Empirical Analysis of the Service Sector and Economic Growth Nexus in Nigeria

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Abstract
This paper did an empirical analysis of the service sector and economic growth nexus in Nigeria. ***Background:*** *Service sector's contribution to GDP has declined slightly from average of 50% between 1982 and 1985 to 45% between 2020 and 2023. The disregard of the service sector and preference of the oil sector seem to be limiting the sector's greater productivity.* ***Aims:*** *This study specifically sought to ascertain the nexus between trade; transportation & storage; information & communication; financial & insurance; real estate and GDP in Nigeria for the period 1981 to 2023.* ***Methodology:*** *This study adopted the ex-post facto research design. Annual time series data was obtained from CBN bulletin, 2023 and analyzed using descriptive statistics, ADF unit root test and OLS. The hypotheses were tested at 5% level of significance. This study considered*

the Fisher's model of the stages of economic growth (Allen Fisher, 1939). ***Findings:*** *There was no unit root among the variables. Trade had a significant effect (0.0165); Transportation & storage had a significant effect (0.0000); Information & communication had a significant effect (0.0000); Financial & insurance had a significant effect (0.0088); Real estate had a significant effect (0.0000) on GDP for the period reviewed. Also, the probability (f-statistic) was 0.000000, Durbin-Watson was 1.610388 while adjusted* R^2 *value was 99.82%.* ***Conclusion:*** *The services sector is jointly significant and contributes to GDP of Nigeria.* ***Recommendations:*** *The government should continue the diversification of the economy, ensure that we produce more for consumption and export so as to better the GDP.*

Key words: Trade, Transportation & storage, Information & communication, Financial & insurance, Real estate, Economic growth

Introduction

The services sector is classified into: 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 support services; public administration; education; human health and social services; other services (CBN, 2023). This sector in the last four years contributes average of 45% to the country's gross domestic product (GDP). Hence, this sector is significant to the performance of the Nigerian economy. This sector is also evolving with enormous and varied potentials to drive economic growth. Khanna et al. (2016) noted that the service sector is currently the fastest growing sector in the world.

The service sector is a crucial component of every country's economy as it has been identified as a sector with the capability to become a significant driver of sustained growth in Africa (Ghani & O'Connell, 2014). It has also been noted that a productive service sector is known to strengthen the performance of other sectors in the economy such as manufacturing (Khanna et al., 2016). This sector facilitates the performance of other sectors of the economy. It serves as a veritable platform for the thriving of other sectors as well as provides supplementary outputs to them.

Latha (2016) opined that the growth rate of this sector is second to none, contributing much more to output globally, increasing income and providing jobs more than other sectors. Tejvan's study (2019, as cited in Azebi & Tamuno, 2023) stated that faster economic growth comes with benefits in that, it expands the overall size of the economy and strengthens fiscal conditions; improves 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. It is pertinent therefore to note that the potentials in this sector need to be harnessed by any country that wants to boost its economic growth cum development potentials. Corroborating the forgoing submissions, Azebi and Tamuno (2023) argued that given the enormous benefits economic growth holds, it is undoubtedly one of the most desired macroeconomic objectives of any country. It is

imperative that the service sector should be given the necessary attention given its contribution of about half of the country's gross domestic product.

The need for gross domestic product growth which will positively rub off on the Nigerian economy is of utmost importance. The country faces the challenge of having the right policies work out for sustained growth that will yield the expected dividends to her citizens. Abdullahi and Mukhtar (2020) in their study noted that Nigeria's economic growth has remained volatile over the past one decade. Furthermore, Mukhtar et al. (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. Hence, there is the need to look at the services sector given its contribution cum potentials to contribute to the country's GDP. This sector's contribution to GDP stood at 45% in 1981, 44% in 2000, 47% in 2021 and 44% in 2023 which is very significant and consistently high. The observed growth in this sector will help in the diversification drive once the right policies are put in place and effectively implemented.

Ishola and Olusoji (2022) stated clearly that the service sector makes a direct and significant contribution to gross domestic product and job creation, and provides crucial inputs for the rest of the economy, thus having an important impact on the overall climate of investment, which is key to growth and development. Nigeria's services sector has over the last decade remained the highest contributor to the national output. This portends great potential to drive the diversification agenda of the Nigerian government. It is argued that many African countries like Nigeria has experienced a structural transformation process involving the transfer from agricultural to mostly non-tradable services (Ajakaiye et. al., 2016). Karahan and Bay (2021) study have shown that the current productivity and growth rates experienced in all countries of the world have been attributed to services sector. Ola and Ifada (2023) accordingly noted in their study that the service sector has been performing moderately well in Nigeria.

There are several domestic regulations that guide the services sector. Some of these include:

• All business enterprises must be registered with the Registrar-General of the Corporate Affairs Commission (Registrar of Companies).

• A foreign investor wishing to set up business operation in Nigeria needs to obtain local incorporation of the Nigerian branch or subsidiary as a separate entity in Nigeria for that purpose.

• The principal laws regulating foreign investments are, the Nigerian Investment Promotion Commission Decree No.16 of 1995 and the Foreign Exchange (Monitoring and Miscellaneous Provisions) Decree No.17 of 1995. (UKaid, 2020)

The performance of the services sector in Nigeria is influenced by the following factors:

- All services export supply
- Performance of real GDP - Economy
- Trend of gross fixed capital formation - Infrastructure
- Existence of natural resources endowment - labour force, human capital
- Number of new businesses registered in the country - Business growth
- secondary school enrolment - Education and knowledge

- Telephone per 1000 people – Information and Communication Technology (ICT). All of these factors have positive impact on total services export supply, both in the short-run and in the long-run. (UKaid, 2020).

Statement of problem

The services sector contributed 51%, 50%, 51% and 48% in years 1982, 1983, 1984 and 1985 respectively, but contributed 47%, 44%, 45%, 44% in years 2020, 2021, 2022 and 2023 respectively (CBN, 2023). The forgoing data shows that there is slight decline of this sector's contribution to Nigerian GDP in recent years. There's hence need to review the sector's performance with a view to fine-tune it for an upward growth cum contribution to Nigeria's GDP.

It is appalling to note that the Nigerian economy has disregarded the service sector, as economic activities are majorly dominated by the activities in the oil sector, thus limiting the service sector from attaining greater productivity and full employment (Adetokunbo & Edioye, 2020). Nigeria has over relied on crude oil for a long time with its attendant vulnerable price changes. It is imperative that with the recent and recurrent call for diversification of the Nigerian economy, the services sector can come to the rescue. The need to explore our potentials in the services sector and use its benefits to enhance economic growth as is being done by other advanced countries cannot be over emphasized. 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)

It is therefore imperative to review the contribution of this sector to GDP in view of its significance to moving economies forward the world over. Some studies reviewed had slightly different findings. They also used three or four variables as against this study that used five variables so as to have a wider coverage of this important sector. It is in view of the forgoing that this study explored the nexus between the service sector and gross domestic product in Nigeria for the period 1981 to 2023.

In line with the above, the following hypotheses guided the study:

One: $H_0$1: Trade had no significant effect on GDP in Nigeria.
Two: $H_0$2: Transportation and storage had no significant effect on GDP in Nigeria.
Three: $H_0$3: Information and communication had no significant effect on GDP in Nigeria.
Four: $H_0$4: Financial and insurance had no significant effect on GDP in Nigeria.
Five: $H_0$5: Real estate had no significant effect on GDP in Nigeria.

The remaining sections of this study are classified as follows: literature review; methodology, presentation of findings, discussion, conclusion and recommendations.

Literature review

Conceptual review

As seen in Olusoji and Odeleye (2018), the Nigerian services sector comprises electricity; water; building and construction; road, rail, ocean, and air transport; communication; wholesale and retailing business; hotel and restaurants; financial services; real estate; housing (dwelling); private non-profit activities; as well as repairs and other services. As described by Cuadrado-Roura (2016), "the service sector is composed of a wide variety of market and nonmarket activities, ranging from transport and retailing, to hotels, restaurants, financial activities, business and

personal services, education, health and the public administrations." The proxies for service sector used in this study were trade, transportation & storage, information & communication, financial & insurance and real estate. These sectors are the top five major contributors to this sector.

Palmer's study (2012, as cited in Azebi & Tamuno, 2023) 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. Hence, it is a prerequisite for economic development. It is commonly used as a yardstick to measure the wellbeing of the economy and its populace. The proxy for economic growth used in this study is gross domestic product.

Theoretical review

This study reviewed two theories:

The big push theory as presented by Paul Rosenstein-Rodan (1943) shows that a comprehensive investment package can be helpful to bring economic development. In other words, a certain minimum amount of resources must be devoted to overall developmental growth in an economy, implying that big push is needed by a government to help her economy grow in a balanced way. The theory is based on the assumption that an economy must have many sectors that can be developed for growth instead of relying on few ones. This is to forestall disequilibrium that may ensue in case of shocks from one or few sectors. To sustain economic growth, a massive investment is necessary in the development of several sectors. The big push theory identifies obstacles in the way of economic diversification/development and envisages the need for investment across different channels of growth so that each channel sustains the growth of others by providing the necessary demand-base. Consequently, diversification will lead to a balanced growth of the economy (Olusoji & Odeleye, 2018).

Fisher's models of the stages of economic growth. Allen Fisher, an Australian economists (1939) and Collin Clark (1940). This model was later called Clark-Fisher Development Theory as well as Fisher-Clark Model. The theory states that an economy experiences three stages of production, which are primary production, secondary and tertiary production. This theory assumes that further rise in income when a country gets to secondary sector will lead to a situation where people start consuming more services. As such, tertiary sector continues to grow and develop. The theory pointed out that economic progress tends to cause the emergence of a large service sector and the majority of the labour force will be in the service sector. There are two major reasons for the emergence of the service sector, according to this theory and these are: high-income elasticity of demand and low labour productivity. One weakness of this theory is that a country may have a large tertiary sector in the absence of developed secondary sector. This is quite visible in developing countries (Ola & Ifada, 2023).

Empirical review

Azebi and Tamuno (2023) examined 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) sub-service sectors impact on Nigeria's economic growth. The Augmented Dickey-Fuller unit root test, Johansen co-integration 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 revealed

that the variables were stationary at first difference. It was also discovered that real estate, public administration, financial and insurance have positive and significant long-run impact on economic growth in Nigeria.

Ola and Ifada (2023) investigated the influence of four major service industries in Nigeria on the economic growth. Data for the study composed of value gross domestic product (GDP), value added of trade, value added of information and communication, value added of financial and insurance, value added of real estate, and indicators of financial deepening. Data were sourced from the Central Bank of Nigeria Statistical Bulletin. The series were subjected to Unit root test and co-integration test. The results showed that all the series were stationary at first difference and there was existence of long-run relationship among the series. The OLS analysis findings showed that trade and real estates were the movers of economic growth in the period under study.

Effiong and Okon (2021) examined the impact of the service sector on economic growth of Nigeria. The study covered the period 1981 to 2019 and data were obtained from the Central Bank of Nigeria statistical bulletin. The Augmented Dickey-Fuller unit root, Granger Causality test, Vector Autoregressive (VAR) approach, Bounds test for co-integration, and vector error correction mechanism were utilized in analyzing the data. Findings of the study revealed that a bidirectional causality exist between service sector and economic growth of Nigeria. Meanwhile, the VAR result presented an evidence of weak exogeneity of the service sector in predicting economic growth. However, both broad money supply and total government expenditure exerted a significant impact on economic growth. It was discovered that professional, scientific and technical services is the major contributor to economic growth as captured by its short-run and long-run elasticity coefficients of 0.5936 and 0.9455 respectively.

Adetokunbo and Edioye (2020) examined the response of economic growth to the dynamics of the service sector in Nigeria. They used annual data series data which was analyzed using autoregressive distributed lag technique. The study was anchored on the endogenous growth model. They found out that transportation and communication, health service subsector and transportation and communication were significant and positively related to economic growth when governance indicators were accounted for.

Olusoji and Odeleye (2018) assessed the sectorial contributions to economic growth in Nigeria using quarterly data from 1981 to 2015. Multiple regression analysis was employed to examine the relationship between the Gross Domestic Product (GDP) and some of its non-oil components (agriculture, non-oil manufacturing and services). The results of the analysis indicated that agricultural sector is the highest contributor to GDP followed by the service sector during the pre-rebasing period (1981-2013), also the extension of estimation to post-rebasing period shows an increase in the service sector's contribution to GDP.

Methodology

The *ex-post facto* research design was adopted since the study made use of secondary data. The data for the study covering the period 1981 to 2023 was obtained from the Central Bank of Nigeria Statistical Bulletin. Descriptive statistics, unit root test and ordinary least square technique were used to analyze the data obtained.

The regression model relationship was expressed as:

$Y_t = b_0+b_1X_1+b_2X_2+b_3X_3 \ldots + bnXn + e$

Where: Y = dependent variable
b_0 = intercept term
b_1, b_2, b_3 = parameters or coefficients of the model
X_1, X_2, X_3 = independent or explanatory variables.
e = error term

The functional relationship of services sector and economic growth can be specified in the following model:

GDP = f(TRADE, TRAST, INFCO, FINSU, REEST)

The model was explicitly defined as:

$GDP_t = b_0 + b_1TRADE_t + b_2TRAST_t + b_3INFCO_t + b_4FINSU_t + b_5REEST_t + e_t$

Where:
GDP = Gross domestic product
TRADE = Trade
TRAST = Transportation and storage
INFCO = Information and communication
FINSU = Financial and insurance
REEST = Real estate

The five proxies for services sector used in this study were trade (TRADE), transportation and storage (TRAST), information and communication (INFCO), financial and insurance (FINSU) as well as real estate (REEST). On the other hand, the proxy for economic growth was gross domestic product growth (GDP). The *a-priori* expectation is that the independent variables used in this study will have positive and significant effect on GDP. Accordingly, five hypotheses were formulated and tested at 5% level of significance, while Eviews10 was used for the analysis. The decision rule in this study was to accept the null hypothesis if probability value is greater 0.05, while null hypothesis was rejected if the probability value is less than 0.05.

Results of analysis

Descriptive statistics

	GDP	TRADE	TRAST	INFCO	FINSU	REEST
Mean	45375.22	7124.593	767.1001	4634.432	1470.321	3027.007
Median	11383.66	1494.237	216.4808	320.3169	299.7232	712.7466
Maximum	229912.9	27408.75	4291.389	29779.37	8593.367	10503.07
Minimum	137.9294	12.49394	5.755403	16.28953	7.748200	5.239968
Std. Dev.	61699.72	9043.656	1105.418	7105.762	2073.159	3669.336
Skewness	1.407025	0.988250	1.687391	1.684532	1.623702	0.818468
Kurtosis	4.011701	2.445026	4.872073	5.370870	5.154051	2.052933
Jarque-Bera	16.02183	7.551068	26.68475	30.40749	27.20748	6.407881
Probability	0.000332	0.022925	0.000002	0.000000	0.000001	0.040602
Sum	1951134.	306357.5	32985.31	199280.6	63223.78	130161.3

Sum Sq. Dev.	1.60E+11	3.44E+09	51321877	2.12E+09	1.81E+08	5.65E+08
Observations	43	43	43	43	43	43

The above table showed the descriptive statistical behaviour of parameters used in this study.

Unit root test extracts

Variables	**ADF-Statistic**	**5% critical**	**Inference**	**p-value**	**Decision**
TRADE	-6.382889	-2.945842	I(2)	0,0000	Reject null
TRAST	-21.70924	-2.938987	I(2)	0.0001	Reject null
INFCO	-3.902056	-2.936942	I(2)	0.0046	Reject null
FINSU	-7.534102	-2.936942	I(2)	0.0000	Reject null
REEST	-3.086268	-2.935001	I(1)	0.0355	Reject null

Source: Researcher's extraction from the unit root tests results using ADF methods.

The unit root test showed that there is no unit root for: REEST at 1st difference, while TRADE, TRAST, INFCO and FINSU were at 2nd difference. The probability values are less than 5% so the variables are suitable for estimation using regression technique of analysis.

Regression output and hypotheses testing

Variables	**Coefficient**	**Std. error**	**t-statistic**	**p-value**	**Decision**
TRADE	-1.765498	0.702691	-2.512481	0.0165	Reject H0
TRAST	16.59416	1.520229	10.91556	0.0000	Reject H0
INFCO	3.563715	0.517509	6.886293	0.0000	Reject H0
FINSU	5.383362	1.947680	2.763987	0.0088	Reject H0
REEST	6.531358	1.372315	4.759371	0.0000	Reject H0

Source: Extract from the regression table (Eviews10).

Hypothesis one: $H_0$1: TRADE had no significant effect on GDP in Nigeria.
The probability value of TRADE is 0.0165 which is significant. Hence, the null hypothesis is rejected and it is concluded that TRADE had significant effect on GDP in Nigeria.

Hypothesis two: $H_0$2: TRAST had no significant effect on GDP in Nigeria.
The probability value of TRAST is 0.0000 which is significant. Hence, the null hypothesis is rejected and it is concluded that TRAST had significant effect on GDP in Nigeria.

Hypothesis three: $H_0$3: INFCO had no significant effect on GDP in Nigeria.
The probability value of INFCO is 0.0000 which is significant. Hence, the null hypothesis is rejected and it is concluded that INFCO had significant effect on GDP in Nigeria.

Hypothesis four: $H_0$4: FINSU had no significant effect on GDP in Nigeria.
The probability value of FINSU is 0.0088 which is significant. Hence, the null hypothesis is rejected and it is concluded that FINSU had significant effect on GDP in Nigeria.

Hypothesis five: $H_0$5: REEST had no significant effect on GDP in Nigeria.
The probability value of REEST is 0.0000 which is significant. Hence, the null hypothesis is rejected and it is concluded that REEST had significant effect on GDP in Nigeria.

Discussion of findings

The finding of this study that TRADE had significant effect on GDP agrees with the findings of Effiong and Okon (2021) and Ola and Ifada (2023). Also, Effiong and Okon (2021) found it has positive effect in line with this study. The finding of this study that TRAST had significant effect on GDP agrees with the findings of Adetokunbo and Edioye (2020) and Effiong and Okon (2021). Although, Adetokunbo and Edioye (2020) found it has a positive effect in line with this study, Effiong and Okon (2021) found it has a negative effect.

The finding of this study that INFCO had a positive and significant effect on GDP agrees with the findings of Adetokunbo and Edioye (2020) and Effiong and Okon (2021). The finding of this study that FINSU has a positive and significant effect on GDP agrees with the findings of Azebi and Tamuno (2023) and Effiong and Okon (2021). The finding of this study that REEST had significant effect on GDP agrees with the findings of Azebi and Tamuno (2023); Effiong and Okon (2021); Ola and Ifada (2023). However, while Azebi and Tamuno (2023) found it has positive effect as in this study, Effiong and Okon (2021) found it has a negative effect.

The prob(F-statistic) value of 0.000000 that is less than 5% showed that the model is statistically fit. The Durbin-Watson statistic of 1.610388 showed that there is no first order autocorrelation. R-squared value of 0.998488 implied that 99% of changes in the dependent variable can be explained by the independent variables. The probability values of the five independent variables showed that they had significant effect on gross domestic product in Nigeria for the period reviewed.

Conclusion

This study did an empirical analysis of services sector and gross domestic product next nexus in Nigeria for the period 1981 to 2023. The TRADE, TRAST, INFCO, FINSU and REEST were found to have significant effect on GDP. While TRAST, INFCO, FINSU and REEST all had positive effect, TRADE had a negative effect on GDP for the period reviewed. This negative effect of trade was not anticipated hence measures need to be taken to address that anomaly. The model was seen to be statistically fit for the study. The services sector hence have significant effect on the GDP of Nigeria and will keep contributing so much to the economic growth of Nigeria.

Recommendations.

1) The Nigerian government should keep diversifying the economy so we can produce what we consume and as well export. This will help reverse the negative effect that trade services had on the gross domestic product of Nigeria.
2) There is need to keep evolving transportation and storage means that are cost effective durable. This will help sustain the high positive coefficient and significant effect it has on the gross domestic product of Nigeria.
3) Our government should ensure we key into modern and digitalized information and communication networks. This will help this sub-sector to maintain her positive and significant effect on gross domestic product in Nigeria.
4) There should be serious monitoring and supervision of the financial and insurance sub-sector as engine of the economy. This will help avoid failures and collapse as seen in the past hence helping to build the Nigerian economy.

5) This sub-sector need to be supported by the government given its coefficient value and potentials to support the economy. Private sector friendly policies need to be pursued to ensure more robust growth in this area.

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