -0.09 units. Public Administration is significant and impacts positively on gross domestic product in the long run. Its level of significance is confirmed by its probability value of 0.0143. Thus, as Public Administration increases by 1 unit, gross domestic product increases by approximately 0.175 units. Accommodation and Food Services also has a positive but statistically insignificant impact on gross domestic product in the long run. Its probability value of 0.1943 confirms it is insignificant at the 5 percent level of significance. By implication, a unit increase in Accommodation and Food Services leads to an insignificant increase in gross domestic product by approximately 0.16 units. From further results as contained in table 4.4, the probability value of 0.0627 and a coefficient of 0.151617 imply that Arts, Entertainment and Recreation have a positive but statistically insignificant impact on gross domestic product in the long run. This means that gross domestic product would increase insignificantly by approximately 0.15 units when Arts, Entertainment and Recreation increase by 1 unit. Also from the table, it is clear that Financial and Insurance have a positive and significant impact on gross domestic product in the long run. The probability value of 0.0004 confirms that the variable is statistically significant at the 5 percent level of significance. Thus, a unit increase in Financial and Insurance causes gross domestic product to increase by approximately 0.31 units.

The ECM also shows a 33 percent speed of adjustment back to equilibrium whenever there is disequilibrium in the model. This means that every necessary error that occurred in the previous years will be corrected in the current year at an adjustment speed of 33 percent. The coefficient of the error term further explains that the model is statistically significant, and has a high adjustment speed in the long run.

4.5: Normality Test and Serial Correlation Test

The normality test as shown in the figure below indicates that the variables in the model are normally distributed.

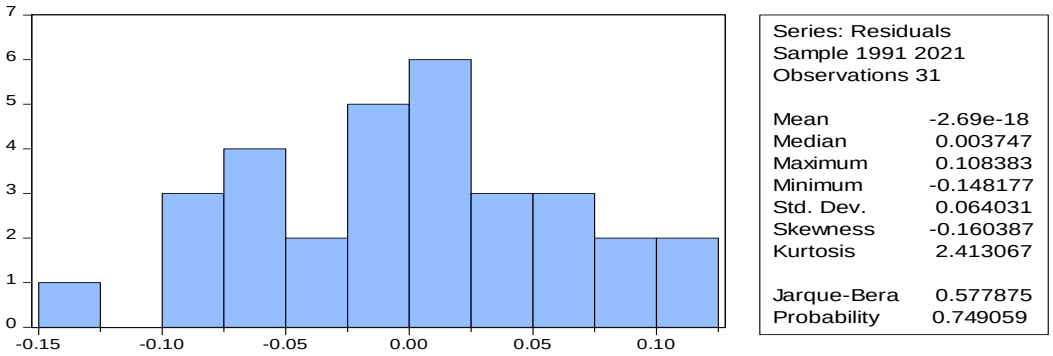

Fig 4.1: Normality Test

Also, the Breusch-Godfrey Serial Correlation LM Test as presented in table 4.5 indicates that there is presence of serial correlation.

Table 4.5: Breusch-Godfrey Serial Correlation LM Test

F-statistic	5.883163	Prob. F(2,21)	0.0094
Obs*R-squared	11.13204	Prob. Chi-Square(2)	0.0038

Source: Author's Computation 2022 using E-Views 10

The table above revealed that there is presence of serial correlation at 1 percent level of significance. This is because the observed R-squared value and the probability value is less than 1 percent significant level. That is, the probability value of the observed chi-square value is less than 1 percent.

4.6 Heteroscedasticity Test

Result of the Heteroscedasticity test is presented in the table below.

Table 4.6: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.285743	Prob. F(7,23)	0.3007
Obs*R-squared	8.718890	Prob. Chi-Square(7)	0.2735
Scaled explained SS	3.390987	Prob. Chi-Square(7)	0.8466

Source: Authors Computation using E-views 10

The above result indicates that there is constant variance (homoscedasticity) and thus, conforms to the Ordinary Least Square assumption of no heteroscedasticity. This is because the observed R-squared and probability value are not statistically significant at 5 percent level of significance. We therefore, conclude that there is no autocorrelation in the model.

4.3: Discussion and Policy Implication of Findings

From the empirical evidence in table 4.3, Real Estate, Public Administration and Financial and Insurance were all statistically significant at the five percent level of significance. These variables have positive long run impacts on economic growth in Nigeria. In recent times, real estate services in Nigeria have grown significantly. A lot of local, as well as, foreign investors have taken advantage of the growing demand for housing due to Nigeria's growing population and increasing urban cities. Evidence from the result estimates suggests that, a 1 percent increase in Real Estate investment would increase Nigeria's economic growth by approximately 20.5 percent. The positive impact of Public Administration on economic growth in Nigeria could be as result of Nigeria's robust civil service system. The Nigerian government is the major employer of labour in the country. Thus, empirical evidence from the result estimates suggests that, a 1 percent increase in public administration leads to an increase in Nigeria's economic growth by approximately 17.5 percent. Financial and Insurance subservice sector which also impacts positively on economic growth in Nigeria is as a result of the several financial reforms which have taken place in the finance and insurance subsectors of the economy. These reforms have made the Nigerian financial sector more stable and robust. Thus, a 1 percent increase in the Financial and Insurance subservice sector causes Nigeria's economic growth to increase by approximately 31 percent.

Further empirical findings reveal that Accommodation and Food Services, Arts, Entertainment and Recreation, and Professional, Scientific and Technological services all impacted insignificantly on Nigeria's economic growth. While the first two variables had positive impacts on economic growth in Nigeria, the latter exhibited negative impact on Nigeria's economic growth. This could be attributed to the country's poor level of technological progress. Nigeria is known as a nation that imports technology from developed countries. Several technological equipment (such as: laptops, computers, internet services, photocopiers, projectors, and generators, to mention a few) that are used in the services sector are mostly imported from other developed countries. The government of the country is also known to rely heavily on professional services from abroad. For instance, the implementation of the Integrated Payroll and Personnel Information System (IPPIS) which is serviced by a foreign company outside Nigeria, and the likes of such professional services are major leakages, and hence have negative effects on the country's GDP. The insignificant impact of Accommodation and Food Services could be due to the slow development of this subservice sector. Most of the food services are not properly accounted for and several food vendors are not taxed adequately. More so, accommodation services in the country are largely in the hands of households and business firms. In most cases, house owners across several states in the country do not pay property tax. On the other hand, the insignificant impact of Arts, Entertainment and Recreation subservice sector could be linked to the inadequacies that bedevil this subservice sector. The high level of piracy in the sector is a major factor that limits its impact on economic growth in the country. Again, easy access to downloaded music or movie contents which are easily shared through mobile devices is another factor that reduces turnover in this subsector and hence limits its ability to impact significantly on economic growth in the country. Appropriate policy implementation with regards to the above setbacks can ameliorate these subservice sectors ability to contribute significantly to economic growth in Nigeria.

5.0: Conclusion and Recommendations

This paper investigates the impact of service sector on economic growth in Nigeria using vector error correction technique. The results show that investment in the service sector can lead to economic growth in Nigeria. From the findings of this study, real estate, public administration, and financial and insurance provide opportunities for economic growth in given their respective significant impacts on gross domestic product. Accommodation and food services, as well as arts,

entertainment and recreation indicate great potentials for improving economic growth in Nigeria. This is because they exhibit positive impacts on gross domestic product even though the impacts are not statistically significant. On the other hand, professional, scientific and technological services as indicated in the findings of the study inhibit economic growth in the country. Thus, as Nigeria, fails to develop her indigenous technology and rely more on foreign technology, economic growth of the country declines.

In conclusion, the overall result shows that five out of the six service sub-sectors employed as explanatory variables can promote economic growth in Nigeria. Thus, following empirical evidence as shown by the result estimates, the study concludes that the Nigerian service sector impacts positively on the country's economic growth in the long run.

Considering the statistical and econometric validity of the result estimates, the study therefore makes the following recommendations for possible policy implementation:

1. More investments in Real Estate should be encouraged. In addition, government should create an enabling environment that can enhance the expansion of Real Estate business in the country.
2. In order for Professional, Scientific and Technological services to impact significantly on economic growth in Nigeria, the government must sincerely and deliberately invest more in research and development in order to develop and boost local technology. Government must also limit its dependence on foreign professional services in favour of quality local professional services.
3. The expansion of public administration services should be encouraged considering its significant impact on economic growth in the country.
4. For Accommodation and Food Service subservice sector to impact significantly on economic growth in Nigeria, government must effectively and efficiently collect various forms of property taxes. In addition, utility remittances such as electricity bills, water bills, sanitation bills and the likes must be properly collected and adequately remitted to government coffers.
5. The Nigerian government and relevant institution(s) in the country should effectively combat piracy in the Arts, Entertainment and Recreation

subservice sector as this would enhance its ability to impact significantly on economic growth in the country.

6. More appropriate financial reforms should be made in the financial sector of the country, so as to boost its stability, make it much stronger and more reliable. This would help improve its significant impact on economic growth in the country.

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