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**AN ECONOMIC ANALYSIS OF TELECOMMUNICATIONS POLICY  
REFORM IN NIGERIA****Gbadebo Olusegun Odularu and Abimbola Taylor**Department of Economics and Development Studies, Covenant University, Ota-Nigeria.

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**ABSTRACT**

*Since 1999, the telecommunications market in Nigeria has witnessed some tremendous transformations. In fact, the last few years have experienced a notable increase in private sector involvement in the Nigerian telecommunications industry. By January 2001, the industry witnessed a successful auctioning of the 2G Digital Mobile Licenses (Total of four GSM licenses were issued). In addition, it also recorded the licensing of Fixed Wireless Access (FWA) Operators in 2002, (both national and regional licenses issued). Finally, a Second National Carrier (SNC) was licensed in 2002. Against this background, this paper analyses the economic impact of the plethora of telecommunications policy reform in Nigeria. All these benefits seem to have been spurred by the global technological advances and the adoption of market-reform policy measures by the Nigerian government. The analysis shows that the recent economic reforms in the telecommunications industry have engendered certain benefits in terms of the increased availability of telephone lines. Telecommunication reforms generally contributed to more employment, higher output, and faster network expansion but some challenges still need to be surmounted.*

## INTRODUCTION

The 1980s and 1990s witnessed the most dramatic policy reforms that the global telecommunications industry had ever experienced. Consequently, state-owned and state-operated telecommunication service providers were privatised, new competitors licensed, and new services allowed. These reforms are part of a global trend towards liberalisation in the telecommunication sector. Some of the benefits include attracting new investment, providing needed infrastructures and creating innovative services.

However, an efficient telecommunication sector is important for economic growth. Telecommunication infrastructures constitute a significant proportion of the global economy. In fact, telecommunications is one of the fastest growing sectors in most countries and global revenue from telecommunication services alone was estimated at USD 1.26 trillion as at 2002. The sector is believed to offer substantial positive externalities to other industries by, among other things, reducing transaction costs for businesses. Roller and Waverman (2001) have found a positive linkage between a country's telecommunication infrastructure and its economic growth.

Increased adoption of telecommunication reforms in both Developed and Less Developed Countries confirms its benefits to economic development. Nigeria inclusive, has become one of the fastest growing markets for mobile communications. Private investment in the sector ranks second only to the oil industry in Nigeria. As at December 2002, the private investment worth USD2.110 billion. It was estimated to have increased to USD2.550 billion as at June 2003. This growth represents a phenomenal 5, 000 per cent increase in investment in less than four years (NCC). The GSM operators alone have generated 3, 500 direct employment and between 10, 000 and 200, 000 indirect employment.

Some of the objectives of this study are:[i] discuss the basic economic reforms in the Nigerian economy, [ii] to expatiate on the pre – and post- telecommunications reforms in Nigeria. [iii] highlight the forces driving telecommunications reforms in Nigeria, [iv] empirically analyse the impact of the reforms on the accessibility to telecommunications activities, and [v] make policy recommendations towards further improving Nigerian's accesibility to telecommunications facility.

Though there have been much descriptive analysis on the Nigerian telecommunication industry, relatively little empirical work has been done on the economic impacts of the recent reforms in the sector. However, this paper states the relevant hypothesis and tests if there is any significant difference between selected indicators before and after the adoption of the telecommunications reforms.

The rest of the paper is organised as follows. Section 2 presents the conceptual framework, while the section 3 discusses the hypothesis testing and empirical analysis. Section 4 gives some concluding remarks.

### **NIGERIA'S ECONOMIC REFORMS: SOME STYLISTED FACTS**

The economic reforms in Nigeria are basically anchored on the restoration of good governance, the promotion of sustainable growth and the alleviation of poverty. The four broad areas of the economic reforms are Accelerated Privatisation, Liberalisation and Private Sector Development; Anti-corruption, Transparency and Accountability; Public Sector Reform; and Governance and Institutional Reforms.

However, the reforms in the Public Service sector are being implemented within four main domains namely:

1. Financial and economic reforms through accelerated privatisation of government-owned companies and agencies. This also include the liberalisation of the economic and legal atmosphere under which such activities are being carried out so as to facilitate the inflow of fresh capital investment;
2. Secondly, public service reforms which involve the refocusing and repositioning of the Public Service for effective Service delivery. Aspects of the reforms under this domain include the monetisation of fringe benefits of public officers; reprofessionalisatoin and strengthening of Civil Service institutional stability; modernisation of records keeping; increased utilisation of Information and Communication Technology (ICT); restructuring of Ministries and extra-ministerial departments for improved service delivery; and pension reforms;
3. Thirdly, Governance and Institutional strengthening which involves efforts at reducing the cost of governance, as well as decentralisation in the context of fiscal federalism, local government and community empowerment. This incorporates the strengthening and re-equipping

of the law enforcement agencies for enhanced prevention and control of crime as well as maintenance of law and order; and

4. Fourthly, Transparency, Accountability and anti-corruption efforts through the activities of the Independent Corrupt Practices and Other Related Offences Commission (ICPC) and the Economic and Financial Crimes Commission (EFCC).

A crucial step for countries seeking to promote the telecommunication sectors is to adopt telecommunication reforms through the introduction of competition in telephone services, in order to attract investment, spur infrastructure improvement and drive down prices. The process of reforms requires countries to set up regulatory authority to address issues like competition, interconnection, and pricing.

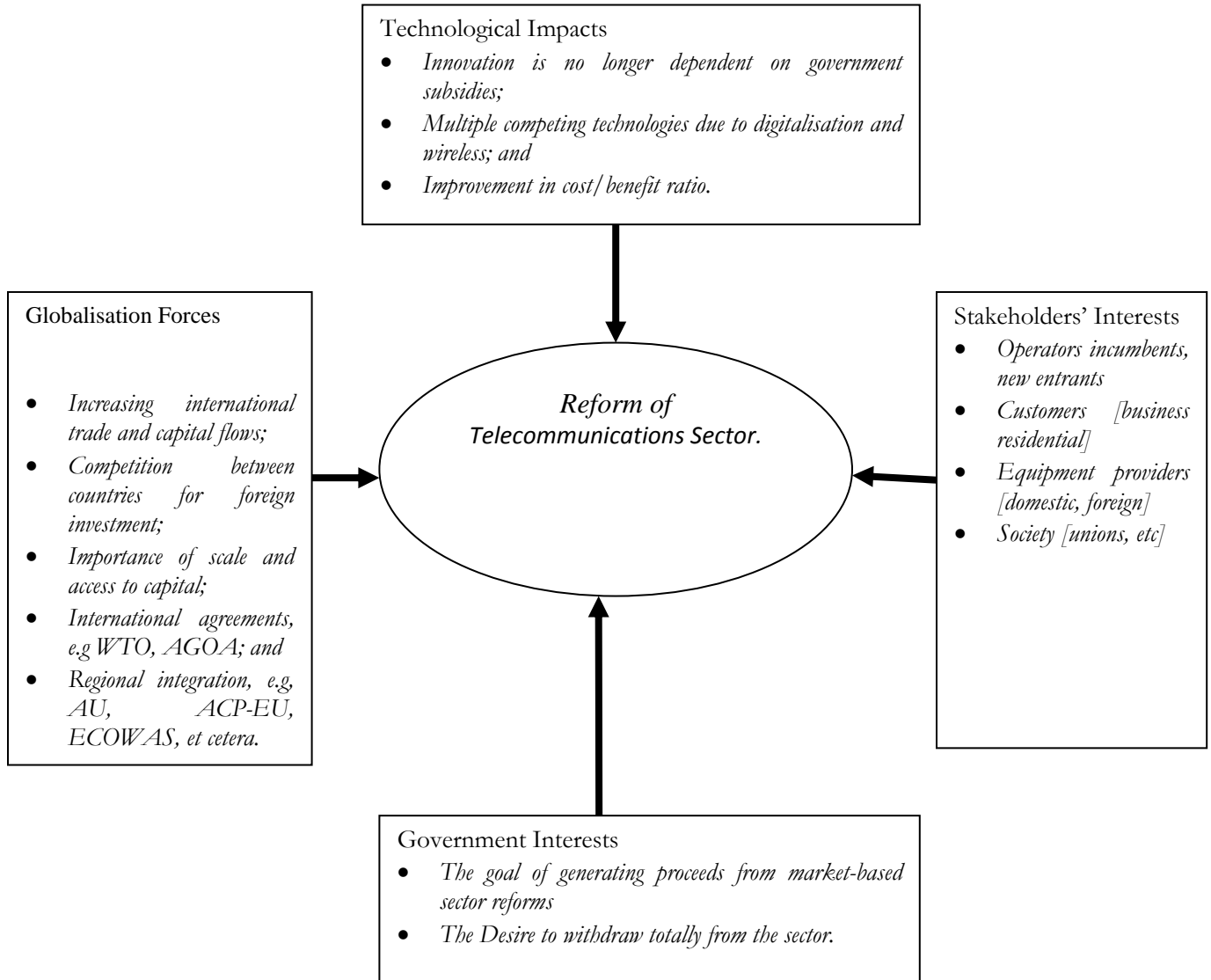
### **The Pre-reform Telecommunication Industry in Nigeria**

The federal government was in charge of all telecommunication services in the pre-reform era. Government owned the Telecommunication Company – Nigerian Telecommunications Limited - and funded the development of its infrastructures. Then the industry was characterised by slow pace of network roll out; non-competitive equipment procurement procedures; sub-optimal quality of service delivery, weak infrastructure base, huge unmet demand; lines concentrated mostly in selected urban centres; slow growth of subscriber base; limited investment into the sector.

### **Need for Market Reforms**

Nigeria identified the need for considerable investments into its telecommunication sector. In other words, the liberalisation of telecommunication market was seen as a crucial ingredient for network growth. Thus, the need for the participation of the private sector in attracting financial resources, innovation and new technology. Some of the benefits accruable from the adoption of telecommunication reforms are: improved services; eradication of monopoly power; attraction of local and foreign investment; generation of government revenues increased sector efficiency through competition sector reform; encouragement of innovation and introduction of advanced services. In order to achieve the benefits noted above, the Nigerian government instituted the right policies and a good regulatory environment, which would contribute to attracting investment by providing stable, transparent and non-discriminatory access to telecommunication resources.

### Forces Driving Reform of the Telecommunications Sector



### **Post-reform Scenario in Nigeria**

With the enthronement of democracy and responsive governance in 1999, a new telecommunication policy was released in the year 2000, and this represented a blueprint for full liberalisation of the telecommunication industry. After putting in place the telecommunication reforms, Nigeria now boasts of a fully liberalised telecommunication market in which government role is restricted to policy formulation and sector regulation. In fact, there is minimal government funding of telecommunication infrastructures, thereby allowing resources to be available for vital public sectors. Consequently, there has been massive private sector investment to the sector; improved availability and quality of service; continuously innovating telecommunication environment with introduction of new service on a continuous basis.

In the post-reform era, the National Regulatory Agency (NRA) plays a very crucial role of driving the telecommunication sector reforms by: promoting market liberalisation; licensing of competitive operations; introducing and maintaining transparent regulatory processes; attracting investment; protecting new entrants from dominant operators; protecting consumer rights and interests; encouraging new and advanced services; and ensuring speedy and equitable dispute settlement.

A Nigerian regulatory body, the Nigerian Communications Commission (NCC) was established by law in November, 1992. While it commenced operation in mid-1993 with the inauguration of the first commission, it also commenced full market liberalisation and sector reform in 2000. The powers of the NCC include: giving written directions to licensees; consulting with consumers, commercial and industrial organisations; delegating its functions to a committee constituted by it; summoning persons to appear before the commission; entering into contracts with any company; firm or persons; establishing and maintaining subsidiaries to enable the discharge of its functions; issuance of licences and imposition of terms and conditions on licences; variation or relocation of a condition of licence; consulting with affected licensees before bringing into force an obligation which may be onerous on the licensee; approving guidelines for keeping of

accounts and cost allocation formula of licensees; inspiration of licensees' books of accounts; granting or revoking of permits for connection of customer equipment; determination of principles of guide interconnection arrangements between operators; and determination of service and new undertakings eligible for licensing from time to time.

A new communications law – the Nigerian Communication Act (NCA) was enacted in 2003. Thereafter several subsidy regulations were enacted. The National Telecommunication Policy (NTP) was released in September 2000. The NTP provides for the strengthening of the NCC, and lists the functions of the NCC to include: licensing of telecommunication operators, assignments and registration of frequency to duly licensed operators; administration of national numbering plan; facilitating private sector participation and investment in the telecommunications sector of the Nigerian economy; promoting and enforcing a fair and competitive environment for all operators; defining standards for economic regulation of dominant operators, including tariff regulation; establishing mechanisms for promoting universal access to telecommunication services in Nigeria; and establishing and enforcing technical and commercial standard and practices for all operators.

From the table 1 below, four years of telecommunication sector reforms have brought about: substantial private sector investment; increase in number of market players; unprecedented growth in the network; expanded geographical coverage; empowerment of the citizenry; and creation of employment opportunities.

**Table 1: The Nigerian Market Scorecard**

<b>Period</b>	<b>Private Investment USD \$'m (est.)</b>	<b>No of Licensed Mobile Operators</b>	<b>No of Active Licensed Fixed Line Operators.</b>	<b>No of Operating ISPs</b>	<b>No of National Carriers</b>	<b>No of Connected Digital Mobile Lines</b>	<b>No of Connected Fixed Lines</b>
Dec 1999	150	1	9	18	1	None	450,000
Dec	2,100	4	16	30	2	1,594,17	702,000

2002						9	
Dec	4,000	4	17	35	2	3,100,00	850,000
2003						0	
Dec	6,000	4	30	40	2	9,200,00	1,120,000
2004						0	

Source: <http://www.ncc.gov.ng/speeches-presentations>. Ndukwe, C.A. (2004) 'Telecoms Regulatory Environment'

### Empirical Analysis

The methodology adopted is the normal hypothesis testing as was utilised by Soyibo et al (2001). An econometric analysis is not carried out because the reform is barely five years old. In this aspect of the analysis, the impact of reforms on the telecommunication sector is quantitatively measured using two main indicators. It also attempts to test whether the differences between the value changes before and after the reform are significant, using the t-test. On a general term, the null and alternative hypothesis are stated as follows:

**H<sub>0</sub>:** The mean number of telephone lines in the pre-reform era is not significantly different from the mean number of telephone lines in the post-reform period.

**H<sub>1</sub>:** There is a significant difference the mean telephone lines between the pre-reform and post-reform eras.

However, the research objective is in two forms. First, it is interested in knowing if there is a difference in the mean number of lines. This implies the use of a two-tailed test.

$$H_0: \mu = 513,456$$

$$H_1: \mu \neq 513,456$$

Second, the study aims to know whether there has been an increase in the mean number of telephone lines. This implies the use of one-tailed test.

$$H_0: \mu \leq 513,456$$

$$H_1: \mu > 513,456$$

In both cases the critical value is less than the calculated t-statistics, so the null hypothesis is rejected in both one-tailed and two-tailed tests. This implies that there is a difference between the mean number of lines before and after the reform. The results show positive increases following reforms in the telecommunications sector. Furthermore, there is a significant increase



in the mean no of telephones after the telecommunications reforms. The results agree with the general expectations in the hypothesis.

With respect of telephone lines per capita,

**H<sub>0</sub>:** The mean telephone lines per capita in the pre-reform era is not significantly different from the mean telephone lines per capita in the post-reform period.

**H<sub>1</sub>:** There is a significant difference the mean telephone lines per capita between the pre-reform and post-reform eras.

However, the research objective is in two forms. First, it is interested in knowing if there is a difference in the mean telephone lines per capita. This implies the use of a two-tailed test.

$$H_0: \mu = 0.00484$$

$$H_1: \mu \neq 0.00484$$

Second, the study aims to know whether there has been an increase in the mean telephone lines per capita. This implies the use of one-tailed test.

$$H_0: \mu \leq 0.00484$$

$$H_1: \mu > 0.00484$$

In both cases the critical value is greater than the calculated t-statistics, so we do not reject null hypothesis in both one-tailed and two-tailed tests. This implies that there is no significant difference between the mean telephone lines per capita before and after the reform. Though the results show positive increases following the reforms, there is no significant increase in the mean telephone lines per capita after the telecommunications reforms.

**Table 2: Impact of Reforms on the Telecommunications Sector**

Variables	Mean Before	Mean After	Mean Change	T-test
Telephone Lines	513456.3	552206 0	38603.7	66.89
Telephone Lines per capita	0.00484	0.0434 49	0.038609	0.0193

**Source:** Computed by the authors from the Federal Office of Statistics (FOS) Annual Abstract of Statistics and the Central Bank of Nigeria (CBN) Statistical Bulletin (Various Issues).

## CONCLUSION AND RECOMMENDATIONS

This paper assesses the impact of the recent reforms on the telecommunications sector. In addition to highlighting the costs and benefits of telecommunications reforms, it conceptualised the driving forces behind the Nigerian telecommunications reforms as technological advancement, globalisation, stakeholders interests and government interests. The empirical analysis showed that reforms resulted in a considerable improvement in telephone lines, therefore implying that greater Nigerians have access to telephone lined due to the reforms. Although the pre-reform era witnessed growth in telephone lines, there is an improved increase in telephone lines availability after the telecommunications reforms. The t-test revealed a statistically significant increase between the pre-reform and post-reform periods.

With respect to the telephone lines per capita, the empirical analysis revealed that there has been no significant increase in this indicator due to the adopted telecommunications reforms. This implies that though the number of lines increased due to telecommunications reforms, but these lines are not well spread amongst Nigerians in order to justify for a substantial increase in telephone lines per capita. This also means that few Nigerians are able to afford the lines (and telephone sets) due to the high costs of purchasing a telephone set and maintaining or servicing a telephone line. In view of this, the NCC's decision to open up the Global System of Mobile Telecommunications (GSM) segment of the industry to all telecommunications operators by February 2006, is a right step in the right direction. This is in a bid to further liberalise the telecommunications market. Thus, making competition stiffer, increasing availability, and bringing about improved services at lower prices.

Based on these findings, the government must view the recent pro-market reforms in the telecommunication sector in particular and the macro-economy in general as a major tool for developing the private sector and fostering human development (teledensity, as a Human Development Index –HDI).

In order to consolidate these achievements, government should not relent in its efforts on the pro-market economic reforms (through liberalisation, privatisation and deregulation programmes). Of great importance is the transparency in the reform process and the judicious utilisation of the proceeds realised during the economic/telecommunications reforms.

The existence of an unusually huge demand for services after pro-market reforms and due to inefficiencies of the past is a great challenge amidst the weak infrastructure base in Nigeria, for

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instance, the unreliable electric power supply. Also, more challenges have to be surmounted with respect to interconnectivity; effective competition in all service segments; monitoring compliance and enforcement; managing consumer expectation; consumer education; and the institutional strengthening of the NCC.

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