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Infrastructural Financing and Economic growth in Nigeria

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ABSTRACT

The study x-rayed the short and long-term impact of government infrastructural financing on Nigeria's economic growth. The study adopted time series data from central bank of Nigeria statistical bulletin from 1981 -2021. The variables of the study were Administration services (ADS), Economic Services (ECS) and Social & Community Services (S&CS) and Economic growth proxies as gross domestic product (GDP). Ordinary least square (OLS) test, unit root test, co-integration test, error correction model, and granger causality test were all part of the study's methodology. All the variables used were stationary at I(1) using ADF test which aided the co-integration test. The OLS test result and test (ECM) yielded almost same result. The results of shows evidence of interrelationship among the variables with gross domestic product in Nigeria but with the exception of S&CS. Furthermore, the speed at which gross domestic product disequilibrium is being corrected is 36.22%, while the granger causality test result fail to promote/ influence each other in output growth but surprisingly Administration services flow to Social Community services directly, acknowledging that increase in administration Services promote the activities of social and Community services. Hence recommend that Nigerian government should inject more funds in infrastructural project especially in Economic services and Administration services since they are capable of propelling the economy carefully monitor all the projects especially the Social and Community Services projects to ensure that the services centre optimised the resources allocated to them efficiently. Ensure consistency in budget allocation, management and implementation.

KEYWORDS

Economic Growth, Administration Services, Economic Services and Social and Community Services..



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Introduction

Infrastructural development plays a very important role in facilitating development and growth in key sectors of the economy. The outcome of such role will determine the performance of the real sector. Financing Infrastructure is at tune in propelling the economy from primitive stage of production to high productivity through mechanization, boost the performance of private capital which will translate to increase in economic output. Interestingly development economists have also considered infrastructure to be a panacea for industrialization and economic evolution(Sawada,2015), while World Bank (2020) poised inadequate infrastructural development has pushed millions of Nigerians to poverty. Shobande and Etukomeni (2016) observed that arise in real sector output, poverty reduction; employment generation is attributed by increase in infrastructural investment in Nigeria.

Investment in infrastructure minimizes borrowing costs, increases job opportunities, activates more private investments, and ultimately increases shareholders' return on investment (Edame et al., 2010). The recipe for economic growth lies in infrastructural revitalization. Olaseni and Alade (2012), as well as Sanusi (2012), argue that infrastructural development is expedient for achieving Vision 20:2020. This program aims to make Nigeria one of the top 20 economies in the world by 2020, with a minimum GDP of \$900 billion and a per capita income of not less than \$4,000 per annum. Unfortunately, according to the Africa Infrastructural Development Index (2020), Nigeria scored 23.27 points, while Seychelles was the leading country in Africa with 96.73 points, followed by Egypt and Libya, which scored 88.39 and 82.97 points, respectively. The outcome is that the Vision 20:2020 project seems to be a mirage, sabotaged or rhetoric notwithstanding the huge amount of funds plunged into the system (Babatunde, 2018).

(Koner et al., 2012) discovered that high infrastructural investment leads to a higher level of output for current and future prospects. Nurudeen and Usman (2010) noted that government expenditure on infrastructure, such as transport and communication, validates economic growth. Babalola (2015) observed that there should be advanced improvement in the efficiency and effectiveness of public spending in infrastructural development. Infrastructure improves lives by connecting people to opportunity. The efforts of the Nigerian government in infrastructural development brought about the emergence of sukuk financing with the aim of fulfilling the (2017 – 2020) Economic Recovery and Growth strategic plan to build a globally competitive economy via investment in infrastructure; therefore, continuity towards developing Nigeria's infrastructure is relevant.

Ebuh et al. (2019), as well as Ondiege et al. (2013), discovered that inadequate infrastructure significantly reduces the welfare of its citizens, contributes to the high cost of doing business, lowers productivity, and hinders world competitive economies. In Nigeria, unfriendly government policies have led to infrastructure decay, such as erratic power supply, inefficient telecommunication, and poor urban and rural road networks, which have resulted in an almost stagnant economic performance. Ekpung (2014) acknowledged that the incessant epileptic energy supply, bad road interconnectivities, inefficient telecommunications, and unstable government policies impede infrastructure in Nigeria. Nevertheless, the Nigerian economy may not be able to overcome its structural challenges and achieve sustainable growth and development without adequate infrastructure (Ogbaro & Omotoso, 2017).

Okoli (2019) argued that poor infrastructural development in Nigeria contributes to low output growth, notwithstanding the increase in government expenditure. Babatunde (2017) noted that government spending on transport and communication, education, and health infrastructure has significant effects on economic growth but is negative in agriculture and natural resources. Iheanacho

(2017) concluded that full output growth could be realized if public funds are channeled to the right projects. Owolabi-Merus (2015) opined that infrastructure development significantly influences economic growth in Nigeria. Babatunde (2018) expressed concerns about the negative outcome of government spending on agriculture and natural resources. Darma (2014) noted that lack of accountability and inadequate internal control impedes infrastructural growth in the country.

Amadi et al. (2013) discovered a negative and insignificant relationship between public spending on transport infrastructure and gross domestic product in the country, while Nedozi et al. (2014) revealed that government investment in infrastructure predicts sustainable economic growth. Owolabi (2015) confirmed that infrastructural development has a positive and statistically significant impact on Nigeria's economic growth in the short-term, but the variables do not support each other in the growth process.

Ehizuelen (2016) showed that for the real sector to progress, infrastructure should be given qualitative and adequate attention. During the Finance Correspondent Association of Nigeria Annual Conference (FICAN) 2021, the Central Bank of Nigeria stated that infrastructural financing was a constraint to economic growth. It reassured that a dynamic and vibrant infrastructural financing would unleash the potential in micro, small, and medium enterprises to reduce employment, poverty, increase productivity, and support Nigeria's business growth. Therefore, it advocates for more funds to be allocated to critical infrastructure to address the wide deficit.

In light of the above, infrastructural financing is relevant for improving the efficiency and efficacy of economic operations. The foregoing disparities, along with the requirement for Nigeria's economy to grow through infrastructure development, are serious concerns. Inconsistent policies on infrastructural funding in Nigeria are also a concern in this study. Against this background, the study focuses on the short and long-term impact of government infrastructural financing and its effect on Nigeria's economic growth, with particular attention to Administration services, Economic services, and Social & Community services, and how these variables reinforce each other in Nigeria's growth process. The study will be useful to the government in determining the key sectors to pay more attention to, promoting private sector-led growth, and improving industries in the areas of access to basic amenities and cheaper raw materials, leading to cost savings, increased production, and, ultimately, overall economic growth at micro and macro levels. The remaining sections of the paper are divided into sections: Section One covers the literature and theoretical review; Section Two covers the methodology used in the study, Section Three covers data analysis and interpretation, and finally, the Discussion, Conclusion, and Recommendation section.

Literature Review

Conceptual Framework.

Infrastructural Finance

Infrastructural financing refers to the funds set aside by the government to address projects in various government sectors, including the provision, acquisition, and development of the real sector. Key areas of infrastructural challenges can be observed in the poor state of the nation's roads, frequent power outages, railways, ICT, agriculture, education, health, and internal and external security. These challenges can be attributed to low budgetary allocations, inadequate prioritization, corruption, theft of government-owned facilities, and political instability. Ogunlana et al. (2016) affirm that inadequate infrastructural development can disrupt the output growth rate, reduce the production of goods and services, increase production costs, discourage savings, hinder foreign direct investment, leading to unemployment, the collapse of industries, and widespread poverty among the populace. Xue (2010)

argues that government infrastructural financing and other economic activities promote output levels as well as employment opportunities.

A well-functioning infrastructural system is a focal point for economic growth, increased investment in the country, expansion of industries, foreign direct investments, and ultimately reduces unemployment while improving the standard of living through job creation. Prior to the 2008 global financial crisis, when market conditions were favorable, infrastructure projects were largely financed by syndicates of commercial banks or with underwriters selling down a portion of the debt to other lenders. However, the fallout from the 2008 financial crisis, often referred to as the 'Madoff effect,' brought about strict capital adequacy requirements, including Basel III, significantly constraining banks and declining bank syndications. Nevertheless, the Central Bank of Nigeria (CBN) observed a gap in infrastructural development due to a lack of funds and decided to implement a policy framework called infrastructural finance to expedite long-term financing for infrastructural growth and development (CBN 2010). Among the policy framework provisions was the allocation of a N300 billion facility for investment in debentures to be issued by the Bank of Industry (BOI) in accordance with Section 31 of the CBN Act 2007, specifically for investment in power and aviation projects. These funds are to be channeled through the BOI for on-lending to Deposit Money Banks at a maximum interest rate of 1.0 per cent, with disbursement at a concessionary interest rate of not more than 7.0 per cent and a tenor of 10 - 15 years. The policy also encouraged the establishment of specialized financial institutions to provide long-term funds needed for infrastructure development (CBN 2011).

Examining the trend of government financing in infrastructure from 1981 to 1990, government spending in infrastructure for economic services stood at N22.81 billion, covering agriculture, road construction, transport, communication, and other economic services. This was followed by administration with a total financing of N12.44 billion, which covered defense, internal security, general administration, and National Assembly projects, while N11.63 billion was allocated to social community services, including education, health, and other social community services. Between 1991 and 2000, government financing for infrastructure witnessed a significant increase in economic services, administration, and social community services by N1,017.4 billion, N234.37 billion, and N105.55 billion, respectively. However, from 2001 to 2010, funding for infrastructural projects took another leap to N3,048.91 billion, N1,771.29 billion, and N921.39 billion. Finally, from 2011 to 2021, the total project financing for economic services, administration, and social community services recorded N6,327.94 billion, N3,729.42 billion, and N1,734.19 billion (CBN 2021).

From the above trend records, one can deduce that the Nigerian government allocates most of its spending to economic services, followed by administration and, lastly, social community services. The government's interest in financing economic service infrastructure is likely aimed at improving economic productivity and the performance of the real sector, which, in turn, boosts Nigeria's gross domestic product. It is evident that the government's interest in social and community services, encompassing education, health, and other community services, has been a low priority for infrastructure development from 1981 to 2021 (CBN 2021). It is disheartening, demoralizing, and distressing that the impact of this prioritization continues to affect the entire system at the time of this study and will persist until the issue is adequately addressed.

Economic Growth

Economic growth could be viewed as the extent to which goods and services of a nation increase its output delivery, per capita income and national income. It is measured in gross domestic product. In line with Fadare (2010), economic growth helps in improving the standard of living of the populace, facilitates health, infrastructure, education, defense and productivity. Todaro and Smith (2006) argued that the progression in output capacity of any economy is caused by economic growth. Therefore,

economic growth is an essential element for national growth. High rate of structural transformation, international relation, foreign direct inflows and investment are the key indicators for economic growth in a country (Ochejele 2007). According to Xue(2010), the Scholar emphasized that economic growth is the continuous expansion in production of goods and services of a country over a period time, meanwhile Wells(2015)opined that advancement in technology, adequate security and infrastructure improvement were all part of the economic growth indicator. Sahoo, DashandNataraj (2010) explained that the quality of infrastructures in a country will determine the growth progress, meaning that the quantum of national income is paramount in achieving the economic policy targeted toward growth and development. Amadi and Amadi (2020)defined economic growth as increase in financial value of goods and services of a nation over a space of time usually one year, the process is usually ascertained via gross domestic product. As at December 2021, the Nigeria’s gross domestic product stood at N173, 527.7Bn in 2021 as against N154, 252.3Bn in 2020, indicating a positive progression in economic growth (CBN 2020).

Empirical Review

Amadi and Amadi (2020) examined the effects of government infrastructural expenditure on economic development in Nigeria over a 37-year period. The study utilized secondary data and employed unit root, co-integration tests, and a vector error correction model. The results showed that government spending on transport, communication, education, and health infrastructure has significant effects on economic growth. However, spending on agriculture and natural resources infrastructure revealed a negative effect on economic growth in Nigeria. The study concluded that government spending on agriculture and natural resources does not support growth compared to private sector spending on these sectors in Nigeria.

Ogunlana et al. (2016) evaluated infrastructure finance and development in Nigeria from 1970 to 2014, with a focus on public and private investment in infrastructure and its impact on economic growth. The study employed unit root, co-integration, and Error Correction Mechanism (ECM) for data analysis. The findings revealed that infrastructure variables contribute to Nigeria's economic growth, while domestic investment in infrastructure and the total labor force showed an inverse relationship with Nigeria's gross domestic product. Hence, it is recommended that the government should provide economic policies that would improve infrastructure standards and human capital development for transparent growth.

Nedozie et al. (2014) used the OLS method to analyze infrastructure development and economic growth in Nigeria from 1970 to 2010. The empirical findings depict that infrastructure serves as a panacea for output growth in Nigeria. In the same vein, Babatunde et al. (2012) acknowledged that investment in infrastructure significantly promotes overall growth and indirectly encourages productivity in other sectors.

Siyan and Adegioriola (2017) adopted unit root tests, co-integration, and Vector Error Correction Model (VECM) to test the long-run relationship between infrastructure development and Nigerian economic growth spanning from 1981 to 2014. The results empirically showed that financing road and communication infrastructure predicts a positive relationship with growth, while private investment, degree of openness, and education relate to economic growth negatively. Therefore, it is recommended that the government should focus on improving infrastructure to sustain a viable manufacturing sector that will support high productivity and enhance economic growth.

Ebuh et al. (2019) viewed the relationship between infrastructure development and output growth in Nigeria using quarterly data from 1997:Q1 to 2017:Q4. The outcome discovered that growth in financial infrastructure and stock infrastructure facilitates economic growth in the long run.

Babatunde (2017) revealed that financing infrastructure projects such as transportation, communication, education, and health sectors impressively predict economic growth after studying the impact of government spending on infrastructure in Nigeria from 1980 to 2016, utilizing secondary sources of data and employing unit root tests, Philip-Perron, co-integration, and vector error correction models as statistical tools.

Ekpung (2014) carefully adopted OLS and Johanson Co-integration models to examine the influence of public infrastructure spending (road construction, water supply, electricity supply, transport/telecommunication, and housing) on economic growth covering the period of 40 years (1970-2010), with particular attention to the long-run public spending in military regimes and democratic governments in Nigeria. The result of the short-run estimation revealed an insignificant and weak relationship among the study variables. The study recommends proper monitoring of fund disposal for infrastructural projects and finance.

Ogbaro and Omotoso (2017) worked on the significance of infrastructure development in stimulating economic growth in Nigeria from 1980 to 2015. The study employed the Douglas production function model and the ordinary least square method. Variables used for the analysis include total air transportation infrastructure, communication infrastructure, power infrastructure, total rail lines, and gross domestic product as dependent variables. The findings showed that all the variables tested in the short term estimation significantly and positively relate to Nigeria's gross domestic product. Hence, it is recommended to implement a more viable policy framework that will facilitate infrastructure development and promote economic growth.

Siyan et al. (2015) employed primary and secondary data from the Central Bank of Nigeria and the World Bank database in evaluating the influence of road transportation on economic growth in Nigeria, covering the period from 1981 to 2013. The variables used for data analysis are road transportation, capital utilization (CUR), government expenditure on road transportation (GENOT), and Exchange Rate (EXCHR). The statistical tools of ordinary least square and probity models were employed for data analysis. Empirically, both the OLS and the probity test discovered a positive relationship between transportation infrastructure and economic growth in Nigeria. The study recommends improvements in road transport and active maintenance of the transportation system to enable users to have more accessible roads for economic activities.

Ogunbiyi and Adedigba (2017) adopted a multivariate evaluation to explain the influence of public expenditure on the economic growth of Nigeria from 1961 to 2016. The study applied statistical tools such as descriptive tests, multiple regression analysis, stationarity tests, serial correlation tests, heteroscedasticity tests, Johansen co-integration tests, and finally, a vector error correction model (VECM). The variables utilized for data analysis are Administration, economic, social & community, transfer services, aggregate debt, and total revenue. The empirical findings depict that government spending on administration and economic services does not show empathy toward the growth of Nigeria's economy. However, the relationship between social community services and gross domestic product depicts a positive, albeit insignificant, relationship. Imperatively, the findings of aggregate debt and total revenue to gross domestic product have mixed results.

Ibrahim (2019) estimated the role of infrastructure in industrialization in Nigeria from 1981 to 2015, using telephone density, energy consumption, and capital expenditure in transport and communication as independent variables and industrial output as the dependent variable. Dynamic ordinary least squares (DOLS) estimation technique, Toda-Yamamoto modified Wald (MWALD)-based causality, unit root tests, and cointegration test models were used for data analysis. The causality test findings indicated that all the variables support industrial output growth except telephone density. The study recommends that the government should diversify its pattern of financing rather than focusing solely on oil.

Emenike (2015) investigated the nature of infrastructure financing in Nigeria with a stronger emphasis on Public-Private Partnership (PPP) benefits and the challenges faced by investors in mobilizing PPP financing. The study resolved that the lack of sophisticated infrastructural facilities negatively affects investors' appetite and inevitably reduces the output level. Therefore, it recommends that the government should provide active financial support via the Viability Gap Fund schemes to support PPP projects.

Akanbi et al. (2013) examined the influence of transportation infrastructure improvement on economic growth in Nigeria for the period 1981 to 2011. They used the Ordinary Least Square Regression (OLS) technique, generalized Cobb-Douglas production, and extended the neoclassical growth model to include transport infrastructure stock (i.e., output of the transport sector) along with capital stock (i.e., investment in transport infrastructure) as the inputs and gross domestic product. The results of the study proved that all variables used predict Nigeria's growth. The study suggests that the government should extend infrastructural development to waterways and railways to reduce the burden on the road transport network.

Babatunde (2018) examined government spending on infrastructure and Gross Domestic Product for Nigeria from 1980 to 2016. The study applied primary and secondary data for data analysis. It considered government spending on transport and communication, education, health, agriculture, and natural resources infrastructure, and their impact on economic growth, using proxies such as gross domestic product. The statistical tools adopted included unit root and cointegration tests, Augmented Dickey-Fuller, Phillip-Perron model, and vector error correction model. Findings from the study indicated that government spending on transport and communication, education, and health infrastructure has a significant positive effect on economic growth. However, spending on agriculture and natural resources infrastructure recorded a significant inverse effect on economic growth in Nigeria. The study suggests that the government should pay more attention to financing agriculture and natural resources infrastructure.

Edame and Fonta (2014) examined the influence of macroeconomic factors and government expenditure on infrastructure on the economic growth of Nigeria from 1970 to 2006. The statistical tools used included ADF techniques, cointegration, Granger causality, and error correction tests. The study considered variables such as government revenue, population density, openness, external measures, rate of urbanization, and administration for data analysis. The cointegration results showed evidence of a long-run integration between government expenditure variables and gross domestic product, while the error correction model findings indicated that public expenditure on infrastructure predicts economic performance in the long run. The Granger causality test results confirmed that government spending on administration, external reserves, government revenue, population density, and the rate of urbanization promote/support gross domestic product in Nigeria.

Connolly and Li (2016) estimated the effects of government consumption spending, public social spending, and public investment on economic growth. Using panel data from 1995 to 2011 for 34 OECD countries, the study adopted the generalized method of moments estimation technique. The results revealed that government spending on social infrastructure, government consumption spending, and public investment do not statistically stimulate economic growth in Organization for Economic Co-operation and Development (OECD) countries.

Ehizuelen, M., M., O. (2017) argued the relationship between infrastructure investment and economic growth in Nigeria. The findings show that infrastructure is a fundamental driver of economic growth in Nigeria in all aspects.

Ogundipe and Oluwatobi (2013) assessed government spending on the economic growth of Nigeria from 1979 to 2009, considering both recurrent and capital expenditure. The Vector Error Correction Model (VECM) findings in social community services predict and significantly impact output growth within the studied period.

Dabara et al. (2015) examined infrastructural financing and its impact on urban development in Nigeria. Results indicated that budget deficits impede the facilitation and stimulation of investment in basic infrastructure. Increased urban migration from rural areas in Nigeria geometrically leads to more pressure on urban development. Therefore, the study advocates that the government should implement a more vibrant going concern policy that can improve both urban and rural infrastructure.

Theoretical Framework The study capitalizes on two theories as follows:

1. Theory of Infrastructure-led Development: Rosenstein-Rodan (1943) noted that government investment in infrastructure promotes growth and the standard of living of the populace. Predominantly, infrastructure services (administration, economic, and social) are expected to yield a significant outcome on productivity. Frischmann (2005) argued that infrastructure theory substantiates that open access to infrastructure resources significantly and positively impacts consumers and society. Further observation elucidates that the advantages of open access are more profitable than confined access. Agenor (2006) argued that discipline in governance over public spending will stimulate high savings, increase productivity, and boost growth performance. Kosempel (2004) demonstrated that the economic growth rate relies on the relationship between infrastructure, health, and savings. The theory extends its findings by noting that infrastructure increases the economy's ability to set up health services, which enhance access to good healthcare, improve workers' output, and facilitate economic growth.

2. Theory of Public Spending: The role of public expenditure cannot be overemphasized. The creation of public spending was a result of market failure, as propounded by Keynesian theory (1936). The theory advocates for short-term government intervention in the provision of public goods such as education, transportation, power, road construction, defense, and pensions. Keynes noted that an increase in government spending creates more opportunities for product delivery, employment, and output growth, revealing how public expenditure and national income (tax revenue, grants) support/promote the growth process. Wagner's law stated the recipe for economic performance lies in the increase in industrial expansion through infrastructural development. It suggests that an increase in national income (taxes) motivates public expenditures. Peacock and Wise's theory (1967) argued that the growth in public spending does not guarantee an increase in national income and output levels. The classical scholar Adam Smith (1776) propounded that government intervention does not

contribute to economic growth. His study supported more openness to private sector participation in economic growth and development, emphasizing long-term results.

Methodology The study derived its data from secondary sources and applied it to evaluate the short and long-run relationship between infrastructure finance components and their impact on the economic growth of Nigeria. The study used stationarity tests, ordinary least square techniques, Johansen cointegration tests, error correction models, and Granger causality models for data analysis.

Operational Measures and Definition of Variables The study includes two variables: independent and dependent variables. The dependent variable is Nigeria's economic growth, indicated as gross domestic product, while the independent variables are government infrastructure finance on economic services (expend

iture on transportation, construction, communication, agriculture, natural resources, and other economic services) and government infrastructure finance on administrative services (such as defense, internal security, general administration, and the national assembly). Finally, it considers social and community services like education, health, and other social and community services, respectively.

Method of Data Analysis

1. Ordinary Least Square Method: This study employed the OLS techniques to examine the short-run relationship between Nigeria's government infrastructure finance indicators and gross domestic product.

2. Unit Root Test: This study employed the unit root test to measure the stationarity of the time series data. The augmented Dickey-Fuller (ADF) test was utilized to determine the null hypothesis and the level of its significance at 1%, 5%, and 10% levels of significance (Brook 2009).

3. Cointegration Test: The purpose of the cointegration test analysis is to determine the long-run relationship between all the predictor variables and the criterion indicator, which is Nigeria's gross domestic product within the period covered.

4. Error Correction Model: The model assesses the long-run sensitivity of dependent variables to each of the explanatory variables. It more accurately estimates the time it takes for the dependent variable to return to long-run equilibrium following short-term distortions in the explanatory factors. Acceptance at a 5% level of significance, else rejection, is the decision criteria for the null hypothesis (Brook 2009).

5. Granger Causality Test: This test is conducted to determine the extent to which the dependent variables and each of the explanatory variables support or promote themselves in the growth process. In the light of the inclusion of lag in the time series, Granger causality will be executed to determine whether the variation in one variable (X) is caused by the variation in another variable (Y). A variable Granger causes another if the F-statistic is significant at a p-value of 5% or less.

Model Specification

The general form of the model is represented as :

$$GDP_t = f(ADS, ECS, S\&CS) \dots \dots \dots (1)$$

Where,

GDP=Gross DomesticProduct,
 ADS = Administration Services,
 ECS = Economic Services,
 S&CS=Social and Community Services

For the purpose of estimation, equation(1) is re-written as ;

$$GDP = \beta_0 + \beta_1 ADS + \beta_2 ECS + \beta_3 S\&CS + \mu \quad (2)$$

Where,

β_0 =Constant Term.

β_1, β_2 and β_3 = coefficients of ADS,ECS and S&CS.

μ – Error Term

f= Functional notation.

3.4 Apriori Expectation

The study expects that financing government projects will activate high level production capacity, generate employment, increase savings, encourage private investment and invariably boost nation’s gross domestic product. However, we expect that all the components of government infrastructure that received fund should respond in accordance with the fund allocated to it. Therefore our apriori expectations are as indicated below; $\beta_1 > 0, \beta_2 > 0, \beta_3 > 0$.

Data Analysis and Results Interpretation

Stationarity (unit Root) Test

Table 1 Unit Root Output (Augmented Dickey Fuller)

Variable	ADF T-statistics 1 st diff	Test Critical Values			Probability Level	Order of Integration
		1%	5%	10%		
GDP	-8.106555	-3.610453	-2.938987	-2.607932	0.0000	1(1)
ADS	-7.610054	-3.610453	-2.938987	-2.607932	0.0000	1(1)
ECS	-7.775314	-3.610453	-2.938987	-2.607932	0.0000	1(1)
S&CS	-7.574952	-3.610453	-2.938987	-2.607932	0.0000	1(1)

Source: Author’s computation extracted from Eview-10.

Table 1 reveals the results of the test of the unit roots series. The ADF test statistics are on absolute terms which are greater than the critical values at 1%, 5% and 10% respectively at first differences. Hence, we proceed to co-integration test.

Table2: Co-integration test

Sample (adjusted): 1986 2021

Included observations: 36 after adjustments

Trend assumption: Linear deterministic trend

Series: GDP ADS ECS S&CS

Lags interval (in first differences): 1 to 4

Unrestricted Cointegration Rank Test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.917870	137.6800	47.85613	0.0000
At most 1 *	0.593675	47.69959	29.79707	0.0002
At most 2	0.309020	15.27792	15.49471	0.0539
At most 3	0.053271	1.970721	3.841466	0.1604

Trace test indicates 2 cointegratingeqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.917870	89.98036	27.58434	0.0000
At most 1 *	0.593675	32.42167	21.13162	0.0009
At most 2	0.309020	13.30720	14.26460	0.0704
At most 3	0.053271	1.970721	3.841466	0.1604

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Author’s computation extracted from Eview-10.

The trace statistic indicates two (2) co integrating relationship at the 5% level of significance. These show the rejection of null hypothesis at 5% and conclude that there exists a significant relationship among the employed variables.

Table3: Result of Ordinary Least Square (OLS) test

Dependent Variable: GDP

Method: Least Squares

Date: 08/21/22 Time: 20:22

Sample: 1981 2021

Included observations: 41

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.749429	12.12454	-0.639152	0.5267
ADS	1.528285	0.361723	4.225014	0.0001
ECS	1.456467	0.152263	9.565479	0.0000
S&CS	-0.366305	0.642740	-0.569912	0.5722
R-squared	0.992744	Mean dependent var		551.7724
Adjusted R-squared	0.992156	S.D. dependent var		629.5941
S.E. of regression	55.76126	Akaike info criterion		10.97250
Sum squared resid	115044.8	Schwarz criterion		11.13968
Log likelihood	-220.9363	Hannan-Quinn criter.		11.03338
F-statistic	1687.455	Durbin-Watson stat		1.350155
Prob(F-statistic)	0.000000			

Source: Author’s computation extracted from Eview-10

The short run estimated result shows that there is a linear relationship between admin services, economic services and gross domestic product in Nigeria within the period under review while the social and community services shows a negative and insignificant nexus. However the coefficient of 1.528285, 1.456467 and probability of .0.0001 and 0.0000 respectively as it relates to Administration and Economic services indicates the following implication, that 1% increase in administration services, economic services will lead to 1.528285 and 1.456467 unit increase in Nigeria's gross domestic product. Interactively, Social community services displays an inverse relationship which means that 1% hype in social community services will cause the economic growth of Nigeria to downgrade by -0.366305 unit, attesting that government infrastructural financing through social community services does not improve economic performance in Nigeria and at the same time insignificant looking at the p-value of .5722 which is greater than 0.05%. The negative coefficient is against the aprior expectation. The R-Square result is 99% which depict the level at which the variation in dependent variable is covered by the independent variable which means that the remaining 1% in the model is explained by the error term. Besides, the value of Durbin-Watson Stat is 1.350155 which is less than 2.0 thus indicating presence of positive serial correlation. The F- statistics of 1687.455 and the Probability value of 0.000000 proved the relevance of the model.

Table 4: Result of Error Correction test

Dependent Variable: GDP

Method: Least Squares

Sample (adjusted): 1981 2020

Included observations: 40 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.804998	11.77388	-0.323173	0.7485
ADMIN_SERVICE	1.285235	0.360830	3.561889	0.0011
ECON_SERVICES	1.424463	0.144862	9.833238	0.0000
SOCIAL_COM_SERVI				
CES	0.168963	0.656081	0.257535	0.7983
ECM(1)	-0.363282	0.168206	2.159745	0.0377
R-squared	0.991864	Mean dependent var	502.5050	
Adjusted R-squared	0.990934	S.D. dependent var	551.7993	
S.E. of regression	52.53895	Akaike info criterion	10.87746	
Sum squared resid	96611.94	Schwarz criterion	11.08857	
Log likelihood	-212.5491	Hannan-Quinn criter.	10.95379	
F-statistic	1066.735	Durbin-Watson stat	2.054529	
Prob(F-statistic)	0.000000			

Source: Author's computation extracted from Eview-10

The purpose of the ECM is to determine the speed of the adjustment among the employed variables in place of equilibrium. The result of the ECM above depicts a negative coefficient of -0.363282. It asserts that gross domestic product has about 36.32% speed of adjustment. Predominantly, the rate at which gross domestic product counteract the disequilibrium is 36.32% yearly. All explanatory variables jointly explained 99% of the variation in the gross domestic product of Nigeria. Without any

doubt, it can be seen that all Infrastructural finance components survived the significance test except social community services which includes education, health and other social community services. The reason could be attributed to poor fund allocation and mismanagement of finance allocated to the service center.

Table 5: Result of Error Granger Causality Test

Pairwise Granger Causality Tests

Sample: 1981 2021

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
ECON SERVICES does not Granger Cause ADMIN SERVICE	39	0.09802	0.9069
ADMIN SERVICE does not Granger Cause ECON SERVICES		1.07310	0.3532
GDP does not Granger Cause ADMIN SERVICE	39	0.06690	0.9354
ADMIN SERVICE does not Granger Cause GDP		0.32911	0.7218
SOCIAL COM SERVICES does not Granger Cause ADMIN SERVICE	39	1.47100	0.2439
ADMIN SERVICE does not Granger Cause SOCIAL COM SERVICES		3.83302	0.0315
GDP does not Granger Cause ECON SERVICES	39	2.05860	0.1432
ECON SERVICES does not Granger Cause GDP		0.78603	0.4638
SOCIAL COM SERVICES does not Granger Cause ECON SERVICES	39	1.39319	0.2621
ECON SERVICES does not Granger Cause SOCIAL COM SERVICES		1.01868	0.3718
SOCIAL COM SERVICES does not Granger Cause GDP	39	0.65060	0.5281
GDP does not Granger Cause SOCIAL COM SERVICES		1.97944	0.1537

Source: Author's computation extracted from Eview-10.

The Granger Causality tests above show the absence of causality between gross domestic product and Economic services, administration services and Social community services indicating that the variables do not support and promotes each other in growth process of Nigeria economy, but there is a causality flow from Admin services to social community services at F-value of 3.83302 with 0.0315 p-value respectively. The implication is that the higher the government financing in administration such as defense, general administration, internal security, the higher the demand for social community services. The causality effects between the other variables and gross domestic product shows no causality as the p-values exceed 5% level of significant. Therefore changes in economic services, admin services and economic services do not cause changes in gross domestic product of Nigeria.

Discussions

There is a significant and positive short- and long-run relationship between government infrastructure finance in administration, economic services, and the gross domestic product of Nigeria. This confirms the infrastructural-led development theory. These findings support the work of Ogunlana et al. (2016), Nedozi et al. (2014), Babatunde et al. (2012), Ebuh et al. (2019), Akanbi et al. (2013), Ogbaro and Omotoso (2017), and negate that of Ogunbiyi et al. (2017), Babatunde, S.A. (2018), Ogundipe & Oluwatobi (2013), Siyan and Adegoriola (2017). The results of the short-run estimation

acknowledge that administrative services and economic services meet the expected 0.05% level of significance at 0.0001 and 0.0000, respectively. Furthermore, findings show that social community services are entirely left out of the plan, having a negative coefficient of -0.366305 and at the same time being insignificant considering the P-value of 0.5722. Away from that, the Error Correction Model (ECM) analysis results also confirm that social community services do not have a positive impact on the productivity of the Nigerian economy. Despite the predominant engagement of the government in infrastructural growth and development in the country, the Granger causality test applauds the null hypothesis in GDP and ADS, ECS, SCS, with the following probability values (.9354, .1432, and .1537). Still, a one-way causal relationship exists between ADS and SCS, meaning that ADS Granger causes SCS, although it lacks reinforcement.

Conclusion and Policy Implication

The study critically viewed the short- and long-run relationship between infrastructure finance indicators and their impact on economic growth in Nigeria, adopting time series data from the Central Bank of Nigeria Statistical Bulletin from 1981 to 2021. The variables of the study were Administration services (ADS), Economic Services (ECS), Social & Community Services (SCS), and economic growth proxies such as Gross Domestic Product (GDP). Ordinary Least Squares (OLS) tests, unit root tests, co-integration tests, error correction models, and Granger causality tests were all part of the study's methodology. All the variables used were stationary at 1(1) using the ADF test, which aided the co-integration test. The OLS test results and ECM test yielded the same results. The results show evidence of interrelationships among the variables with the Gross Domestic Product in Nigeria, with the exception of S&CS. Furthermore, the speed at which the Gross Domestic Product disequilibrium is being corrected is 36.22%. The Granger causality test results fail to promote or influence each other in output growth, but surprisingly, Administrative services flow to Social Community services directly, acknowledging that an increase in admin Services such as general administration, internal security, defense, and the national assembly promotes the activities of social and Community services (Education, Health, and other social and community services) in Nigeria. In view of the above, the study concludes that:

The activities of government infrastructure financing in Nigeria are significant in driving the economy forward within the period under review.

Given the above conclusion, the study recommends that:

- I. The Nigerian government should inject more funds into infrastructural projects, especially in Economic services and Administration services since they are capable of propelling the economy.
- II. The government should carefully monitor all the projects, especially the Social and Community Services projects, to ensure that the services center optimizes the resources allocated to them effectively and efficiently.
- III. Ensure consistency in budget allocation, management, and implementation.

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