Gusau Journal of Economics and Development Studies (GUJEDS), Vol 4 (1), December, 2023
ISSN: 3027-1126 (Online); 2786-9695 (Online)
©Authors
DOI: https://doi.org/10.57233/gujeds.v4i1.9

THE IMPACT OF PUBLIC EXPENDITURE ON INFRASTRUCTURAL AND ECONOMIC DEVELOPMENT IN NIGERIA (1986-2022)

DANLAMI VICTOR
Department of Economics, Kaduna State University, Kaduna, Nigeria.
Email: danlamiv8@gmail.com, Tel: 08064389071

UMAR YUNUSA SA'ID
Department of Economics, Federal College of Education, Zaria.
Email: yunusaumar@yahoo.com, Tel: +234 803 587 8388

Abstract
The paper examined the impact of public expenditure on infrastructural and economic development in Nigeria from 1986-2022). The study was a time series thereby employing Secondary data sourced from the Central Bank of Nigeria (CBN) Statistical bulletin 2022. The data were subjected to unit root diagnostic test to determine whether they are stationarity or otherwise. The data were integrated of order 1(0) and 1(1). Therefore, the Autoregressive Distributed Lag (ARDL) model was adopted, the Error Correction Model (ECM) technique was also adopted to check for the cointegration. The study reported along run relationship between public expenditure on infrastructural and economic development. The result shows that Public expenditures on health and construction infrastructures negatively affect economic development in Nigeria. While public expenditures on education, transportation and communication, and economic and services infrastructures positively affects economic development in Nigeria. The study concludes that pubic infrastructural expenditures influence economic development in Nigeria and the paper recommend that the financing options for closing Nigeria's infrastructure gaps should focus on broadening the sources of finance and a better allocation of public resources. In this wise, the government should intensify the utilisation of the public-private-partnership (PPP) framework as government alone cannot finance infrastructural development in an emerging market economy like ours. Therefore, Nigeria needs to be more pragmatic in her infrastructural development, in order to create employment and reduce poverty.
Keywords: *Public Expenditure, Infrastructural development, Economic Growth*

Introduction

Nigeria has experienced tremendous regress in macroeconomic performance considering decrease in the average growth from 6% in 2000-2010, to 2.27% in 2019 (National Bureau of Statistics, NBS, 2020). But then, despite the growth experience, the country is grappling with poor and inadequate supply of infrastructure; ranging from perennial electricity outages, housing problems, poor road networks, to inefficient port, rail and air transport logistics, as well as decaying water and sanitation facilities (Umuteme, 2019). To

this end, as adult literacy rises from 5.1% in 2008 to 6.2% in 2018, yet human development index (HDI) remains averagely at 0.53 between 2015 and 2020 (HDI, 2020), while 63% of the population live below $1 per day, and unemployment rate at 14.2% in 2016 climbs to 23.1% in 2018 and is expected to rise to 33.5% in 2020 (NBS, 2020). Also, 73.5% of Nigerians cannot access improved drinking water sources and sanitation facilities (UNICEF, 2020) with only 54.4% accessing electricity supply in 2017 as against 59.3% in 2016 (World Bank, 2020).

Nonetheless, following Infrastructure Concession Regulatory Commission (ICRC), an estimated $14 billion is required for road rehabilitation and construction, while $20 billion is needed to revamp the power sector, and about $17 billion for rail tracks (Foster & Pushak, 2011). Thus, in this regard, the size of capital expenditure has been on the rise,for instance, from ₦653.61 billion in 2016 to a provisional amount of ₦1682.1 billion in 2018 (Central Bank of Nigeria, CBN, 2018). Regardless the rise in allocation, however, the amount slated for infrastructure is insignificant as, according to Opia-Enwemuche and Oyeneyin (2016), there is an infrastructure gap of about 50% below the international benchmark of 70% of gross domestic product (GDP). It is on this background this study finds relevance in contributing to the discussion on infrastructure development.

Meanwhile, irrespective of raging discussion on the relationship linking infrastructure development and economic growth, few studies which include Eke (2014), Oyinloye (2014), and Yikudi (2014) have examined the effect of debt and bonds on infrastructure in Nigeria,while Kolawole (2019) affirms the efficacy of government spending in propelling road infrastructure in West Africa. The Nigerian government spends money on infrastructure projects such as education, defense, general administration, health, water supply, electricity generation and supply, roads, and telecommunications. Despite this, the country's infrastructure development has not improved as much as expected and the citizens' standard of living remains low. Scholars around the world have discussed the impact of government spending on infrastructure development in Nigeria, yet the poor infrastructure in the rural areas persist. After all, the Central Bank of Nigeria revealed there was increased government expenditure on infrastructure from ₦8 billion to ₦2,522 billion in 2021 (CBN, 2021). However, the gap still exist as there are yet no proof to confirm if government expenditure has translated into meaningful development in the transport, health, and education sectors.

This sectoral approach is adopted so as to broadly analyse the impact government spending on these selected sectors has on economic growth in Nigeria by providing specific answers to the following question: What impact does government spending on the transport, communication, health, education, construction and economic services have on Nigeria's economic growth? To achieve our aim, the paper is structured as follows: Following the introductory section is the review of extant literature, research methods, result presentation,analysis, and discussion, while the paper concludes with some policy recommendations.

2. Conceptual Clarifications.

2.1 Government Expenditure

Government expenditure, according to Nnamocha (2008), is the expenditure of the public sector (government). It includes such expenditure on the maintenance of government itself and also for the society and the economy. The rising trend in the growth of public expenditure is a worrisome development to the traditional Economist like the classical theorist who believed that government roles in the economy should be minimal because the extolled the virtue of the "invisible hand" through the working of market mechanism Government Expenditures are the expenses which a government incurs for (i) its own maintenance (ii)society and the economy (iii) helping other countries (Bhatia 2002).

Public expenditure represents the total government spending to attain the predetermined macro-economic objectives. Governments have recorded a continuous increase over time in almost every country. Government spending as a fiscal instrument serves useful roles in the process of controlling inflation, unemployment, depression, balance of payment equilibrium and foreign exchange rate stability. In the period of depression and unemployment, government spending causes aggregate demand to rise and production and supply of goods and services follow the same direction. As a result, the increases in the supply of goods and services couple with a rise in the aggregate demand exalt a downward pressure on unemployment and depression.

2.2 Concept of Economic growth

Anyiwe and Oziegbe (2020) opined that economic growth connotes increase in outputs in various sectors, national product, national income, improved level of technology, health, education and urbanization. In addition, economic growth refers to as a long term rise in its capacity to supply increasingly diverse economic goods to its population. It is also a process by which the productive capacity of the economy is increased over time to bring about rising level of national output and income. On the other hand, economic growth is a long term process wherein the substantial and sustained rise in real national income, total population and real per capita income takes place. In addition, economic growth is the expansion of the system in one or more dimensions without a change in its structure. Thus economic growth is related to a quantitative, sustained increase in the country□s per capita output or income accompanied by expansion in its labour force, consumption, capital and volume of trade (Ukwueze, 2018).

Government policies can be targeted toward enhancing the economic growth rates by taxing consumption, subsidizing investment and research, and shifting resources from government consumption to government investment and provide the enabling environment for private sector to drive the growth. However, government policies can deter the level of economic growth, for instance, government borrowing to finance recurrent expenditure, high tax rate for companies, lack of investment in capital stock, high exchange rate and interest rate.

2.3 Infrastructure

Infrastructure is the set of facilities and systems that serve a country, city, or other area,and encompasses the services and facilities necessary for its economy, households and firms to function, Sheffrin, Steven M. (2019). Infrastructure is composed of public and private physical structures such as roads, railways, bridges, tunnels, water supply, sewers, electrical grids, and telecommunications (including Internet connectivity and broadband access). In general, infrastructure has been defined as "the physical components of interrelated systems providing commodities and services essential to enable, sustain, or enhance societal living conditions" and maintain the surrounding environment Jeffrey (2019).

2.4 Empirical literature

Nwagwa, 2020). The Johansen co-integration and Granger causality tests for assessing were utilized and the discoveries indicated that education and financial development in Nigeria have a long period co-integration while the Granger causality test discovered that education and gross enrolment proportion of advanced education are not influencing economic advancement and the economic growth isn't impacting the two of them as well. The result is that if Nigeria's system of education continues as it is now, it will stay a drawn out issue and will proceed to influence financial development negatively. Researched on the long-term relationship between higher education and financial advancement of the South Asian states utilizing econometric panel cointegration (Hussaini, 2020).

While Akpan (2020) found no significant impact of government expenditure on economic growth in Nigeria, Odubuasi, Ifurueze and Ezeabasili (2020) employed the autoregressive distributive lag model and found that government capital and recurrent expenditures on highway and safety had positive and significant effects on Nigeria's economic growth.

Amadi and Alolote (2020) studied the effects of government infrastructural expenditure on economic development in Nigeria using secondary data for the period 1981 to 2018. Vector error correction model was used with government expenditure on key sectors of the economy such as transport, communication,education, health, agriculture and natural resources as the independent variables whereas economic growth proxied by GDP was the dependent variable. The findings show that government spending on transport,communication, education and health infrastructure had significant positive effect on economic growth while government spending on agriculture and natural resources infrastructure had a significant inverse effect on economic growth in Nigeria.

Nurudeen et al, (2021) employed the ordinary least square and Granger causality methods and the results showed a positive and significant impact between government spending and economic growth.

Ojo and Ojo (2022) studied Nigeria's health expenditure, education, and economic growth, from 1981 to 2019 using error correction model as an estimating approach with real GDP as the dependent variable and education expenditure index, the health expenditure index, inflation, life expectancy

rate, maternal mortality rate and GDP growth as the explanatory variables. The results revealed that government expenditure on education and health has a positive and significant impact on economic growth in Nigeria.

Okoli, Nwokoye, and Metu (2022) examined the empirical relation between government expenditure on specific sectors of the Nigerian economy to establish the existence of structural breaks in government expenditure as a strong factor that influenced Nigeria's economic growth using time series data from 1970 to 2020 sourced from CBN Statistical Bulletin and National Bureau of Statistics. Zivot Andrews test and granger causality test were the econometric tools employed in the analysis with gross domestic growth rate as the dependent variable and government spending on transport, communication, health, education, and utilities sectors as the explanatory variables. The results show that there were structural breaks experienced during the study period for economic growth and aggregate spending in Nigeria while no causal link was established between the growth rate of the government spending for infrastructure and sectoral growth in Nigeria.

Asiagwu et al (2023) empirically investigated public expenditure and economic development of Nigeria using a disaggregated analysis approach using relevant data spanning from 1981- 2021 sourced from Central Bank of Nigeria (CBN) Statistical Bulletin. Descriptive statistics, Augmented Dickey Fuller (ADF), Unit root test, Granger causality and Ordinary Least Square (OLS) regression were the analytical tools for the study. Real Gross Domestic Product (RGDP) was used as the dependent variable while capital and recurrent expenditures on administration, economic services, Social and Community Services, Transfers were used as the independent variables. The results show that all the variables were normally distributed according to the descriptive analysis, the regression plane is statistically significant and there exists a statistically significant relationship among the variables employed in the analysis. There is the existence of a long-run relationship among the variables as the result of the Johansen co-integration test indicates six co-integration equation. The study recommended that Government spending if properly managed will raise the nation's production capacity and employment, which in turn increase economic growth in Nigeria. Also government should increase its expenditure on rural development, roads, water and electrification in order to accelerate the level of productivity, increase income and raise the standard of living of poor citizens in Nigeria.

Coman et al (2023) wrote on the impact of public education spending on economic growth in Central and Eastern Europe which aimed at analyzing the impact of public spending on economic growth in 11 former communist Eastern European states by analyzing the education sector. The methodology used was ARDL with structural break. The results shows that public education expenditure-economic growth relationship is mixed on long term for five countries where as there is one on a long term for six countries. On a short term also, mixed results manifest for four countries which have positive impact, and two countries with

negative outcomes. The study therefore recommends that the government of communist countries should invest heavily into education as this will enable them attain economic growth.

Iliyasu and Muhammed (2023) worked on growth effects of government expenditure in Nigeria emphasizing on corruption as a factor. The paper carried out an empirical analysis of direct and indirect links among growth, government expenditure and corruption in Nigeria using annual time series data for the period from 1990 to 2020. The autoregressive distributed lag (ARDL) model was used to explore the longrun interacting effect of corruption on the nexus between growth and government expenditure. The modified ordinary least squares and dynamic ordinary least squares were used as alternative techniques of estimation. The results show that an increase in government expenditure and a reduction in corruption has a significant increasing effect in the short-term and long-term growth when studied directly but indirectly, reducing corruption enhances the increasing effect of government expenditure on economic growth. The study therefore recommends that attaining sustained growth is possible by raising government expenditure and minimizing corruption. Thus, minimizing corruption associated with increased government expenditure on infrastructure should be a top policy priority for Nigeria to attain economic growth.

Aside Okoli, et al. (2022) and Amadi and Alolote (2020) which made attempts at disaggregating Nigeria's infrastructure into its various components, the literature is replete with studies that aggregated this basic factor of economic progress. As such, these studies neglected the need for policy interventions aimed at adopting Hirschman's theory of investing in the critical sectors of the economy that comprise the public infrastructure in the country in order to ensure a trickle-down effect on sectoral growth of the economy.

3.Methodology

3.1 Theoretical Framework

The theoretical framework for this study is the new growth theory and unbalanced growth theory. According to Hirschman (1958) who postulated the unbalanced growth theory, for developing countries such as Nigeria to witness economic growth, there is need to choose and invest in the critical/key sectors of the economy that comprise the public infrastructure in the country, so that there will then be trickled down effects to other sectors of the economy.This study adopts Hirschman's approach which was used for European countries in the Nigerian context as a robust model to incorporate and empirically examine the impact of government spending on five key selected sectors of the economy.

The new growth theory on the other hand holds that economic growth is primarily a result of endogenous (not external) forces. It holds that investment in human capital, innovation, and knowledge are significant contributors to economic growth. The theory also focuses on positive externalities and spill over effects of a knowledge-based economy which leads to economic development and it primarily holds that the long run growth rate of an economy depends on policy measures.

It models technological progress with a single parameter (usually A) and makes the assumption that the production function does not exhibit diminishing returns to scale to lead to endogenous growth. If the same level of capital and labour is used, we have the aggregate production function:

$$Y = f(K, L, A) \quad \text{.....(1)}$$

Where K is capital, L is labour and A is Technological progress.

According to Hirschman, investments in strategically selected industries or sectors of the economy will lead to new investment opportunities and so pave the way for further economic development. Hirschman maintained that development can only take place by unbalancing the economy through investing either in social overhead capital (SOC) or in directly productive activities (DPA). Social Overhead Capital has been defined as comprising those basic services without which primary, secondary and tertiary productive activities cannot function. SOC includes government investments in education, public health, communications, transportation and conventional public utilities like light, water, power, irrigation and drainage schemes, etc.

Hirschman unbalanced growth model is specified as

$$Q(t) - \psi\lambda(t) = \psi\theta(t) \quad \text{.....(2)}$$
$$Y(t) = \psi\theta(t) \quad \text{.....(3)}$$

Where Y(t) = output from social overhead capital (SOC).

$\psi\theta(t)$ = social overhead capital (SOC) at time t given input requirements.

Equation 3 presents the core sectoral variables and hence is employed to satisfy the objectives of this study.

Having looked at the theoretical underpinnings of the impact of government spending for infrastructure on economic growth from a combination of the endogenous growth model and unbalanced growth theory, the task in this section is to construct a model relating the various key variables identified as factors within the context of impact of governments' infrastructural development activities and economic growth. Therefore Equation 1 can be reconstructed as:

$$GDP = f(K, L, SOC) \quad \text{.....(4)}$$

Where SOC was further decomposed into government spending on sectors such as transport, communication, health, education, construction and economic services.

3.2 Source of Data

The study is an ex-post factor research. The variables for the study were based on secondary data. The data were sourced from CBN Statistical bulletin, 2021 edition. The time series covers the market based economic era when public expenditures were seen to be the main stand-post of economies across the world. Thus, the data covers 1986 to 2022. This study employs annual data on real gross domestic Product (RGDP), Public Expenditure on health infrastructures(PEXPH), Public expenditures on educational infrastructures (PEXPE), Public expenditures on transportation and communication (PEXPTC), Public expenditures on constructions (PEXPC)

Public expenditures on economic services (PEXPES) as the explanatory variables.

3.3 Model Specification

The amount of investment on Nigerian infrastructural development is a function of the Nigerian economy and other covariates. To investigate the impact of public expenditure on infrastructural and economic development in Nigeria in the five selected infrastructures on the development of the Nigerian economy.The model adapted for this study is predicated on the endogenous growth framework of Barro (1990) and modified to include the unbalanced growth model is thus:

RGDP = f(PEXPH, PEXPE, PEXPTC, PEXPC, PEXPES .....(5)

The mathematical and econometrical form of the model with the variables converted to growth rates is given as:
Therefore, equation (1) may be expressed in a linear and log form as:

$RGDP_t = \beta_0 + \beta_1 PEXPH_t + \beta_2 PEXPE_t + \beta_3 PEXPTC_t + \beta_4 PEXPC_t + \beta_5 PEXPES_t + \mu_t$.....(6).

where,
RGDPt represent real gross domestic product at time,
PEXPHt represent public expenditure health infrastructures at time
PEXPE represent public expenditures on educational infrastructures
PEXPTC represent public expenditure on transportation and communication infrastructures
PEXPC represent public expenditure on construction.
PEXPES represent public expenditures on economic services infrastructures
μ represent is error term, and
the βs are parameters.

Result Presentation, Analysis, And Discussion Of Results

4. Presentation and Discussion of Results.

Result Presentation Data analysis using descriptive statistics were carried out and the results were presented on Table 1

Table 1: Summary of Descriptive Statistics Results

	RGDP	PEXPH	PEXPE	PEXPTC	PEXPC	PEXPES
Mean	0.481202	1.305524	1.641979	0.784204	1.110377	1.020936
Median	0.623249	1.608740	1.905958	1.117271	1.229170	1.390228
Maximum	1.184691	2.914608	2.965573	1.954387	2.314099	2.638529
Minimum	-1.000000	-1.397940	-0.638272	-1.301030	-0.823909	-1.301030
Std. Dev.	0.499027	1.168722	1.039989	0.895390	0.982064	1.176936
Skewness	-1.490819	-0.664716	-0.781164	-0.694095	-0.344519	-0.419537
Kurtosis	5.161788	2.308099	2.553563	2.191504	1.691237	1.787230
Jarque-Bera	20.91038	3.462760	4.070265	3.978635	3.372599	3.352905
Probability	0.000029	0.177040	0.130663	0.136789	0.185204	0.187036
Sum	17.80448	48.30439	60.75322	29.01553	41.08395	37.77463

Sum Sq. Dev.	8.964992	49.17282	38.93675	28.86205	34.72020	49.86639
Observations	37	37	37	37	37	37

Source: *Author's Computation 2023 using E-views 9.0*

Table 1 above containsummary of statistics: the mean, median, maximum, minimum, standard deviation, kurtosis, and Jarque-Bera values for the variables under consideration. Table 1 below shows the mean value of RGDP, PEXPH, PEXPE, PEXPTC, PEXPC and PEXPES are; 0.7, 2.3, 2.6, 0.4, 1.1 and 1.8 respectively.PC has the highest level of discrepancy, as shown in the standard deviation result. This means that construction was found to be more volatile and unpredictable having the highest standard deviation of 0.982064. RGDP shows the lowest level with the standard deviation of 0.499027 respectively.
Skewness is a measure of the rate of asymmetry or discrepancy of the variables. Accordingly, RGDP, PEXPH, PEXPE, PEXPTC,PEXPES and PEXPC have long left tail. This is because the variables exhibit negative values of -1.4, -0.6, -0.7, -0.6, -0.3, and -0.4 respectively.
Kurtosis measures the peakedness and flatness of the series. Thus, the result shows that RGDP is leptokurtic relative to their normal distribution because their value is greater than three, while PEXPH, PEXPE, PEXPTC,PEXPES and PEXPC are platykurtic because their kurtosis values are lesser than three. JarqueBera test of normality is used to see whether the series are normally distributed. The p-value of the JarqueBera test indicated that most of the series are normally distributed.

4.2 Testing for stationarity

Following the Granger and Newbold (1977), most time series variables are non - stationary, and utilizing such non - stationary variables in estimation might lead to spurious regression. To overcome this shortcoming, the stationary status of the series using both the Augmented Dickey-Fuller (ADF) was utilized. The ADF test is base on minimizing the Akaike information criterion (AIC). The bandwidth is selected based on the Newey-west approach.

Table 2: Unit Root Test Results (ADF Statistics)

Statistics	**Statistics at level**		**Statistics at 1st difference**		**Integration Order**
Variables	ADF	Critical value @5%	ADF	Critical value @5%	
RGDP	-1.340097	-2.957110	-5.051798	-2.957110	I(1)
PEXPH	-1.389377	-2.945842	-10.74211	-2.948404	I(1)
PEXPE	-2.787895	-2.960411	-2.350390	-2.981038	I(1)
PEXPTC	-2.258020	-2.945842	-8.002801	-2.948404	I(0)
PEXPC	-1.761988	-2.945842	-7.448723	-2.948404	I(0)

PEXPES	-1.726698	-2.945842	-6.082681	-2.951125	I(1)

Source: *Author's Computation 2023 using E-views 9.0*

Results on Table 2 show that the growth rates of Gross domestic product, public expenditure on health, public expenditure on education, public expenditure on transportation and communication, publication expenditure on construction and public expenditure on economic services. Gross Domestic Product, Public expenditures on health infrastructures,public expenditure on educational infrastructures and public expenditures on economic services were stationary at first difference and therefore integrated of order I(1). The unit root results also shows that public expenditures on transportation and communication, and public expenditures on constructions were all stationary at level. Thus, the null hypothesis of no stationarity was rejected for all the variables in favour of the alternative hypotheses which states that there is stationarity for all the variables used in the study.

4.3 Autoregressive Distributed Lag (ARDL) Bound Test Result

The long run dynamic relationship among the variables in the model was tested using the ARDL modelling approach in line with Pesaran and Pesaran (1997) procedure. The test (F-statistics) tested for joint (overall) significance of the co-efficient of all the variables in the model. The decision rule is that if the computed F-statistics exceeds the upper bound value I(1), then the null hypothesis is rejected which indicates that there is co-integration. Otherwise, if computed F-statistics falls below the lower bound value I(0), the null hypothesis of no co-integration is accepted. If the computed result falls between the lower and upper bound values, the test is inconclusive.

Table 3: Bounds Test of Presence of Co-integration in ARDL including the Critical Lower and Upper Bound Values for the periods

Significance	Lower Bound I(O)	Upper Bound I(1)
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68
Test Statistic	Value	**K**
F-Statistic	31.83572	5

Source: Author's Computation 2023 using E-views 9.0

Table 3 above shows the bounds test. The F-statistics is 31.83572 exceeds the upper bound values at 1 per cent, 2.5 per cent, 5 per cent and 10 per cent critical values.Thus as seen from the above bound test, the f-statistic value of 31.83572 is evidently above the I (O) and I(1)critical values bound. Our analysis of this series indicates that we reject Ho: that

there is no equilibrating relationship and conclude that there is equilibrating relationship.

4.4 Error Correction and Long Run Results.

As observed in table 2, the computed F-statistics of the Bounds Cointegration Test was greater than the F-Critical values at both 10% and 5% level of significance. The implication is that there is Cointegration among the variables. Thus, the dynamic short-run relationship can be represented with an Error Correction Model (ECM). The estimated ECM and the long-run coefficients are presented in table 3 below.

Table 4 Long-Run Dynamic Analysis

D/ Variable : RGDP	**ARDL**	**(4, 4, 4, 4, 4,4)**		
Variables	Coefficients	Std. Error	t-Statistics	Prob
PEXPH	-4.489713	1.539709	-2.915950	0.0617
PEXPE	3.663697	1.818816	2.014330	0.1374
PEXPTC	1.788610	0.278746	6.416631	0.0077
PEXPC	-1.273809	0.505117	-2.521810	0.0860
PEXPES	1.079427	0.569853	1.894220	0.1545
C	-0.417632	0.924887	-0.451549	0.6822
CointEq(-1)	-2.058693	0.257571	-7.992727	0.0041
R-squared	0.995419			
Adjusted R-squared	0.951134			
S.E. of regression	0.099889			
Sum squared resid	0.029933			
Log likelihood	68.76230			
F-statistic	22.47773			
Prob(F-statistic)	0.012728			
Durbin-Watson stat	3.161010			

Source: *Author's Computation 2023 using Eviews 9.0*

Table 4 above revealed the coefficient of PEXPH (-4.489713) has a negative impact on economic growth which shows that a percent increase in public expenditures on health infrastructures leads to a decrease in expected economic growth by 4.48 percent on average. The coefficients of public expenditure on educational infrastructures have positive impact on economic growth indicating that a percent increase in PEXPE will lead to an increase in economic growth to about 3.66 percent. Similarly, government spending on the transport and education sectors have positive impact on economic growth which means that a percent increase in the growth rate of government spending on each sector leads to an increase in growth of the economy to about 1.78 and 0.05 percent respectively.

On the other hand, the coefficients of government spending on constructions and economic services infrastructures have negative impact on economic growth which means that a percent increase in the growth rate of government spending on each sector leads to a decrease in growth of the economy to about 1.27 and 1.07 percent respectively. The coefficient of error correction mechanism (ECM) is negative -2.058693 and significant at 0.05 per cent critical level as evident by the low probability value of 0.0041. This shows that about 2.05 per cent speed of adjustment is needed to correct the disequilibrium in Nigeria's previous GDP growth rate in the current year.The R-Squared suggests that about 99% systematic variations in Gross Domestic Product is explained by the four explanatory variables in the model, leaving about 1% unexplained, which can be explained by factors not included in the model. The Prob (F-statistic) measure the overall significance of the model. The Prob (F-statistic) value of 0.012728 which is less than 0.05 indicate that the model was statistically significance.

5.1 Conclusion

The study examined the impact of public expenditure on infrastructural development in Nigeria. The study found that public expenditure tools on infrastructures have positive and negative effects on economic development in Nigeria within the context of Autoregression and Distributive Lag Bound test and a dynamic short run Cointegration and long run form modeling framework, applying annual data from 1986 to 2022. Therefore, even though government expenditure in these selected sectors have been on the increase over the years, this is not adequate to satisfy the demand for these facilities thereby creating a gap in the infrastructural development process of the country. Similarly, the maintenance and repairs culture of damaged facilities, corruption, bureaucratic bottlenecks are some of the major challenges facing the infrastructural deficit in the country.

5.2 Recommendations

Based onthe findings in the study, recommendations were made.

i. First, for the fact that government expenditure drives infrastructure development, the federal government should fine-tune its fiscal responsibility by increasing the capital expenditure aspect of annual budgetary allocations. Such increased capital allocations should be directed at the provision of more roads, electricity, health and education facilities, water supply, irrigation and other infrastructural projects.

ii. Secondly, the effectiveness of credit to the private sector calls for supports from the banking sector for infrastructure developmentin the country. By implication, supports from the bank will to a large extent assist the government in the provision of infrastructure facilities for welfare and sustainable development.

iii. Also, the financing options for closing Nigeria's infrastructure gaps should focus on broadening the sources of finance and a better allocation of public resources. In this wise, the government should intensify the utilisation of the public-private-partnership (PPP) framework as government alone cannot finance infrastructural development in an emerging market economy like ours. Therefore, Nigeria needs to be more pragmatic in her infrastructural development, in order to create employment and reduce poverty.

iv. Maintenance and patronage of this infrastructures requires a wholistic approach, thus Individuals, households and societies are required to patronize, maintain and secure the existing infrastructures to enable economic efficiency while improving productivity.

References.

Adigwe P. K., Anyanwu F. A. and Udeh, F. (2016). Dynamic Effect of Government Expenditure on Nigeria Economic Growth: Long Run Propensity and Short Run Adjustments.Journal of Scientific Research & Reports 11(5): 1-19.

Asiagwu Harriet, Ugherughe Joseph, and Ezeabasili Vincent (2023), Disaggregated Analysis of Public Expenditure and Economic Development on the Nigerian Economy. International Journal of Management & Entrepreneurship Research 5 (1), 41-56

Akpan, N. (2020). Government expenditure and economic growth in Nigeria: a disaggregated approach. International Journal of New Economics and Social Sciences, 11(1), pp185-196.

Amadi K. C. and Alolote I. A. (2020). Government expenditure on infrastructure as a driver for economic growth in Nigeria, Journal of International Business Research and Marketing,5(2), 20-264. Asiagwu Harriet, Ugherughe Joseph, and Ezeabasili Vincent (2023), Disaggregated Analysis of Public Expenditure and Economic Development on the Nigerian Economy. International Journal of Management & Entrepreneurship Research 5 (1), 41-56.

Barro, R.J. (1990). Government spending in a simple model of endogenous growth. Journal of Political Economics, 98, pp. 102–125

Coman Alina, Lupu Dan and Marcel Nu?? Florina(2023), The impact of public spending on economicgrowth in Central and Eastern Europe: An ARDL approach with structural break. The Economic Research, 36 (1), 1261-1278.

Charles, D., Onuchuku, O., and Tamuno,S.O. (2018). Government expenditure on construction, transport and communication and economic growth in Nigeria. International

Journal of Scientific Research, 3(2), 39-47.

Central Bank of Nigeria (2018). Statistical bulletin.Retrieved from www.cbn.gov.ng.

Ewubare, D. B. and Maeba, S. L. (2018). Effect of public expenditure in construction and transportation sectors on employment in Nigeria.International Journal of Science and Management Studies, 1(4), 130-136.

Foster, V., & Pushak, N. (2011). Nigeria's infrastructure: A continental perspective. Retrieved from https://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-5686.

Human Development Index (HDI) (2020). HDI by country by population 2020. Retrieved from http://www.hdr.undp.org/en/countries/profiles/NGA.

Iliyasu Ibrahim andMuhammed Ibrahim (2023), Growth effects of government expenditure in Nigeria: Does the level of corruption matter? Asian Journal of Economics and Empirical Research, 10 (1), 1-10.

National Bureau of Statistics (NBS) (2020). Key statistics: Gdp, unemployment, cpi. Retrieved from https://www.nigerianstat.gov.ng

Nurudeen, I., Sani, S. and Adewinle, F. (2021). Relationship between growth and expenditure: An examination of Wagner's law in Nigeria. International Journal of Economic Growth and Environmental Issues, 9(1),pp 13- 27.

Ojo ,T.andOjo, S. (2022). Health expenditure, education and economic growth in Nigeria. Open Journal of Social Science and Humanities, 3(1), 01-17.

Okoli, U., Nwokoye, E. and Metu A. (2022). Government expenditure and economic growth nexus using zivotandrews and granger causality approaches. Nnamdi Azikiwe University Book Series on Sustainable Development: Boldscholar Research, 51-67.

Opia-Enwemuche, K., & Oyeneyin, A. (2016). The infrastructure gap in Nigeria – New sec rules to the rescues? A Periodical of Jackson, Etti & Edu Company

Oyediran, L. S., Sanni, I., Adedoyin, L., and Oyewole, O. M. (2016). Government expenditure and economic growth nexus: evidence from Nigeria. Business and Management Research, 5(4), 56 – 61.

Obasikene, A. C. (2017). Government expenditure in Nigeria and its impact on the Nigerian economy, 1986-2014. Journal on Banking Financial Services and Insurance Research, 7(11), 1 – 12.

Peter, G. A. (2015). Effects of public expenditure on selected macroeconomic variables in Nigeria: 1986-2012. Unpublished Journal, Department of Economics, Faculty of Social Sciences, Ahmadu Bello University, Zaria, Nigeria.

Shuaib, I. M., Mohammed, M. K., and Igbinosun, F.E. (2015). Government expenditure: impact on the Nigerian economic development. International Journal of Research in Business Studies and Management, 2(6), 74-87.

UNICEF [United Nations Children Education Fund] (2020). Water, sanitation and hygiene.Retrieved from https://www.unicef.org/nigeria/water-sanitation-and-hygiene.