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Impact of Foreign Direct Investment in Telecommunication on Economic Growth in Nigeria

Christopher Obute, Victor Ushahemba Ijirshar &Ashifa Tersugh

Department of Economics
Benue State University, Makurdi Nigeria

ABSTRACT

This study examined the impact of foreign direct investment in telecommunication on economic growth in Nigeria covering the period 1981 to 2014. Econometrical techniques were employed for the analysis of data. The Augmented Dickey Fuller unit root test showed that all variables were integrated at first difference. The study found that there is positive and significant impact of foreign direct investment in telecommunication on economic growth in Nigeria in the long run only. The study also found that an initial deviation from equilibrium can corrects itself back to long run equilibrium at 71% yearly. The diagnostic test revealed that residuals were normally distributed, and both serial correlation and heteroskedastrcity were found absent in the model. The study therefore recommended that the Nigerian government should aggressively initiate policies to change the expenditure pattern in the country that would stimulate the economy towards rapid and sustained economic growth path, and create enabling environment in order to attract more of foreign investments in the country through tax incentives, development of infrastructural facilities, and improvement of the institutional qualities and capabilities of the state. More so, training of human capital to augment increasing FDI in Telecommunication in the country to achieve economic growth is imperative.

Keywords: *Economic Growth, Foreign Direct Investment, Government Expenditure and Telecommunications*

JEL Classification: *O47, E62, L96*

INTRODUCTION

Most developing countries of the world desire to achieve rapid economic growth (Bansal and Gupta, 2013). But as observed by Todaro and Smith (2011), growth in these countries is constrained by a number of factors. First, developing countries suffer from a shortage of capital. As demonstrated by the Harrod-Domar Growth Model, economic growth depends critically on the national savings ratio (Harrod, 1960; Domar, 1957). But typically, in developing economies, for various reasons which have been formalised in the ***Vicious Cycle of Poverty*** thesis, savings are low owing to their low level of income (Jhingan, 2003b). More specifically, the domestic savings ratio is less than what is required to attain the desired rate of growth. Second, the economies of developing countries depend heavily on the importation of capital goods, intermediate goods and raw materials to finance industrial expansion and meet the ever rising demand for consumer goods. The effects of these constraints later came to be formalised in the Two-Gap Model (Todaro & Smith, 2011). The contribution of Foreign Direct Investment (FDI) to economic growth has long been recognized in the literature and is thought to be especially important for developing countries most of which are short of capital and have inadequate access to modern technology (Rehman, Ilyas, Alam & Akram, 2011). FDI is widely regarded as a means for filling these two gaps as it supplements national savings as well as increases the supply of foreign exchange to the economy. Additionally, FDI is

said to assist in the transfer of modern technology to these countries. In general, FDI serves as a vehicle for transferring resources and technology across national borders (David, Sekuru, Mohammed, Elijah & Adejo, 2013). It is also seen as an integral part of an open and effective international economic system and a major catalyst to development (OECD, 2012). Economic literature identifies technology as perhaps the most important channel through which foreign corporate presence can produce positive externalities in the host developing economy (OECD, 2012). Falki (2009) further argues that FDI increases employment, enhances productivity, and boosts exports and the transfer of technology in the host economy. Similarly, Khan (2007) has observed that it has emerged as the most significant source of external resource flows to developing countries over the years and it has become part of capital formation in these countries, although the global distribution of FDI has continued to be uneven. In spite of the perceived benefits, of FDI, considerable doubts arose about its desirability from the Second World War, especially in developing countries. The fears centred on the possible domination of these countries by the donor countries, thus undermining the latter's economic and national security. This perception greatly impeded the flow of FDI to these countries. However, from the 1970s, the world became increasingly interdependent and the need for closer relations among countries, especially developing nations became apparent. Thus, the role of FDI as a roadway to success for economic development for developing economies came to be emphasised (Bakar, Mat & Harun, 2012). Economic history provides evidence that some now developed nations achieved *developed* status with the assistance of foreign capital. For instance, England borrowed from Holland in the 17th and 18th centuries; the United States borrowed from England and France; Russia (earlier Union of Soviet Socialist Republics) borrowed from the United States; and China obtained financial assistance from Russia (Bansal & Gupta, 2013).

Policy makers realized the need for Nigeria to tow the path of these countries in order to attain her development objective early. This accounts for the various efforts of government aimed at attracting foreign direct investment into the country. According to Aremu (1997), Nigeria has adopted a number of measures to improve the growth and development of the domestic economy, one of which is boosting the flow of FDI into the country. Early efforts in this direction include the generous fiscal incentives to *pioneer* industries. But, like most other developing countries, Nigeria appears not have fully exploited the opportunity to bring in foreign capital as evidenced by the hostile investment climate (Asiedu, 2002). Consequently, Nigeria which is regarded as the Giant of Africa remains poor and underdeveloped (Ogunleye, 2014). This situation has been attributed partly to the slow rate of inflow of FDI into the country owing to its unattractiveness to foreign investors (Anyadike, 2012). Several studies have shown that inadequate infrastructural facilities serve as a major obstacle to the flow of FDI into a country (Ahmad, Ismail & Nordin, 2015; Ogunleye, 2014; Bakar, Mat & Harun, 2012; Wheeler & Mody, 1992). Others argue that the inflow of FDI exerts a strong positive influence on infrastructural development (Stefanovic, Markovic & Cirilovi, 2015; Bansal and Gupta, 2013). The inability of Nigeria in particular and African countries in general to enhance the development of their infrastructure has been a disincentive to foreign investors who wish to invest in the region (Ogunleye, 2014). However, Dinda (2009) and Asiedu (2006) maintain that a large natural resource base, openness, a large market,

lower inflation, good infrastructure, an educated population, exchange rates, political stability and a reliable legal system are significant determinants of FDI flow to Nigeria. On the other hand, Anyanwu (1998) identifies change in domestic investment, change in domestic output or market size, indigenisation policy, and change in openness of the economy as major determinants of FDI.In view of its vast natural resources and large market, Nigeria is one of the top three African countries in terms of the volume and consistency of FDI inflow. In recent years, the telecommunications sector has emerged as one of the largest recipients of FDI in Nigeria (Onakoya, Tella & Osoba, 2012). The FDI inflow in the Telecommunications sector in Nigeria increased drastically from ₦80.4 million in 1986 to ₦485.6 million and ₦8291 million in 1996 and 2006 respectively. The inflow increased to ₦8506.4 million in 2014 (Ezeanyeji & Ifebi, 2016).). Despite the current economic downturn, investments in the Nigeria's telecommunications sector has continued to show strong signals with the sum of $35 billion from foreign direct investments in 2016 (Osuagwu, 2016). Indeed, the telecommunications sector has attracted the largest FDI-financed capital projects in Nigeria (accounting for 24% of all FDI flow into Nigeria between 2007 and 2013) and the second in Sub-Saharan Africa. As a result, the average annual rate of growth of teledensity in Nigeria over the period 1986 to 2010 was 16.3% (Adepetun, 2014). Nigeria has thus established itself as the largest telecommunications market in Africa as the sector undergoes quick transformation on account unprecedented growth and rapid infrastructure development. Liberalisation of the sector combined with increased competition has brought substantial benefits to the consumer in terms of lower subscription rates and enhanced choice. Of recent, the mismatch between the continuous heavy inflow of FDI into the telecommunications sector and the performance of the sector in terms of aggregate contribution to the Gross Domestic Product has raised a question mark over the role of FDI in telecommunications in promoting economic growth in Nigeria (Onakoya, Tella & Osoba, 2012). The contribution of the telecommunications sector to the Gross Domestic Product (GDP) in Nigeria has recorded ₦129.4 million in 1986. The contribution remained in hundreds of millions until 2001 when it increased to ₦2,398.68. The Nigerian economy had however, recorded increased contribution of FDI to GDP in 2013 to ₦6,621,734.16 million but suddenly declined to ₦5,420,654.36 million in 2014 (Osuagwu, 2016). For instance, Karna and Onyeji (2007), Chia and Ogbaji (2013) and Lawal and Ijishar (2015) found a positive but statistically insignificant relationship between FDI and economic growth in Nigeria. It is against this background that this study set out to examine the effect of FDI on the economic growth of Nigeria.

CONCEPTUAL CLARIFICATION

Foreign Direct Investment (FDI)

Lipsey and Chrystal (2004) define FDI as "non-resident investment in the form of a takeover or capital investment in a domestic branch, plant or subsidiary corporation in which the investor has voting control". The International Monetary Fund (IMF, 1993, section 359) defines FDI as "an investment that reflects the objective of obtaining a lasting interest by a resident in another economy.... the lasting implies the existence of a long-term relationship between direct investor and the (foreign) enterprise and a significant degree of influence by the investor on the management of the enterprise". According to Todaro and Smith (2009), FDI is the investment made by large

multinational corporations outside the country with their headquarters. A multinational corporation is an enterprise or corporation that conducts and controls productive activities on more than one country. Foreign direct investment has many advantages for both the investor and the recipient. At the micro level, one of the primary benefits is that it allows funds to freely flow to whatever business has the best prospects for growth anywhere in the world. That is because investors aggressively seek the best return for their money with the least risk. Businesses benefit by receiving management, accounting or legal guidance in keeping with the best practices practiced by their lenders. They can also incorporate the latest technology, innovations in operational practices, and new financing tools that they might not otherwise be aware of. At the macro level, the standard of living in the recipient country is also improved by higher tax revenue from the firms that received the foreign direct investment. However, sometimes countries neutralize that increased revenue by offering tax incentives to attract the FDI. Another advantage of FDI is that it can offset the volatility created by hot money. However, a high concentration of enterprises in the hands of foreigners can be a problem especially in industries that are strategically important. More so, sophisticated foreign investors can use their skills to strip the company of its value without adding any. They can sell off unprofitable portions of the company to local, less sophisticated investors. Or, they can borrow against the company's collateral locally, and lend the funds back to the parent company (IMF, 2015)

Overview of Telecommunications Industry in Nigeria

Telecommunications, that is, "communicating over a distance", has actually existed for thousands of years, from the smoke signals by the Indians, to lighthouses' communication with ships, to the invention of the telephone by Alexander Graham Bell in 1887 (Fatoki, 2005). But, telecommunications facilities in Nigeria were first established in 1886 by the colonial administration. At independence in 1960, with a population of roughly 40 million people, the country had only about 18,724 telephone lines for use. This translated to a teledensity of about 0.5 telephone lines per 1,000 people (Fatoki, 2005). Between 1960 and 1985, the telecommunications sector consisted of the Department of Posts and Telegraphs (P&T) in charge of the internal network and a limited liability company and the Nigeria External Telecommunications (NET) Limited, responsible for the external telecommunications service providing the gateway to the outside world. The installed switching capacity at the end of 1985 was about 200,000 lines as against the planned target of about 460,000. All the Switching exchanges were analog systems. Hence, Nigerian Telecommunications Limited (NITEL) was therefore formed in 1985 with the main objective of harmonising the planning and coordination of the internal and external telecommunications development and providing accessible, efficient and affordable services (Terplan, 2000: Fatoki, 2005). The establishment of Nigeria Communication Commission (NCC) in 1992 removed the monopoly enjoyed by the government communication institutions and by 2001 three GSM operators (MTEL Limited, ECONET Nigeria Ltd and MTN Communications Nigeria Ltd.) were licensed. This major achievement in telecommunication infrastructure increased the teledensity from 0.71 in 2001 to 63.11 in December 2010 (Nigeria Communication Commission, 2011). In Nigeria, the entrance of Global System for Mobile Communications (GSM) operators from 2001 has positive impact on the

culture and life of Nigerians in terms of generating employment for many unemployed able persons. As at 2007, the industry directly employed about 10,000 professionals and was indirectly responsible for another 1,000,000 jobs (Tella, Amaghionyeodiwe & Adesoye, 2007). The industry received global acclaim as one of the fastest growing mobile markets in the world (Ndukwe, 2006). Tis phenomenal growth was made possible substantially by the massive inflow of Foreign Direct Investment (FDI) into the country, supplemented by increased private investment. FDI accounted for about $18billion in December 2010 (NCC, 2011). Recently, the average annual growth rate of teledensity in Nigeria from 1986 to 2010 was 16.3 percent. Nigeria was adjudged to be among the top three destinations for foreign direct investments in Africa which have attracted the largest FDI capital projects and as well as being in terms of FDI second most FDI projects in Sub-Saharan Africa (Adepetun, 2014). The contribution of the communications sector to Real Gross Domestic Product (RGDP) increased from ₦0.87 billion in 1981 to ₦2.24 billion in 1991. The contribution further increased to ₦9.34 billion and ₦366.87 billion in 2001 and 2013 respectively. While the contribution of Telecommunication stood at ₦0.77 billion in 1981 it rose sharply to ₦2.13 billion, ₦8.72 billion and ₦364.5 billion in 1991, 2001 and 2014 respectively (CBN, 2014). However, in spite of its impressive performance, the telecommunications sub-sector is still plagued with a number of problems such as poor public power supply, poor security, vandalized infrastructure, high import duty, anti-competitive practice, finances and high operational costs.

Economic Growth

Jhingan (2003a) defines economic growth as "as quantitative sustained increase in the country's per capita output or income accompanied by expansion, capital and volume of trade. Todaro and Smith (2007) have defined economic growth as "a steady process by which the productive capacity of an economy is increased overtime to bring about rising levels of national output and income". Economic growth is the increase in the amount of goods and services produced in an economy overtime. It is conventionally measured as the per cent rate of increase in the real gross domestic product, or real GDP. Growth is usually calculated in real terms, inflation adjusted terms, in order to net out the effects of inflation on the prices of the goods and services produced. Sometimes, it is calculated as the rate of increase of real per capita income over time to take account of the effect of population growth.

THEORETICAL LITERATURE

The Eclectic Theory describes FDI as a non-zero sum game, being the most profitable form of investment for some oligopolistic industries and at the same time serving as a tool of economic progress of the host countries in LDCs. The eclectic theory is associated with Dunning (1981). The theory postulates that the special factors of both the investing foreign firm and the host country are necessary for a firm's foreign investment and for the firm to make positive contribution to the economic growth of the host country. This can be expressed in a functional model as:

GDP=f(foreign investment) - - - - - - - (1)

Vernon (1966) proposed a product lifecycle model that focused on the location tied characteristics of nations as different development levels to explain directions of FDI.

Both of these models leaned on structural imperfections in markets to explain FDI and led to what has been called the strategic behavior approach to international business (Graham, 1974; Knickerbocker, 1973). The Eclectic Model has pulled together the key elements of neo-classical theory such as: location (industrial organization theory), monopolistic advantage and internalization theory (transactional efficiency). Dunning (1988) describes three essential factors for international expansion or that encourage FDI and local production, viz: ownership factors which are unique competitive or monopolistic advantages, typically developed in the home market that permit the firm to compete successfully in overseas markets; location factors (immobile factors) which are tied to the local foreign market make production in the host country preferable; and internalization factors which are typically related to the industry that produce transactional market failure in transferring ownership advantages to foreign markets (Tallman, 2015). According to Tallman (2015), the major objective of foreign direct investment in the Eclectic Model is to bring internationally mobile, firm-specific resources into contact with complementary location-tied resources to produce more effectively for the local market. Thus, the implication of this theory to the Nigerian economy is that, the nation has abundant, untapped and even undiscovered natural resources as its "location specific advantage" which can be used maximally to stimulate economic growth and development.

EMPIRICAL REVIEW

Ezeanyeji and Ifebi (2016) studied the impact of foreign direct investment on sectoral performance in the Nigerian economy with special reference to the Telecommunications Sector using Ordinary Least Square (OLS) method. The study covered the period 1986 to 2014. The study showed that foreign direct investment has contributed significantly to the performance of the telecommunications sector in terms of its contribution to the Gross Domestic Product of Nigeria. The study therefore recommended that the government should initiate policies that will promote the long-run growth of the telecommunications sector and the economy at large; infrastructural facilities such as power supply should be efficiently provided and focus on maintaining political stability which should serve as key to sustainable growth and development of the telecommunications sector of the Nigerian economy. Gul and Naseem (2015) analyzed the impact of FDI and trade openness on economic growth of Pakistan using time series data from 200 to 2013. The study used co-integration analysis and found that FDI, trade openness and domestic capital positively effects economic growth. The study therefore recommended that the government should take solid steps in order to increase FDI, exports and domestic investment and protect industries that would benefit the country's economic condition and take measures in order to stabilize the exchange rate that may attract more investors for sake of higher profits. Lawal and Ijirshar (2015) examined the effect of Foreign Direct Investment (FDI) on economic growth in Nigeria from 1970 to 2013. The study used econometric techniques of Augmented Dickey-Fuller (ADF) unit root test, pairwise granger causality test, Johansen co-integration test and error correction model (ECM) for to analyse the data. The results of the unit root showed that all the variables in the model were integrated at first difference while a pairwise Granger causality test revealed a unidirectional relationship between Foreign Direct Investment (FDI) and Economic growth (GDP) in Nigeria and no causal relationship between

Foreign Direct Investment and the unemployment rate. The co-integration test showed that a long-run equilibrium relationship existed among the variables captured in the model. FDI had a positive but not statistically significant relationship with Nigeria's economic growth in both the short and long run. The study recommended that the government needed to aggressively initiate policies to channel the nation's domestic savings for investment purposes and enact policies to train human capital to augment increasing FDI into the country to stimulate the economy. Adeleke, Olowe and Fasesin (2014) analyzed the impact of foreign direct investment on Nigeria economic growth over the period of 1999 to 2013 using ordinary least square (OLS) as the estimation technique. The study found that economic growth was directly related to inflow of foreign direct investment and it was also statistically significant at 5% critical level. The study recommended that government should liberalize the foreign sector in Nigeria so that all barriers to trade such as arbitrary tariffs; import and export duties and other levies should be reduced so as to encourage foreign investors. Imoughele and Ismaila (2014) investigated the impact of components of inflow of FDI on the Nigerian economy for the period which spanned between 1986 and 2009. The trend analysis showed that FDI inflow to the Nigerian economy was dominated by foreign investors from Western Europe which was highly concentrated on the manufacturing sector. The study used co-integration and Error Correction Mechanism (ECM) and found that continuous inflow of foreign direct investment in mining and quarrying, telecommunications, building and construction, trading and business and agricultural sectors had a robust impact on Nigeria's economics growth. The study recommended that there is need for government to consciously improve the business environment by conscious provision of necessary infrastructure, which would lower the cost of doing business in Nigeria, and adequate macroeconomic policies that would open up the economy should be put in place to encourage foreign direct investment inflow and make Nigeria an export platform, where export commodities could be manufactured for established international market, as this would help to strengthen Nigeria's Balance of Payment position (BOP).

Asogwa and Osondu (2014) investigated the impact of FDI on economic growth using quarterly data covering 1980Q1-2009Q4. The results from the study using econometric techniques showed that FDI into manufacturing and telecommunications sector has positive impact on economic growth in Nigeria while FDI in agricultural sector impacted on economic growth negatively. The findings from granger causality test suggested that FDI in agriculture, manufacturing and telecommunications sector have a unidirectional relationship with economic growth in Nigeria. Hence, suggesting the need for a strong legal framework for property right protection that could serve as an incentive to attract more foreign investors. Saibu and Keke (2014) examined the impact of Foreign Direct Investment on economic growth using annual time series data from the Nigerian economy. Cointegration and Error Correction Mechanism (ECM) techniques were employed to empirically analyze the relationship between foreign direct investment and economic growth. The result showed that there was a substantial feedback of 116% and 78% from previous disequilibria between long-run economic growth and foreign private investment respectively. The findings also indicated that a substantial proportion of capital inflow was not productively invested. However, the relatively small proportion (22%) of net capital inflows invested, contributed significantly to economic

growth in Nigeria. The study concluded that there was a high prospect for foreign private investment to boost economic growth if a conducive environment, including political and macroeconomic stability, is provided in Nigeria. Chia and Ogbaji (2013) investigated empirically the relationship between foreign direct investment and economic growth in Nigeria covering the period 1981 to 2009. A growth model via the Ordinary Least Square method was used to ascertain the relationship between FDI and economic growth in Nigeria, and sectorial composition table of FDI in Nigeria from 1970–2001. The result of the OLS techniques indicated that FDI had a positive and insignificant impact on the growth of the Nigerian economy during the period under study. They recommended that government should provide an enabling environment that would encourage foreign investors to invest in Nigeria by addressing the security challenges in the country, improving the regulatory framework as well as encouraging domestic investment. Alege and Ogundipe (2013) investigated the relationship between foreign direct investment and economic growth in ECOWAS using the System-GMM panel estimation technique covering the period 1970 to 2011. However, the results of the System-GMM appears contrary to earlier study findings, as the contribution of FDI was insignificant and impacts negatively on growth in ECOWAS despite the controlling for the role of human capital and quality of institutions in the model. Following this outcome, policy makers in developing Africa were advised to exercise cautions in adopting the recommendations from earlier studies; most of which advocates more openness, human capital development and the strengthening of institutions as this might not be completely helpful considering the pattern of FDI inflow into ECOWAS, which is absolutely resource seeking. Kurtishi-Kastrati (2013) examined the effects of foreign direct investment on host country's economy using descriptive statistics.

The study found that, to net the maximum benefits from foreign corporate, a healthy enabling environment for business is paramount, which encourages domestic as well as foreign investment, provides incentives for innovation and improvements of skills and contributes to a competitive corporate climate. The study also found that the net benefits from FDI do not accrue automatically. Hence, level of technological, educational and infrastructure achievement in a developing country does, other things being equal, equip it better to benefit from a foreign presence in its market. Juma (2012) examined the effect of FDI on economic growth in Sun-Saharan African region using data from 43 countries covering the period 1980 to 2009. The study used ordinary least squares regressions with country fixed effects. The results from the study showed that FDI is associated with higher growth in Sub-Saharan Africa, particularly after the exclusion of outliers. The study also found that there was statistically significant difference between the two sets of countries (mineral-rich versus mineral-poor countries) and concluded that FDI had a positive effect on growth in Sub-Saharan Africa, and that African policy makers are justified in seeking FDI as a way to accelerate growth in the future. Karner and Onyeji (2007) examined the contribution of telecommunication private investment to economic growth in Africa and Central and Eastern European Countries (CEECs) using graphical and regression analysis. Data for fourteen African countries and thirteen CEE countries were used for the empirical analysis. The time series data was from 1999-2005. The contribution of telecommunication private investment to economic growth was estimated to be positive but insignificant in the pooled regression analysis. After

controlling for country specific effects and causality, the effect of telecommunication private investment on GDP was found to be positive and significant. However, the positive impact on GDP was not substantial. When a cross-sectional test was carried out, the contribution of telecommunication private investment to economic growth was discovered to be positive except in 2005, and was also seen to be statistically significant up to 2002. The contribution of the mobile subscribers to economic growth was found to be positive and significant both in the pooled and cross-sectional regression analysis. From the above review, it can be deduced that little or no empirical study was found on the impact of foreign direct investment in telecommunication on economic growth in Nigeria. The methodological framework used by the few available empirical literature were questionable thereby making the results or their findings biased and unreliable which forms the novelty of this research.

METHODOLOGY

This paper is fundamentally analytical as it used only secondary data. The econometrical test of Auto Distributed Lag (ARDL) Model was used while ADF was also used for the diagnostic check of unit root problem. Data were sourced on Gross Domestic Product (GDP) at 2010 constant basic prices, Gross Domestic Savings (GDS), Government Expenditure (GEX) and the inflow of Foreign Direct Investment in Telecommunication (FDIT).

Model Specification

Following the functional eclectic model by Dunning (1981) as:

GDP=f(foreign investment) - - - - - - - (2)

According to Tallman (2015), the major objective of foreign direct investment in the Eclectic model is to bring internationally mobile, firm-specific resources into contact with complementary location-tied resources to produce more effectively for the local market. Hence, incorporating other determinants of economic growth such as; government expenditure, gross fixed capital formation, trade openness and exchange rate, the model can be re-stated in an implicit form as:

RGDP=f (FDIT, GEXP, GFCF, OPNS, EXRR) - - - - (3)

Where:

RGDP = Real Gross Domestic Product in Nigeria
FDIT = Foreign Divert Investment in Telecommunication
GEXP = Government Expenditure
GFCF = Gross Fixed Capital Formation
OPNS = Trade Openness ((Exports + Imports)/GDP)
EXRR = Exchange rate

From equation (2), an econometric model can be stated as (taking the natural logarithm):

$$\ln RGDP = \beta_0 + \beta_1 \ln FDIT + \beta_2 \ln GEXP + \beta_3 \ln GFCF + + \beta_4 \ln OPNS + \beta_5 \ln EXRR + U \quad (2)$$

Where:

β_0= intercept
$\beta_1 - \beta_5$ =Coefficients
U = Stochastic Error Term
ln=Natural Logarithm

Economic theory states that economic growth emanates from accumulation of factors of production. β_0 is a constant factor and represents the level of economic growth, holding all the explanatory variables constant. This is expected to be positive. β_1, β_2, β_3, and β_4 are also expected to be positive while β_5 is expected to be positive. This means that an increase in any of the variables leads to an increase in economic growth except exchange rate.

DATA ANALYSIS AND INTERPRETATION

Descriptive Statistic

The descriptive statistic for the data on the variables incorporated in the model indicates that RGDP, GEXP, GFCF and EXRR with in the period under study were negatively skewed while data for FDIT and OPNS were positively skewed. The results further revealed Jarque-Berra statistic of 4.866541, 1.261195, 2.548247, 1.943604 and 3.751613 for RGDP, FDIT, GEXP, GFCF, OPNS, and EXRR with their respective probability values of 0.107203, 0.532274, 0.21269, 0.279676, 0.378041 and 0.153231. The results of Kurtosis which explains the peakness and flatness of a normal curve also shows that RGDP has leptokurtic shape while all other variables (FDIT, GEXP, GFCF, OPNS and EXRR) had platykurtic shape. This implies that foreign direct investment in telecommunication is relatively less volatile in Nigeria to RGDP.

Unit Root Test Results

The results of the unit root test are presented in Table 1.

Table 1: Results of Unit Test Results

Variables	At Level	First Differences	Prob.	Order of Integration
lnRGDP	-1.514216	-5.696210	0.0000	I(1)
lnFDIT	-0.788961	-10.92836	0.0000	I(1)
lnGEXP	-0.269166	-6.418742	0.0000	I(1)
lnGFCF	0.444412	-4.203911	0.0025	I(1)
lnOPNS	-2.276983	-5.749351	0.0000	I(1)
lnEXRR	-2.038658	-4.841457	0.0005	I(1)

Source: Authors' Computation from E-views 9.5 Output

The result of unit root test (ADF) presented in Table 1 shows that all the variables (RGDP, FDIT, GEXP, GFCF, OPNS and EXRR) were not stationary at level but were integrated at order one (that is, achieved stationarity after the first difference) at 5% level of significance.

ARDL Optimal Lag Selection

Since the data on variables for this study are integrated of order one I(1), it is appropriate to use the Auto regressive distributed lag (ARDL) method. To select the optimal lag order for this series, Akaike Information Criterion was used. The results of the top 20 models are presented in Figure 1.

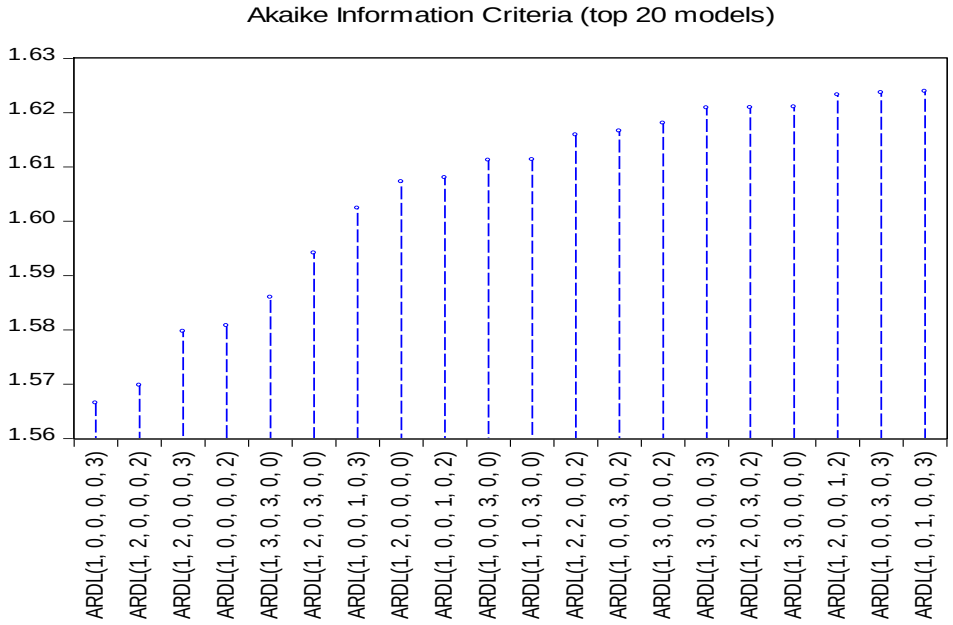

Figure 1: ARDL Optimal Lag Selection Results

The results in Figure 1 shows that using the lag length of 3, the selected lags for the optimal estimates of the model is the one with the least Akaike Information Criterion (that is 1,0,0,0,0,3) as compared to other models.

The Impact of Foreign Direct Investment in Telecommunications on Economic Growth in Nigeria

Determination of long-run relationship

In order to know whether long-run relationship exists among variables in the model, ARDL Bounds test was conducted and the results are presented in Table 2.

Table 2: ARDL Bounds Test Results

Test Statistic	Value	K
F Statistic	11.21284	5
	Critical Value Bounds	
Significance	I0 Bound	I1 Bound
10%	2.08	3
5%	2.39	3.38
2.5%	2.7	3.73
1%	3.06	4.15

Source: Authors' Computation from E-views 9.5 Output

Result in Table 2 indicates that there is long-run relationship among variables incorporated in the model. This is because the F Statistic value of 11.21284 is greater than the Pesaran upper bound critical value of 3.38 at 5% level of significance. Given that there is long-run relationship among the variables, the ARDL long-run coefficients were estimated and the results are presented in Table 3.

Table 3: Long Run Coefficients

Variable	Coefficient	Std. Error	t-statistic	Prob.
lnFDIT	0.161031	0.063909	2.519692	0.0184*
lnGEXP	0.419287	1.038626	0.403694	0.6905
lnGFCF	1.937868	0.908114	2.133947	0.0448*
lnOPNS	0.083361	0.235067	0.354628	0.7264
lnEXRR	1.362556	0.661974	2.058321	0.0522
C	23.864314	9.274662	2.573066	0.0177*

Source: Authors' Computation from E-views 9.5 Output * denotes significance at 5% critical level.

Result in Table 3 shows a positive long-run relationship between Foreign Direct Investment in Telecommunication (FDIT) and Real Gross Domestic Product (RGDP) in Nigeria. The coefficient of foreign direct investment in telecommunications is theoretically plausible and statistically significant at 5% level of significance. The results show that a percentage increase in foreign direct investment in telecommunications significantly leads to a 16% increase in the real GDP of the country in the long-run. This finding is contrary to the findings of Karner and Onyeji (2007) and Lawal and Ijirshar (2015) who found positive impact on GDP but was not substantial or significant. However, the finding is consistent to the finding of Ezeanyeji and Ifebi (2016), Adeleke, Olowe and Fasesin (2014), Imoughele and Ismaila (2014), Asogwa and Osondu (2014) and Saibu and Keke (2014) who found the positive influence of foreign direct investment in telecommunications on economic growth in Nigeria. The study findings showed a positive and significant impact of Gross Fixed Capital Formation (GFCF) on economic growth in Nigeria at 5% level of significance. Other variables such as: government expenditure, trade openness and exchange rate showed positive coefficients but were not statistically significant at 5% critical level. The positive relationship between gross fixed capital formation and real GDP shows that the rate of gross fixed capital formation in Nigeria contributes significantly to RGDP. All the parameter estimates for the variables incorporated in the model have revealed a positive relationship but the estimate for exchange rate is contrary to the theoretical expectation. The results of the residual tests and stability of the long-run model are presented in Table 4.

Table 4: Residual and Stability Analysis Results

Test	F Statistic (Jaque-Bera)	Probability
Breusch-Godfrey serial correlation LM Test	1.513652	0.4692*
Breusch-Pagan-Godfrey Heteroscedasticity Test	12.90289	0.1670*
Jaque-Bera Normality Test	(5.048422)	0.080122*

Source: Authors' Computation from E-views 9.5 Output * shows acceptance of the null hypothesis

Results in Table 4 show that there is no serial correlation among the residuals as indicated by the Breusch Godfrey serial correlation LM Test. The Breusch-Pagan-Godfrey Heteroscedasticity Test result also proves that the residuals have a constant variance and the Jaque-Bera Normality Test result affirms that the residuals are

multivariate normal. On stability testing, the CUSUM test (Cumulative Sum of Squares) at 5% level of significance show that the model and its parameter estimates are stable.

Short-run Dynamics

Given the long-run relationship among the variables, it is imperative to check the speed of adjustment towards long-run equilibrium in case of initial disequilibrium in the system. Thus, Error Correction Term (ECT) is therefore used to correct or eliminate the discrepancy that occurs in the short-run. It gives the percentage of the discrepancy between the variables that can be eliminated in the next time period. The results are presented in Table 5.

Table 5 Short-Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
lnFDIT	0.003140	0.222407	0.014119	0.9888
lnGEXP	0.061464	0.488216	0.125895	0.9008
lnGFCF	0.485037	0.395258	1.227142	0.2308
lnOPNS	0.131495	0.094804	1.387025	0.1772
lnEXRR	0.416041	0.227352	1.829943	0.0787
ECT(-1)	0.724995	0.154684	4.686936	0.0001
C	16.40297	3.912111	4.192868	0.0003

Source: Extracted from E-views 9.5 Output

The results in Table 5 reveal that all the variables had positive relationship with economic growth in Nigeria in the short-run. The ECT(-1) value of 0.724995 means that even when economic growth drift away from equilibrium in the short-run, it has the ability to adjust to long-run equilibrium at 72% yearly as shown in Table 6. This implies that the system corrects the initial disequilibrium to long-run equilibrium at the rate of 72%.The F-statistic value of 6.577 with the probability value of 0.000256 shows the collective significance of the model. The coefficient of multiple determinations (R^2) shows that the model has good fit as the independent variables were found to jointly explain 90.28% of the movement in the dependent variable with the R^2-adjusted of 86.11%. Residual tests were conducted and the results were presented in Table 6.

Table 6: Residual and Stability Analysis Results

Test	F Stat	Prob
Breusch-Godfrey serial correlation LM Test	0.58116	0.7679*
Breusch-Pagan-Godfrey Heteroscedasticity Test	7.675581	0.2628*
Jaque-Bera Normality Test	2.048422	0.180122*

Source: Authors' Computation from E-views 9.5 Output * shows acceptance of the null hypothesis

Result from Table 6 shows absence of serial correlation among the residuals as indicated by the Breusch-Godfrey serial correlation LM Test. The result of Breusch-Pagan-Godfrey Heteroscedasticity Test result also proves that the residuals have a constant variance in the short-run and the Jaque-Bera Normality Test result affirms that the residuals are multivariate normal in the short-run. The stability test of the estimates also

shows that the model and its parameter estimates are stable through the use of the CUSUM test (Cumulative Sum of Squares) at 5% level of significance.

CONCLUSION/RECOMMENDATIONS

Based on the empirical evidence, we can conclude that, foreign direct investment in telecommunication has a significant positive impact on the growth of the Nigerian economy in the long run but not in the short run since funds were yet to yield productive standard that would contribute significantly to economic growth of the country. The study therefore recommended that:

i. The Nigerian government should create enabling environment in order to attract more of foreign investment in the country through tax incentives, development of infrastructural facilities, and improvement of the existing weak institutional qualities and capabilities of the state such as; ineffectiveness, corruption, lacks of regulatory quality, insecurity and political instability that can facilitates smooth process of rule of law and effectiveness of available funds/guaranteed investments in transforming long term growth to development.
ii. The Nigerian government and the private sector should enact policies to train human capital to augment increasing FDI in Telecommunication in the country to achieve economic growth of the country which paves way for wealth creation and employment generation.
iii. The Nigerian government needs to aggressively initiate policies to change the expenditure pattern in the country that would foster or stimulate the economy towards rapid and sustained economic growth. This can be done through cutting of recurrent expenditure and release more resources for capital projects which have direct bearing on productivity and growth.

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