Foreign Direct Investment and the Growth of the Nigerian Telecommunications Sector: Issues and Analysis

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Abstract

This study examined the effect of Foreign Direct Investment (FDI) on the growth of the telecommunications sector in Nigeria from 1997 – 2011. Nigeria has joined the rest of the world to seek FDI as evidenced by the formation of New Partnership for Africa's Development (NEPAD). Until recently FDI was not fully embraced by Nigeria leaders as an essential feature of growth in the telecommunications sector reflecting largely fears that it could lead to loss of political sovereignty, push domestic firms into bankruptcy due to increased competition. The methodology adopted for this study is the Ordinary Least Square (OLS) method to determine the relationship between FDI and the growth of telecommunications sector. The findings show that FDI has positive effect on the productivity of the telecommunications sector and it is statistically significant. It is therefore, recommended that since communications FDI has the highest potential for contributing growth, it needs to be properly channelled and integrated into the mainstream of the economy as well as conscious provision of necessary infrastructure which will lower the cost of doing business in Nigeria.

Key words: FDI; Telecommunications sector; Growth

INTRODUCTION

In recent years, Foreign Direct Investment (FDI) has gained renewed importance as a vehicle for transferring resources and technology across national borders. As the developing world's access to international capital in the form of official development assistance and commercial bank borrowing is shrinking due to a massive flow of funds from the western world to the newly emerging market-based economies of the Central and Eastern Europe, the poor countries are intensifying their efforts to attract FDI. Recent economic reconstructuring programmes in most developing countries reflect these efforts. To succeed in this venture, a country must identify the major factors determining the inflow of FDI.

Because of the problems of trying to attract foreign firms which include among others government instability due to constant coup and counter coup and the fear of nationalization and poor infrastructure facilities, the Federal Government of Nigeria decided to embark on various policies such as generous fiscal, monetary and physical incentives as well as embarking on the Structural Adjustment Programme (SAP) in 1986. The aim of the SAP was to restructure and diversify the productive base of the economy in order to reduce dependence on oil sector; to achieve fiscal and balance of payment viability; to attract FDI to lessen the dominance of unproductive investments in the public sector; and to lay the basis for sustainable non-inflationary or minimum inflationary growth.

Moss, Ramachandra and Shah (2005) argue that much of African skepticism toward foreign investment is rooted in history, ideology and the politics of the post-independence period.

It is now widely accepted that rapid development in Africa, including achieving Millennium Development Goals (MDGs) rests on generating surpluses through innovation, massive value-creating investments, increased productivity and trade. In this vein, one of the main priorities of African leaders as outlined in the New

Partnership for Africa's Development (NEPAD) is to attract FDI as a means of improving Africa's share of world trade and to move African countries from the margins of the global economy (North-South Institute, 2003).

The main objective of the study therefore, is to examine the relationship between FDI inflows and the growth of the Nigerian Telecommunications Sector.

1. THEORETICAL FRAMEWORK

That FDI is positively correlated with economic growth is situated in growth theory that emphasizes the role of improved technology, efficiency and productivity in promoting growth (Lim, 2001). The potential contribution of FDI to growth depends strictly on the circumstances in recipient countries. Certain host country conditions are necessary to facilitate the spillover effects. The effect of FDI on economic growth is analysed in the standard growth accounting framework. To begin with, the capital stock is assumed to consist of two components; domestic and foreign owned capital stocks. So

$K_t = K_{df} + K_{ft}$

We adopt an augmented Solow production function (Solow, 1956) that makes output a function of stocks of capital, labour, human capital and productivity. However, we specify domestic and foreign owned capital stock separately in a Cobb – Douglas production function (Cobb & Douglas, 1928).

$$Y_{it} = A_{it} K_{dit}^{\alpha} K_{fit}^{\lambda} + L_{it}^{\beta} + H_{it}^{\gamma} \tag{1}$$

Where Y is the flow of output, K_{dt} K_{ft} represent the domestic and foreign owned capital stocks respectively, L is the labour, H is the human skills capital stock, and A is the total factor productivity, which explains the output growth in factors of production specified. Taking logs and differentiating equation 1 with respect to time, we obtain the familiar growth equation:

$$Y_{it} = \partial_{it} + \alpha K_{dit} + \lambda K_{fit} + \beta L_{it} + \gamma h_{it} \tag{2}$$

Where lower case letters represent the growth rates of output, domestic capital stock, foreign capital stock, and labour and human capital, and a, L, b and Y represent the elasticity of output, domestic capital stock, foreign capital stock, labour and human skill capital respectively.

In a world of perfect competition and constant return to scale, these elasticity coefficients can be interpreted as respective factor shares in total output. Equation 2 is a fundamental growth accounting equation which decomposes the growth rate of output into growth rate of total factor productivity plus a weighted sum of the growth rates of capital stocks, human capital stock and the growth rate of labour.

Following the established practice in the literature, K_d and K_f are proxied by domestic investment to GDP ratio (I_d) and FDI to GDP ratio (If) respectively in view of problems associated with measurement of capital stock.

The final form of equation 2 therefore is

$$Y_{it} = a_i + \partial I_{dit} + \lambda I_{fit} + \gamma h_{it} + \varepsilon_{it} \tag{3}$$

2. LITERATURE REVIEW

A number of existing studies (Zhang, 2001; Hansen & Rand, 2005; Chowdhury & Mavrotas, 2006) empirically examined the relationship between FDI and economic growth. Most of these studies have given greater attention to the long – run and causality relationships between FDI and growth. Their results are mixed. There seems to be a strong relationship between FDI and growth. Although the relationship is highly heterogeneous across countries, the studies generally agreed that FDI, on average, has an impact on growth in the Granger-causal sense.

The causality between FDI and GDP growth could run in either direction. Chenery & Strout (1996), Dunning (1970), Todaro (1999), Kruger (2000) and the World Bank (1993) documented that FDI could promote further GDP growth. In line with the 'new growth theory', some economists argued that through the process of capital inflow and accumulation in the recipient economy, FDI is expected to generate non – convex growth by encouraging the incorporation of new economic inputs and adoption and transfer of foreign technologies into the production functions of the recipient economy. Further, through technology and new knowledge, transfers of technical expertise and the introduction of alternative and progressive management practices and organizational arrangements, FDI is expected to augment the skill acquisition of the host country's workforce (de Mello & Sinclair, 2001). As a result, foreign investors may increase productivity in the recipient economy and FDI can be deemed to be a channel for subsequent domestic investment and technological progress.

On the other hand, Dowling and Hiemenz (1999), Lee and Rana (1996) argued that the causality could also run the opposite way where rapid GDP growth could induce the inflow of FDI. This is because rapid GDP growth will usually create a shortage or a high level of requirement for needed capital in the host country and hence the host country will demand more FDI by offering attractive, preferential or advantageous terms to attract overseas investors in order to gain more FDI. Further, rapid economic growth in the host country will build the confidence of potential overseas investors who intend to invest in the host country. More importantly, rapid economic growth, accompanied by an increased higher per capital income, will create huge opportunities for FDI to invest not only in the productive industrial sectors, but also in the consumption sectors like consumers' durable goods and infrastructure and utility sectors of the host country. Enderwick (2005) mentioned a country's rate of growth and development level also in part determines the attractiveness of the economy as a location for FDI.

Hence, the high growth rate is also likely to influence the quantum level, type and structure of FDI.

Another strand of the literature has focused more directly on the causal relationships between FDI and growth. Zhang (2001) looked at 11 countries on a country-by-country basis, and indicated a strong Granger-causal relationship between FDI and GDP-growth. Basu, Chakraborty and Reagle, (2003) found a co-integrated relationship between FDI and growth using a panel of 23 countries. They emphasized trade openness as a crucial determinant for the impact of FDI on growth. They found two-way causality between FDI and growth in open economies, both in the short and the long run, whereas the long run causality is unidirectional from growth to FDI in relatively closed economies. Choe (2003) used the traditional panel data causality testing method developed by Holtze-Eakin *et al.* (1988) in analysis of 80 countries. His result points towards bi-directional causality between FDI and growth, although he found the causal impact of FDI on growth to be weak. Finally, Chowdhury and Mavrotas (2006) took a slightly different route by testing for Granger causality using the Toda and Yamamoto (1995) specification, thereby overcoming possible pre-testing problems in relation to tests for cointegration between series. Using data from 1969 to 2000, they find that FDI did not "Granger-cause" GDP in Chile, whereas there is a bi-directional causality between GDP and FDI in Malaysia and Thailand.

This study examines the relationship of FDI and growth of the telecommunications sector in Nigeria. Contrary to the literature mentioned, we focused on the GDP of the telecommunications sector alone instead of the whole economy as the telecommunications sector received more the FDI and therefore it should generate the larger impact from FDI.

2.1 Structure of the Nigerian Telecommunications Sector

The telecommunications sector is undergoing very rapid change and explosive growth. Waiting lists for telephone lines have disappeared, while telephone tariffs for local, national and international calls are gradually ranking amongst the lowest in Africa. The liberalization of the sector and the resulting competition by private operators is bringing about very substantial benefits to subscribers in terms of much lower prices and enhanced choice. Recently, the introduction of mobile telephony to Nigeria in 2001 radically altered the country communications landscape from a base of 0.73% teledensity in 2001. The country as of August 2008 had reached 39.45% teledensity, calculated on the basis of active subscribers. This phenomenal growth was driven by mobile telephony in August 2008, Nigeria had 64, 296, 117 active mobile subscriptions as compared to just 1, 152, 517 active fixed line subscriptions. In 2007, the country passed out South Africa as the continent's largest mobile phone

market. Nigeria mobile subscribers base is projected to rise to 79.8 million by 2010 (NCC 2004 - 2008). Despite this enormous increase, the demand for more lines still persists in Nigeria, though there is a quest not just for lines but also for good quality services from the operators. This strong growth is due mainly to proceedings of the 7th International Conference on Innovation and Management 1892 (Cronin, 1991).

In spite of the extraordinary growth in the sub-sector notwithstanding, quality of services provided and telecommunications operation has remained unimpressive, owing to poor interconnectivity between the different networks. The problem of constant call droppings, message and call failures and overloaded billings have not been effectively addressed despite numerous complaints from the consuming public, the industry is still plagued with some problems which include poor public power supply; poor security such that infrastructure are often vandalized; high operational cost.

3. THE MODEL

The model specified for this study is the Ordinary Least Square (OLS) method to estimate the relationship between FDI and the growth of the Nigerian telecommunications sector. The OLS technique is employed in obtaining the numerical estimates of the coefficients using the e-views 7 package. OLS is chosen because it posses some optimal properties; its computational procedure is fairly simple and it is also an essential component of most other estimation techniques. The estimation covered 1997 – 2011. The choice of the period is informed by the developments in the Nigerian economy. 1997 marked the inception of private investment in Nigerian telecommunications.

Test of stationarity: In order for the effect of FDI on the growth of Nigerian telecommunications to be suitable, we checked the time series statistics of the included variables. The data were tested for unit root (non - stationarity) by using the Augmented Dickey – Fuller (ADF) test. Therefore, test of stationarity precedes OLS.

The model is specified as follows

$$TGDP = \beta_0 + \beta_1 \beta OP + \beta_2 CPI + \beta_3 PIT + \beta_4 FDI + \varepsilon_t$$

Where TGDP = Telecommunications GDP
BOP = Balance of Payment
CPI = Consumer Price Index
PIT = Private Investment in Telecommunications
FDI = Foreign Direct Investment
E_t = Error Term
β_s = Parameters or Constants

Sources of data and method of analysis: The data were sourced from the Central Bank of Nigeria's statistical bulletin, National Bureau of Statistics etc. The study made use of OLS method to determine the effect of FDI on the growth of the telecommunications sector. The model is examined to ascertain whether the estimated

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parameters agree with the a priori expectation which states that FDI will have positive effect on the Nigerian telecommunications sector. The R^2 is to determine the goodness of fit, while the t – test is used to determine the causal relationship between each of the indicated variables and the telecommunications output. The DW – statistics is used to test for the existence of autocorrelation.

Table 1
ADF Test

Variable	Test Statistic	Critical Value	level of Significant	Level
BOP$_{(-1)}$	1.65045	-4.0681	1%	I(0)
PIT$_{(-1)}$	0.06074	-4.0681	1%	I(0)
CPT$_{(-1)}$	2.511471	-4.0681	1%	I(0)
FDI$_{(-1)}$	1.678813	-4.0681	1%	I(0)
TGDP$_{(-1)}$	0.108481	-4.0681	1%	I(0)

Table 2
Regression Result
Dependent Variable: TGDP

Variable	Coefficient	Std. Error	t-statistic	Level
C	-2294782	43475.26	-0.361524	0.7252
BOP	1665.989	2820.381	-0.590696	0.5678
CPT	-2344.182	6183.153	-0.379124	0.7125
PIT	71.94178	41.85016	2.719032	0.1164
FDI	3.096044	4.831928	3.640747	0.5361

$R^2 = 0.843922$ DW = 2. 737747
F – Statistic = 13.51760

5. ANALYSIS

The result of the ADF shows that all the variables are stationary at level and do not require any differencing.

The regression result shows a very good rigs and magnitude of the respective variables. The Durbin Watson statistics (2.74) shows the clear absence of positive autocorrelation in the estimation. The coefficient of determination, R^2 suggests that 84% of the changes in Telecommunications GDP are explained by changes in FDI, BOP, PIT and CPI. The remaining 16% are explained by variables not included in the model. The F – statistics is 13.52 showing a significant difference between the variance of estimate and the variance of the independent variables.

For FDI, a unit change induces 3.1 unit increase in the Telecommunications GDP. The result shows a very significant status of Telecommunications impact on Nigeria economy. FDI and PIT show a positive and statistically significant result meaning that FDI and PIT have heavy contributory impact on Nigeria GDP growth over the years under consideration that is 1997 – 2011. Expectedly Consumer Price Index (CPI) and BOP show negative signs meaning that there is corresponding import triggered inflation in Nigeria owing to the fact that most of the telecommunications inputs are majorly imported.

The increase in FDI during the period under consideration provided a clear insight into the level of productivity in the telecommunications sector, the FDI in the telecommunications sector has a positive relationship with economic growth suggesting that the business climate is healthy enough for the telecommunications sector to thrive and contribute to positive economic growth.

CONCLUSION AND RECOMMEDATIONS

It is imperative to note that no country can develop without FDI inflow particularly developing country like Nigeria. The study clearly shows that FDI influence has tremendously boost the telecommunications sector, where foreign companies invested heavily to gain the advantages of substantial communications market in Nigeria. Government should therefore, improve on the standard of infrastructure and provide relevant social amenities to attract more FDI to promote the overall economic development in the country as the industries are growing. Also, government should design a blue print architecture that will accommodate future technologies and encourage expansion. Finally, the government should maintain a stable regulatory policy that will encourage investor's incidence to boost the industry.

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