Evaluating Effects of Domestic Public Investment in Communication on Nigeria's Economic Growth

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ABSTRACT

This study focused on evaluating the effect of communication sector domestic public investment (DPI) on economic growth in Nigeria. The data of DPI in communication from 1999 – 2019, extracted from the Central Bank of Nigeria statistical bulletin, were used to investigate if DPI in communication has a positive effect on economic growth in Nigeria. The study analyses were conducted using linear regression with the Ordinary Least Squares (OLS) technique and Granger causality technology. The findings indicated that DPI in communication did not have a positive and significant effect on economic growth in Nigeria. The findings also revealed that the causality relationship between DPI and economic growth in Nigeria was lacking over the 20 – year study period. The current findings thus, suggested that government spending should be channelled to affect the economy to promote growth and development in the process.

KEYWORDS: Communication, Domestic Public Investment, Economic Growth, Development, Nigeria

INTRODUCTION

Public investment in communication provides social comfort to the citizens as it contributes to economic growth by increasing productivity and providing amenities that enhance the quality of life. However, in Nigeria, the deplorable state of most communication facilities lower their productivity and, by extension, the country's economic growth. The services associated with an adequate communication infrastructural base translate to an increase in aggregate output. In other words, public investments mean investment by the government and these are geared to:

1. Provide essential resources that the private sector cannot provide, leading to higher productivity and better living standards.
2. Shape choices where people live and work.
3. Influence nature and type of private investments.
4. Boost growth and provide infrastructure for more private sector investment.

Such projects are usually large in scale, and these include dams, road construction, research at the tertiary level, telecommunication, infrastructure, and medical facilities, to mention a few.

However, in Nigeria, the deplorable state of most infrastructural facilities lower their productivity and, by extension, the country's economic growth. The services associated with an adequate infrastructure base translate to aggregate output. Pravakar, Rajan and Gethanjali (2010) noted that infrastructure development, both economic and social, is a significant determinant of economic growth, particularly in developing countries since infrastructure makes it possible for manufacturers/producers to use modern technologies which ensure expansion and directly stimulate productive activities.

Domestic public investment in communication systems has effects and allows the adoption of the latest production techniques such as just-in-time manufacturing. Communications, therefore, is an essential element of infrastructure services and are essential in maintaining economic growth and competitiveness. Public investment in communication is a critical prerequisite for a nation's development. An efficient communication system affects the economy and allows the latest production techniques. Moradi and Kabryaee (2010) believe that investment in communication contributes to overall capital deepening and, therefore, helps raise economic growth.

OBJECTIVE/ RESEARCH QUESTION & HYPOTHESIS

This study aims to determine the effect of domestic public investment in communication on the economic growth of Nigeria.

The following research question guided the study:

- How does domestic public investment in communication influence economic growth in Nigeria?

The following null hypothesis was formulated according to the problem statement and specific objective.

- Ho. Domestic public investment in communication does not have a positive and significant effect on economic growth in Nigeria.

PUBLIC INVESTMENTS AND FISCAL POLICY

As opined by Born & Muller (2012), public investment can serve as an essential catalyst for economic growth through the provision of economic and social infrastructure. Two sets of considerations inform policy decisions on public investment. These are microeconomic considerations that concern efficiency and the cost and benefits of individual projects on the one hand. On the other hand are the macroeconomic dimensions, which focus on the aggregate level of public investment, its short term effect on the economy and the long term sustainability of public

finances (IMF,2013) (Toigo and Woods, 2006). While microeconomic considerations justify the public investment based on market failure arising from the differences between financial returns and social returns, macroeconomic dimensions introduce two separate considerations:

a. The impact of investment on the cyclical position of the economy, and
b. The longer-term fiscal sustainability issues have to do with the taxations and debt level of the government (Warner, 2014).

Sustainability considerations are important because, while each investment project taken on its merit could be welfare enhancing, their aggregate impact could put the public finances on an unsustainable path or worsening structural conditions (Perotti, 1999). However, the framework that guides public investment is based on two elements:

a. A set of fiscal rules that underpin the government's commitment to sound public finances and guide the macroeconomic management of the economy; and
b. Budgeting rules and procedures create the right incentives at the microeconomic level.

While the macroeconomic framework is crucial to correct a bias against public investment, it needs to be underpinned by a robust microeconomic framework. This ensures that investment decisions are taken based on efficiency considerations and deliver the planned benefits (Fujita, 2012). The keystones of economic growth are investments in physical capital, human capital and technology. Governments can invest in physical capital directly by providing public goods such as roads, hospitals, electricity generating facilities, telecommunication equipment. The government finances these investments either with higher taxes or by borrowing. In most countries, the government plays a significant role in society's investment in human capital through the education system. Investment in human capital ensures a highly educated and skilled workforce, which guarantees a higher economic growth rate (Auerbach & Gorodnichenko, 2013). Fiscal policy can also encourage Research and Development (R & D) using direct spending or tax policy. This policy supports R & D through tax incentives to the private sectors as it allows firms to reduce their tax bills while increasing their spending in research and development. Fiscal policy most often promotes investment in physical capital, human capital, and research and development to ensure long-term economic growth.

DOMESTIC PUBLIC INVESTMENT IN COMMUNICATION AND ECONOMIC GROWTH

Public investments in communications play a critical role in the economy's growth, especially of a developing nation. Communication investments are also critical to poverty reduction as they can

generate trade both locally and internationally (Charles, Onuchukwa &Tamuno, 2018). A well-functioning communication system is a critical prerequisite for a country's development. Public investment in this sector directly affects economic growth through many changes, such as allowing producers to find the best markets for their products, reducing transportation time and cost, and generating employment opportunities (Mohammed, 2015). Also, investments in communication have positive effects and ensure the adoption of the latest production techniques such as just-in-time production.

Public investments in communication have a lot of positive aspects as it (i) helps in the expansion of internal and foreign trade, (ii) Increases employment opportunities, (iii) Increases government revenues, (iv) stabilises the price level, (v) enhances interaction and unity among the people. It makes the people one and undivided. Investments in a communication system are regarded as a solid pillar to protect the people from natural calamities and other problems such as difficulties of war as information is promptly disseminated (Amadi, Amadi & Nyenke, 2013). Likewise, public investments in communication help the government and businesses to make the right decisions at the right time by providing them information and news related to business and financial matters (Iheanacho, 2016). Investment in this sector facilitates economic growth as it helps change the outlook and style of living according to changing conditions of the world. Investments in communication are becoming increasingly complex as decision-makers consider a more comprehensive range of factors. These include the effects of communication systems as a stimulant of growth and a cost of growth (Niebel, 2014). It includes the effects on the environment and the quality of life within the area served by the system. Therefore, the increasing complexity in the decision-making calls for greater dissemination of information and expanded educational efforts.

EMPIRICAL REVIEW

Farhadi, Ismail & Fooladi (2012) examined the impact of information and communications technology on economic growth using the Generalised Method of Moments (GMM) estimator within the framework of a dynamic panel data approach over 2000-2009. They found out that there is a positive relationship between growth rate & GDP, which implies that policies that ensure investment in communications enhance economic growth. Bose & Haque (2005), in the study: 'Causality between public investment in transport, communication and economic growth, aimed to explain the robust and consistent relationship between public investment in transport and communication and economic growth using both informal and formal causality tests. The findings

reveal that the strong association results from the effect of running from growth to public investment rather than from public investment to growth.

Moradi and Kebryaee (2010) explored the impact of information and communication technology on economic growth in selected Islamic countries using panel data analysis to examine the factors affecting economic growth in 48 Islamic countries. The findings showed that investment in information and communication technology is the main engine of economic growth. Niebel (2014) analyses the impact of information and communication technologies (ICT) on economic growth in developing, emerging and developed countries using panel data regressions for 59 countries from 1995-2010. The findings for the three-country subsample reveal relatively slight differences in the output elasticity of ICT between developing, emerging and developed countries. However, the findings revealed that public investments in information and communication technologies positively affect the economic growth of the sampled countries.

Chenq, Waleola & Oji-Okoro (2014) studied 'Economic growth with an investment boom in Nigeria' using the ordinary least square (OLS) method. The researchers investigated how ICT investment is booming with economic growth in Nigeria. The findings revealed that ICT contributed significantly to Nigeria economy during the period reviewed. Mohsen, Seyed & Abbas (2015) reviewed 'Public funding of investment in transport and communication and economic growth in Iran', based on Gregory-Hansen cointegration analysis. The study examined the causal relationship between investment in transport and communication by public funding and GDP for Iran using annual data from 1970-2014. The result suggests a long-run relationship between these variables but that there is no evidence that transport and communication promote long-term economic growth. Charles, Onuchukwu & Tamuno (2018) investigated government expenditure on construction, transport and communication, and economic growth in Nigeria' using time series data analysed using the Engle-Granger Cointegration and Error correction modelling techniques. The analysis result revealed that government has a negative relationship with economic growth and does not impact it.

RESEARCH METHODOLOGY

This study adopted an *Ex post facto* research design. The data collated were analysed using linear regression with the Ordinary Least Squares (OLS) technique and Granger causality technology. Data analysis was carried out with the aid of E-views 10.0 statistical software.

Model Specification

In this research, domestic public investment in the communication sector is the independent variable, while economic growth captured with real gross domestic product serves as the dependent variable.

The model specified the equation for estimation as follows:

RGDP = f (DPC) … (1)
The model is expressed in implicit and explicit forms below:
In Implicit Form: RGDP = f (DPC)……. (1)
Explicit: as an econometric equation;
$RGDP_t = \beta_o + \beta_1 DPC + \mu$,……(2)
Where,
f = Functional Relationship
DPC = Domestic Public Investment in Communications Sector
βThe Parameter of the independent variable to be estimated.
μ = Stochastic Error Term
t = Time Period

PRESENTATION AND ANALYSES OF DATA

Data Presentation

YEAR	GDP (₦' Billion)	DPC (₦' Billion)
1999	5307.360	174.1800
2000	6897.480	206.0100
2001	8134.140	370.1100
2002	11332.25	470.1700
2003	13301.56	598.1800
2004	17321.30	804.8600
2005	22269.98	1200.440
2006	28662.47	1634.040
2007	32995.38	2267.780
2008	39157.88	3151.450
2009	44285.56	4445.340
2010	54612.26	5955.060
2011	62980.40	6379.560
2012	71713.94	7266.720
2013	80092.56	8359.410
2014	89043.62	9588.580
2015	94144.96	10781.08
2016	101489.5	11479.50
2017	113711.6	11717.56
2018	127736.8	12979.87
2019	144210.5	15402.79

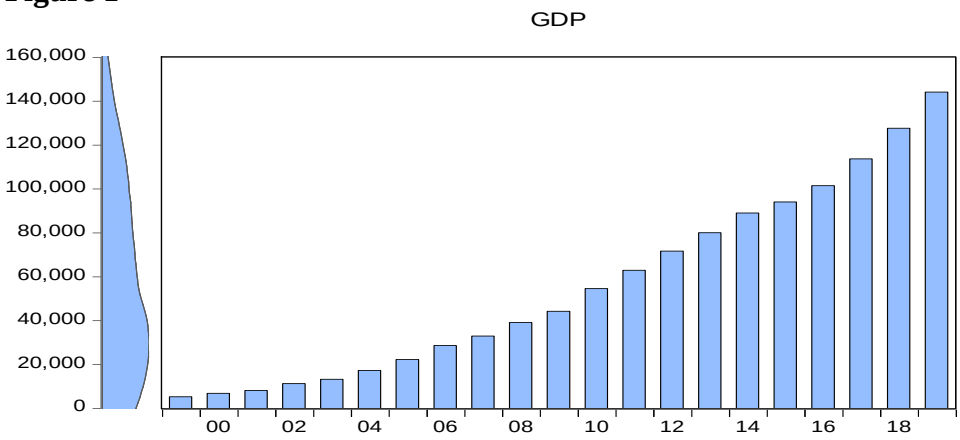
Source: *Central Bank of Nigeria (CBN) Statistical Bulletin, 10.*
Note:
GDP = Gross Domestic Product
DPC = Domestic Public Investment in Communications Sector

The data above is secondary data covering the variable under study. The data range from 1999 to 2019. They were extracted from the Central Bank of Nigeria (CBN) statistical bulletin 2019.

Graphical Analysis

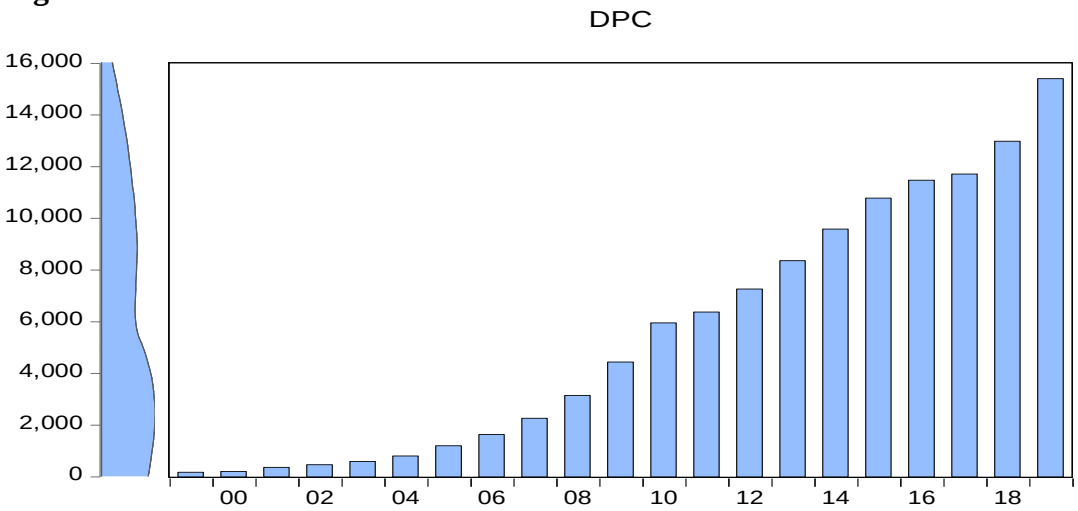
This section of the analysis is focused on carrying out a graphical analysis of the communication sector. This was done to show and demonstrate the trend of the variable for the period under study.

Figure 1



Source: *Author's Computation Using E-views*

Figure 2



Source: *Author's Computation Using E-views*

Descriptive Data Analysis

	GDP (N'BN)	DPC (N'BN)
Mean	55685.79	5487.271
Median	44285.56	4445.340
Maximum	144210.5	15402.79
Minimum	5307.360	174.1800
Std. Dev.	43111.23	4949.203
Skewness	0.528294	0.481649
Kurtosis	2.075657	1.872868
Jarque-Bera	1.724441	1.923572
Probability	0.422223	0.382210
Sum	1169402.	115232.7
Sum Sq. Dev.	3.72E+10	4.90E+08
Observations	21	21

Source: *Author's Computation Using E-views 10.*

The descriptive statistics were computed to evaluate the statistical characteristics of the selected time series. The table above reveals the mean, median, standard deviation, Skewness, Kurtosis, Jarque-Bera, Sum of Square deviation. A striking observation is that the mean values of economic growth rate GDPR between 1999 -2019 yielded ₦55685.79 billion, and the mean of DPC is ₦5487.271 billion. The probability value of the variable reveals that the variable is normally distributed. The Skewness and Kurtosis of the variables clearly show that the Jarque-Berra has a normal residual distribution.

REGRESSION ANALYSIS

Dependent Variable: LOG(GDP)
Method: Least Squares
Date: 10/26/20 Time: 15:14
Sample: 1999 2019
Included observations: 21

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.455583	0.177048	25.16601	0.0000
LOG(DPC)	-0.503499	0.049974	10.07521	0.3200

R-squared	0.897318	Mean dependent var	10.52609
Adjusted R-squared	0.796424	S.D. dependent var	1.026086
S.E. of regression	0.061356	Akaike info criterion	-2.509302
Sum squared resid	0.056468	Schwarz criterion	-2.210867
Log-likelihood	32.34767	Hannan-Quinn criter.	-2.444534
F-statistic	1115.712	Durbin-Watson stat	0.753990
Prob(F-statistic)	0.000000		

Source: *Researcher's Computation Using E-views* 10.

Interpretation of the Numerical Coefficients

The regression analysis on domestic public investment in the communications sector (DPC) against economic growth shows that the numerical coefficient yielded a negative numerical coefficient at the magnitude of -0.503499. The result shows a negative relationship between DPC and economic growth in Nigeria for the years under analysis. It practically shows that public investment in the communications sector (DPC) does not result in a positive increase in economic growth in Nigeria.

TEST OF HYPOTHESIS

Domestic public investment in communication does not have a positive and significant effect on economic growth in Nigeria.

Presentation and Analysis of Result

Variable	Coefficient	P-value
DPC	-0.503499	0.3200

Source: *Main Regression Output*

Decision Rule

The decision rule is to reject the null hypothesis if the probability is less than 0.05 and accept the alternative hypothesis. However, if the probability is more significant than 0.05, we accept the null hypothesis and reject the alternative hypothesis.

Decision

From the above analysis, it is seen that the probability value of DPC yielded 0.3200, and it is more significant than 0.05. This compels the acceptance of the null hypothesis for the hypothesis. Hence,

domestic public investment in communication does not have a positive and significant effect on economic growth in Nigeria.

SUMMARY, CONCLUSION AND RECOMMENDATION

Domestic public investment in communication does not have a positive and significant effect on economic growth in Nigeria (p-value = 0.3200 > 0.05, β = -0.503499).The analysis clearly shows that the probability value of the domestic public investment in communication (DPC) yielded 0.3200, which is greater than 0.05, and this compels the acceptance of the null hypothesis. This study has determined the effect of domestic public investment on Nigerian economic growth. Summary of findings revealed that domestic public investment in communications has a negative and insignificant impact on economic growth in Nigeria. The conclusion that can be drawn from this is that government expenditures on the sector have not been well utilised over the years under analysis. This may have been caused by corruption, nepotism and other clogs of government expenditures. The current findings thus, suggested that government spending should be channelled to affect the economy to promote growth and development in the process.

It is recommended that there is an urgent need to instil fiscal discipline in government expenditures by initiating far-reaching effective internal control measures and more proactive economic management coordination and implementation and discouraging all non-productive activities and expenditures in all tiers of government forthwith.

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