FOREIGN DIRECT INVESTMENT IN TELECOMMUNICATIONS SECTOR AND ECONOMIC GROWTH IN NIGERIA

BY

ADESANYA, TENIOLA ABOSEDE
Department of Banking and Finance,
The Polytechnic, Ibadan, Oyo State, Nigeria.
Email: tennytone@yahoo.com
Phone: 08034335938

AND

AJALA, OLUFUNMILAYO ADEKEMI
Department of Banking and Finance,
The Polytechnic, Ibadan, Oyo State, Nigeria.
Email: adekemiajala@gmail.com
Phone: 08033752838

ABSTRACT

Foreign direct investment plays a vital role to make substantial contribution to the economic growth by investing in sectors such as telecommunications and bringing along with other indirect positive impacts including transfer of technology, training, skills, employment, to name just a few, which all contribute to the long term development of the recipient countries. This paper, therefore, examines the impact of FDI inflow in telecom sector on economic growth. The paper makes use of extensive data covering 1985-2015 using the Error Correction Model. Based on the findings there has been a great improvement in the contribution of FDI in telecommunications to the economic growth within GSM period when compared with before GSM when the sector could not fully achieved her statutory function in Nigeria. The paper, therefore, concludes that there is significant and positive relationship between FDI in telecommunications and the economic growth. This paper recommends that Government should provide an enabling environment for the investors in order to sustain the trend of inflow of FDI into the economy.
I. INTRODUCTION

The current pace of globalization has made virtually no nation of the world totally self-dependent without having to rely on other nations. The reality of this development, over the years has made interaction through communication paramount in human development endeavour. This means that the ability to communicate over a wider range of distance has in one way or the other engendered business growth all over the world. It is in relation to this perception that the current age is termed the JET age where digital world is taking the lead.

The telecommunications aspects of the global ICTs are driven by various gadgets that facilitate the exchange of information between a given set of people. The telecommunications sector, or telecom as aptly called, is the transmission of signals, messages, writings, images, and sound or intelligence of any nature by wire, radio, optical or other electromagnetic systems within a range of distance. It began with the invention of the telegraph using analogue signals in 1837, followed by the telephone in 1876. Since both analog and digital communications are based on electrical signals, transmitted data is received almost instantaneously, regardless of the distance, people communicate with each other faster than before at the national or global front (Ajala & Adesanya, 2017)

At independence, the control of Nigeria’s telecommunications sector, was vested in the Nigerian Post and Telecommunications (P&T) owned by the Federal Government. In the early 1980s, Nigerian External Telecommunications (NET) was formed to provide external communications services (Ajala & Adesanya, 2017). Following increased demand for the commercialization of telecommunications services, the Federal Government initiated the merger of NET with the telecommunications arm of P&T to form the Nigerian Telecommunications Limited (NITEL) in 1985, saddled with the sole responsibility of meeting the telecommunications needs of Nigeria. At this time, the telephone
system was unreliable, congested, expensive and unfriendly to customers. The main objective of establishing the NITEL was to harmonize the planning and coordination of the internal and external telecommunications services, rationalize investments in telecom development, provides accessible, efficient and affordable services (Oghojafor, Ladipo, Ighomereho & Odunewu, 2014)

Regrettably, NITEL which held a monopoly in the market for more than a decade was unable to meet the growing demand for telecommunications services by Nigerians. The company’s ascendancy was marked by frustratingly long queue for connections as well as poorly maintained and scanty infrastructure. At independence, the country had only 18,724 telephone lines (Ndukwe, 2003). Up till 2001 when telecom was fully deregulated, NITEL could not expand its capacity beyond 700,000 lines, thus limiting access to information and communications technology (ICT) in Nigeria. More than 50 per cent of the lines were in federal and state government offices, Multinational oil companies and other large corporations. The situation was so bad that even with the reportedly connected lines 35% were not functioning (Afeikhena, 2002).

In the early days of mobile system of communication in Nigeria, only the rich could actually afford the services. This period is termed the first generation of mobile telephony. The analog cellular was used, which basically allowed for voice communication only. This generation of mobile phones appeared not to exist in Nigeria since very few people really knew about cellular phones and was only available to a few percentage of the population. The use of land phone was therefore still pertinent in the country oriented services. Analog cellular was, therefore, regarded as a precious object to possess and those who had it were highly regarded (Akonumah, 2018).

During this period of mobile telecommunications, Nigerian phone users were confined to the use of fixed-phone communication
system. It was therefore common sight to see long queue at phone
booths, with everyone waiting for his or her turn, this is because
only a few could afford to own land line due to high cost of
connection, therefore callers opted for unit cards for public phone
booths which were a bit affordable Akonumah (2018),

However, Decree 75 of 1992 allowed private sector participation
in the sector and expanded the nation's communication facilities
(Onakoya, 2013). NITEL, the monopolistic state-owned enterprise
was commercialized and floated as Public Limited Company
(PLC) in 1992, although its shares were fully owned by the
government. The Nigerian Communications Commission (NCC)
was established by statute in 1992. The agency was given a
mandate to issue license to private companies to participate in
telecommunications business in Nigeria. It also encouraged
Foreign Direct Investments (FDI) into the telecommunications
sector in order to beef up healthy competitions among providers
and create new employment opportunities and enable the springing
up of indigenous telecommunications companies. Consequently,
many telephony service providers emerged; such as MTN and
AIRTEL (Oji-Okoro, 2010).

There are several problems that could be traced to non-performing
of telecommunications sector in Nigeria, one of it is the single line
of operation by the government in monopolizing its activities in
the telecommunications sector. With the establishment of National
Communication Commission (NCC) in 1992, a mandate to issue
license to private companies to operate in the industry paved way
for Foreign Direct Investment in telecommunications business and
the concomitant effect on level of business performance in
Nigeria. It is widely believed that economic growth depends
critically on both domestic and foreign investments
(Andenyangtso, 2005). Equally, the rate of inflow of foreign
investment depends on the rate of economic growth.
Foreign direct investment plays a vital role to make substantial contribution to the economic growth by investing in sectors such as telecommunications and bringing along with other indirect positive impacts including transfer of technology, training, skills, employment, to name just a few, which all contribute to the long term development of the recipient countries.

In addition, the outstanding increase in FDI inflows demands the analysis of their relationship because the positive relationship between FDI inflows and economic growth cannot be universally agreed and the certainty whether FDI cause economic growth can be varied, yet the critical importance of FDI inflow to one economy cannot be denied. Such an essential issue deserves further investigation for one specific country to clearly identify their linkage, and this is no exclusion for Nigeria. However, empirical studies of the effects of FDI in telecommunications sector on economic growth are concerned with either the overall effect on growth or with specific aspects of contribution of telecommunications sector to Gross Domestic Product (Lim & Moolio, 2013). Thus, the effects of FDI in telecommunications sector on economic growth remains unclear. It is, therefore, necessary to determine the effects of FDI in telecommunications sectors on economic growth in Nigeria. The main research question is how has inflow of FDI to the telecom sector in Nigeria improved the Economic Growth of the country? The objective of this paper, therefore, is to determine the impact of FDI inflow in telecom sector on economic growth.

II. LITERATURE REVIEW
Concept of Foreign Direct Investment (FDI)
FDI is the movement of capital across national frontiers in a manner that grants the investor control over the acquired assets. Firms that use FDI are known as Multi-National Enterprises (MNEs). Production in the host country is largely financed by multinationals and profits accrue to the multinationals through sales made by foreign affiliate. It refers to long term participation
by one country into another and this comes in form of management, joint ventures or transfer of technology and expertise. The preference for FDI stems from its acknowledged advantages (Sjoholm 1999; Obwona, 2001, 2004). The efforts by several African countries to improve their business climate stem from the desire to attract FDI. In fact, one of the pillars on which the New Partnership for Africa’s Development (NEPAD) was launched was to increase available capital to US$64 billion through a combination of reforms, resource mobilization and conducive environment for FDI (Funke & Nsouli, 2003), even in Sub-Saharan Africa as a region, Asiedu (2002) shows that most countries now depend very much on FDI for so many significant number of reasons.

Theoretical Review
Theories relating to Foreign Direct Investment with growth of communications sector and economic growth generally are reviewed.

Theories of Economic Growth
The Neoclassical Growth Theory: Harrod-Domar Growth Model
When it comes to the issue of classical growth model, Harrod (1939) and Domar (1946) assign a key role to investment in the process of economic growth. To these authors, investments create incomes (demand effects of investment) and increase the productive capacity of the economy by increasing its capital stock (supply effect of investment) in as much as net investment continue to expand. One of the tenets of Harrod-Domar (H-D) theory is that to maintain a full employment equilibrium level of income from yearly, it is necessary that both real income and output should keep expanding. Otherwise, any divergence between the two will lead to excess or idle capacity, thus forcing entrepreneurs to curtail their investment expenditures. Ultimately, it will adversely affect the equilibrium path of the steady state of growth of the economy. Also, for full employment to be maintained in the long run, net investment should expand continuously. This further requires continuous growth in real
income at a rate sufficient enough to ensure full capacity use of a growing stock of capital.

The Neoclassical Growth Theory: The Solow Growth Model
In the neo-classical growth fashion, the Solow Growth Model expanded the Harrod-Domar Model which stressed the critical role of savings, investment and capital accumulation. Solow-Swan Model (SSM) basically formalized and expanded the Harrod Model by adding labor, capital, and technology (Ryuzu, 1964). Technology sought to explain the “residual” factor, and was assumed to be determined exogenously. In this model, based on diminishing returns to capital, economies will eventually reach a point where any increase in capital will no longer create economic growth. This point is called a "steady state". The model also notes that countries can overcome this steady state and continue growing by inventing new technologies. In the long run, output per capita depends on the rate of saving, but the rate of output growth should be equal for any saving rate. In this model, the process by which countries continue to grow despite the diminishing returns is "exogenous" and represents the creation of new technology that allows production with fewer resources. Some of the key development Policy implications of the SSM is that output (GDP) grows as a result of three (3) factors: (1) increase in labor quantity and quality, (2) increase in capital (by saving & investment), and (3) by technological progress. By implication as well, Closed Economies grow more slowly than Open Economies, and overall, impeding free trade and foreign investment will slow economic growth (Ritelli, Scarpello & Brida, 2005).

The Big Push and the Schumpeterian Growth Model
Contrary to SSM however, the Big Push Theory (BPT) suggests that countries needed to jump from one stage of development to another through a virtuous cycle, in which large investments in infrastructure and education coupled with private investments would move the economy to a more productive stage, breaking free from economic paradigms appropriate to a lower productivity stage. On this note also, Schumpeterian growth model sees growth as a process of creative destruction, which captures the dual nature of technological progress. To achieve this, they make old technologies or products obsolete. This
destruction is referred as the annulment of previous technologies which makes them obsolete. Theoretically, the aggregate improvement will translate into economic growth (Lingens, 2002).

Theories on Telecom-Economic Growth Nexus
Two schools of thought explain the relationship between telecommunication and economic growth. These are the Technophiles and the Technophobic. The technophiles believes that telecommunication has a positive effect on growth. They argued that ICT will expand productivity, improve employment and upgrade the quality of work in many occupations. Moreover, ICT will offer many opportunities for small scale, independent and decentralized form of production (Posu, 2006). The technophobia regards telecommunication as having a negative effect on economic growth and widening the information gap between the rich and the poor, the literate and the illiterate. While admitting that ICTs could have profound changes on a society, Van Dijk (1999) believes that applications of ICTs and their transformative nature have been greatly exaggerated. They may destroy more jobs than they create; the gap between the rich and the poor may widen. Mansell (1999) saw the huge capital investments required on ICTs as diverting resources from other sectors of the economy that could have greater growth impacts.

There are various economic theories that elaborates more on how technological advancement, telecommunications can bring about economic growth. The Technology Determinism Theory (Smith & Marx, 1994), society’s cultural values, social structure and history are all technology driven. The theory posits that, rather than social context shaping technology, the uses of technology determine the growth and development of the society. This implies that technology dictate users’ behaviour and action (Green, 2001). The implications of this postulate; is that cell phones (technology) exert large influence on the behaviour of people including members of the family.

Belaid (2002) is one of the studies on how telecommunications infrastructures reduce transaction cost, increasing TFP (Total Factor Productivity) of the private sector and diffusion of new technologies,
which will remedy the problem of the developing countries. According to Rodini, Ward and Woroch (2003), telecommunications has impact on Human and Social capital. Ding and Haynes (2006) investigated the role of telecommunication infrastructure in long-run regional economic growth in China for sample of 29 regions. The study used a dynamic fixed effects model for estimation, which allows testing the relationship between regional economic growth with initial economic condition, fixed investment, population growth as well as telecommunications infrastructures. On the basis of this study, telecommunication is both statistically significant and positively correlated to regional economic growth in China.

Vagliasindi, Izzet and Taubman (2006); Minges (1999); Madden and Coble-Neal (2004); and Okada and Hatta (1999), found out that mobile phones and fixed phones are moderate substitutes and that the lower the penetration rates of fixed phones, the stronger the substitutability between fixed and mobile phones. Critical studies of the influence of telecommunication on various key countries show a positive relationship between telecommunication and economic growth (Jorgenson 2001, Kraemer & Dedrick 2001). Again, Onakoya, Salisu and Oseni (2012) examined the impact of investment in telecom infrastructure on economic growth in Nigeria using a multivariate model of simultaneous equations and found that telecom infrastructural investment has significant impact on the output of the economy.

Posu (2006) used data for the period 1999-2004 to identify the impact of telecommunication on Nigerian economic growth and is covered that about 77% variation in GDP during 1999-2004 is attributable to investment in telecommunication. On the contrary however, an exploratory study of Awoleye, Okogun, Ojuloge, Atoyebi, and Ojo (2012) on socio-economic effects of telecommunication growth in Nigeria between 1999 and 2009 using secondary data from Central Bank Statistical bulletin and world bank development indicators with regression and correlation analysis found mixed evidence as their overall results revealed positive correlation between telecom infrastructural investment and GDP but showed a sign of negative impact on economic growth.
Determinants of FDI

With the increasing awareness of incessant inflow of FDI to Nigeria and other developing countries, it is pertinent to examine conceptual issues on various factors that attract FDI to a country (Obwona, 2001, 2004).

1) **Size of the market**

Economic studies comprising a cross section of countries indicate a well-established connection between FDI and the size of the market (proxied by the size of the GDP) as well as some of its characteristics (for example, average income levels and growth rate). Some studies found GDP growth rate to be a significant explanatory variable, while GDP was not, probably indicating that where the current size of national income is very small, increments may have less relevance to FDI decisions than growth performance, as an indicator of market potential. Though Bhattacharya, Montiel, and Sharma, (1998) identified GDP growth as a major factor of attraction of FDI in sub-Saharan Africa, small market size need not be a constraint in the case of resource-endowed, export oriented economies like Nigeria, even the experience of India, Pakistan and, to an extent, Bangladesh, have shown that market size notwithstanding, they receive proportionately relative small (below 1%) FDI flows.

2) **Openness**

Whilst access to specific market based on their size and growth is important, domestic market factors are predictably much less relevant in export-oriented foreign firms. A range of research suggests a widespread perception that “open” economies encourage more foreign investment. One indicator of openness is the relative size of the export sector. Singh and Jun (1995) indicates that exports, particularly manufacturing exports, are a significant determinant of FDI flows and their tests show that there is strong evidence that exports precede FDI flows.
3) Low cost of Productivity

Empirical research has also found relative labour costs to be statistically significant, particularly for foreign investment in labour-intensive industries and for export-oriented subsidiaries. The rapid growth of FDI in Vietnam has also been attributed primarily to the availability of low-cost labour. In India, in contrast, labour market rigidities and relatively high wage in the formal sector have been reported as deterring any significant inflows into the export sector in particular. However, when the cost of labour is relatively insignificant (when wage rates vary little from country to country), the skills of the labour force are expected to have an impact on decisions about FDI location. Productivity levels in sub-Saharan Africa are generally lower than other low-income countries, hence, the low flow of FDI. Indeed, other factors that can account for inflow of FDI to a particular country include political risk or the institutional and governance factor, state of infrastructure, incentives, and privatization policy.

III. METHODOLOGY.

To examine the effect of foreign direct investment in telecommunications sector on Nigeria’s economic growth; this paper employs regression analysis – Error Correction Model (ECM). Since time series variables are used, it is obligatory to examine the properties of the time series data. In order to achieve this, the study utilized popular unit root tests methods, Augmented Dickey-Fuller Test (ADF) and Phillips-Perron (PP). In the analyses, the E-view, version 9.0 was adopted. The Ordinary Least Squares (OLS) estimation technique was used in the single equation models.

Sources of Data

Data for this study were obtained from secondary sources, particularly from Central Bank of Nigeria Statistical Bulletin, Annual Reports and
Statement of Accounts for various years. The data covers the period 1985-2015.

**Model Specification**

\[ \Delta \ln RGDP = a_0 + a_1 \ln RGDP_{t-1} + a_2 \ln GDPtel + a_3 \ln FDItel + a_4 (\ln GDPtel \times FDItel) + a_5 \ln GCF + a_6 \ln EXCHR + a_7 INFL + a_8 OPEN + a_9 \ln CRF + a_{10} GSMDum + a_{11} ECT -1 + e \]

It is expected that the signs of the estimated values for each of these parameters will be positive. That is, in the equation, the independent variables are expected to show sign of positive effects on the performance of the telecommunications sector and economic growth respectively.

Where;
- **RGDP** = Real Gross Domestic Product
- **GDPtel** = Gross Domestic Product in telecommunications sector/ Share of telecoms in total GDP
- **FDItel** = Foreign Direct Investment inflow to the telecommunications sector
- **GCF** = Gross Capital Formation
- **EXCHR** = Exchange Rate
- **INFL** = Inflation
- **OPEN** = Trade Openness
- **CRF** = Credit Facilities to Private Sectors
- **GSMDum** = Dummy for Global System of Mobile Communication
- **ECT (-1)** = Lagged Error Correction Term
- \( a_0 \) is the constant
- \( a_{1-11} \) represents the parameter estimates and \( e \) represent the stochastic term.

**IV. RESULT AND INTERPRETATION**

**Unit Root Test**

The summarized result presented in the table shows that at various levels of significance (1%, 5%), the variables were found to be non-stationary (unit root) at level. However, each of the variables is integrated of order 1(1). The study proceeds to carry out the co-
integration test to determine if a long run equilibrium relationship exists between the regressand(s) and the regressor (s) in the models specified.

**Co-integration Test**

The co-integration result which tests the null hypothesis of no co-integration against the alternative that co-integration exists among variables the co-integration rank test is reported with the trace statistic and maximum-eigenvalue statistic. At 5% level of significance, the trace statistic indicates at most three (3) co-integrating equations. One co-integrating relation is enough to prove that long-run relationship exists in the model. Since the variables are cointegrated, there is, hence, a long run relationship among the variables.

**Error Correction Model**

Table 1 presents the parsimonious ECM result that shows the impact of Foreign Direct Investment in Telecommunications Sector (FDI_tel), Contribution of Telecommunications Sectors to Gross Domestic Product (GDP_tel) and other variables on economic growth. The F-statistic value of 3.982 (P<0.005) rejects the null hypothesis that the independent variables do not impact on economic growth, thus we accept the alternative hypothesis that the independent variables impacts on economic growth. The Adjusted R-square value (0.539) shows that the independent variables account for about 54.0% variation in economic growth. Based on this we conclude that the model has a good fit. The Durbin-Watson statistics (DW) value is 1.934 (approximately to 2). This implies that the model is free from autocorrelation problem. The ECT term is rightly signed (negative), it is less than one and statistically significant at 1% level of significance.

In general, current GSMDum is significant determinants of current level of economic growth. Specifically, the result shows that GSMDum exhibit positive and significant relationship with current RGDP at 1% levels of significance. This implies that 1 unit increase in GSMDum will induce 4.85 percent increase in current RGDP. Also, one unit rise in GSMDum will induce 0.023 percent fall in economic growth (RGDP). These mean
that during the period of study, GSMDum is the major driver of economic growth.

### Table 1: Error Correction Model (ECM)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>D(LOG_GDPTEL)</td>
<td>0.03265*</td>
<td>0.017</td>
<td>0.071</td>
</tr>
<tr>
<td>D(LOG_FDI)</td>
<td>0.00464</td>
<td>0.007</td>
<td>0.530</td>
</tr>
<tr>
<td>D(LOG_GDPTEL)*D(LOG_FDI)</td>
<td>0.13579</td>
<td>0.146</td>
<td>0.366</td>
</tr>
<tr>
<td>D(LOG_GCF)</td>
<td>0.03302</td>
<td>0.027</td>
<td>0.234</td>
</tr>
<tr>
<td>D(LOG_EXCHR)</td>
<td>-0.04019*</td>
<td>0.020</td>
<td>0.058</td>
</tr>
<tr>
<td>D(INFL)</td>
<td>-0.00023*</td>
<td>0.000</td>
<td>0.074</td>
</tr>
<tr>
<td>D(OPR(-1))</td>
<td>0.00046</td>
<td>0.001</td>
<td>0.562</td>
</tr>
<tr>
<td>GSMDUM</td>
<td>0.04890***</td>
<td>0.013</td>
<td>0.001</td>
</tr>
<tr>
<td>D(LOG_RGDP(-1))</td>
<td>0.20288</td>
<td>0.197</td>
<td>0.318</td>
</tr>
<tr>
<td>D(LOG_CRF(-1))</td>
<td>0.00726</td>
<td>0.032</td>
<td>0.822</td>
</tr>
<tr>
<td>ECT(-1)</td>
<td>-0.08457***</td>
<td>0.027</td>
<td>0.006</td>
</tr>
<tr>
<td>C</td>
<td>0.63524***</td>
<td>0.198</td>
<td>0.005</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.720</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.539</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-statistic</td>
<td>3.982</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob (F-statistic)</td>
<td>0.005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durbin-Watson stat</td>
<td>1.934</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Author’s Computation, 2017.*

*Note: *, ** and *** represents significance level of 10%, 5% and 1% respectively.*

### IV. SUMMARY OF FINDINGS

The study also test for the presence of unit root in variables formulated in achieving this study objectives and findings revealed that at various levels of significance (1%, 5%), the variables were found to be non – stationary (i.e. there is presence of unit root) at level. However, it became stationary after first difference. The study progressed to test the log-term relationship and it was discovered that the variables co-integrate at 5% level. Since the variables co-integrated, there is a long run relationship among the variables. The result from the ECM revealed that there is a short
term relationship among the variables in question, and (-0.258) implied that there will be speed of convergence of variables from their long-run co-integrating equilibrium. The finding has helped to achieve the objective that there is positive relationship between economic growth and foreign direct investment.

Conclusion
The development in ICT, especially GSM has motivated attention of researchers to critically examine the contribution of the telecom sector on economic growth in Nigeria like other countries of the world. Many researchers are of the view that the FDI in telecommunications will mostly contribute to the growth of the economy. This paper attempts to address the question whether FDI in telecommunications has improved the economic growth of Nigeria. It made use of extensive data covering 1985-2015 using the Error Correction Model. Based on the findings there has been a great improvement in the contribution of FDI in telecommunications to the economic growth within GSM period when compared with before GSM when the sector could not fully achieved her statutory function in Nigeria. The study, therefore, concludes that there is significant and positive relationship between FDI in telecommunications and the economic growth.

This paper recommends that:
(i) Government should be at her best to ensure that the environment is made conducive for investors. Also, the issue of currency fluctuation should be properly addressed to avoid losing most of these Multinational Companies who has contributed a large quota to the economy growth. By doing this, the increase trend of FDI inflow will be sustained.
(ii) Government should provide an enabling environment for the investors in order to sustain the trend of inflow of FDI into the economy.
(iii) There should be stable economic policies directly or indirectly that will attract foreign investors.
REFERENCES


