

GLOBALIZATION AND ECONOMIC DEVELOPMENT AND ITS EFFECTS ON THE TELECOMMUNICATIONS INDUSTRY IN NIGERIA: AN EMPIRICAL INSIGHT OF AIRTEL NIGERIA

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ABSTRACT

Globalization is broadly characterized by the emergence of a global village activities for the whole world in which all peoples in all nations of the world are drawn together into increasingly closer and mutually beneficial, political, industrial, financial, scientific, technological and cultural relationships. This paper closely assessed globalization and economic development and its effects on the telecommunications industry in Nigeria, drawing an empirical insight from Airtel Nigeria Limited. To collect the desired data for this research work, four methods were used, these include, documentary, observations, questionnaires and personal interviews. In the analysis of the data collected, the study made use of descriptive and inferential statistics. The findings of the study were drawn from the data presented and analysed and their implications were discussed relative to all stakeholders. It was confirmed that Airtel Nigeria Limited have survived all manner of financial emasculation and changes in management and have endeared themselves to Nigerians as a telecommunication company of choice. Part of this findings delved into why and how Airtel Nigeria Limited was able to achieve this despite tough competitions from other telecommunication companies already in the industry before their arrival, particularly MTN Nigeria Limited.

Key Words: *Globalization, global village, technological development, cultural differences, Telecommunications industry, economic growth and development, Airtel Nigeria Limited*

1.0 Introduction

Telecommunication sector in many countries around the world witnessed exponential growth in the last three years (Oladapo & Wynand, 2020; Leila, 2019; Anavilah, Asongu, Andres, 2017). Effects of globalization on peace and stability; implications for governance and the knowledge economy of African countries, Shiu and Lam (2008) stated that the cause of the growth could be traced to market liberalization or privatization and advancement in technology. Telecommunications expansion has been observed to have both direct and indirect benefits to economic growth (WDI, 2018, Sajjad, 2017; NCC, 2014, Mohsin, Khan & Malik, 2012). Besides, there are plethora of empirics that explain the causal relationship between growth in the telecommunications sector and economic growth (Snezana, Zoran, & Zorana, 2019; Pradhan, Malik, & Bagchi, 2018). Argument are that, the development of a modern nation to its full potential cannot be attained without adequate telecommunication infrastructure (Elena, Bogdan, Angela and Sorin, 2018; Tella et al., 2007, Osotimehin et al., 2010), which implies that telecommunication plays significant role in economic growth and development (Mamoun & Talib, 2017; Ayse, Fatih, Hakan, Cevdet, Sadih, 2016). The world has become a global village with telecommunication being an indispensable tool in the entire process of

globalization. However, it is not in dispute that telecommunications and information technology (IT) play essential roles in the process. Obviously, the development in this vital sector over the years has been phenomenal all over the world (Saijad, 2017; Harald and Pantelis, 2011).

More so, Nigerian government considers telecommunications service to be so vital to national interest and economic development that it was placed directly under their control in most countries until fairly recently, when deregulation and competition were introduced (Akinwale, Sanusi, Sarujlal, 2018; Mamoun & Talib, 2017; Lee, 2003). These recent advances in telecommunications technology have been an important vehicle in permitting information exchange to develop as a valuable commodity for moving the country into post-industrial and information-driven economic growth. Given this development, the perspective on telecommunications development research concentrate on how best to increase and include telecommunication as an essential component of the economic development (Lloyd and Fenio, 2017; Mamoun et al., 2016).

According to World Bank (2016), late starters in the telecommunications, ‘‘will risk exclusion from the global economy, and face severe comparative disadvantage on their goods and services’’. Tele density improved from 0.37% in 1996 to 8.5% in 2004, several towns and cities estimated at 48% of the population and 18% of the land mass have potential access to telecommunication services. The internet, cell phones and computers have ushered in a radical change in communication habits and human relationships. The communication revolution has resulted in incredible technological, economic, cultural, and psychological changes. It has turned the whole world into a globalized village by compressing time and space (Keil & Johnson, 2016; Offurum, 2019).

These recent advancement in telecommunications technology have been critical in allowing information exchange to mature as a valuable commodity for the country’s transition to post-industrial and information-based economic development. Modern telecommunications infrastructure development is needed not only for domestic, economic growth, but also for participation in highly competitive global markets and the attraction of new investments in today’s world.

The Nigerian telecommunications market is the country’s largest segment of the ICT industry. Nigeria has one of Africa’s largest telecom markets. Nigeria’s telecommunication industry has developed into an oligopolistic business system over time (a small number of firms have the majority of market share). There is a large global presence in this industry. MTN, a South African multinational corporation with a market share of 37.10%, Airtel (an Indian multinational company, with a market share of 30.9%), 9mobile (formerly Etisalat, with a market share of 20.0%), and Globacom Nigeria Limited, the only Nigerian incorporated telecommunication company, with a market share of 12.0% are the market leaders. Nigerian Communications Commission (NCC), is one of the sectors that helped the country recover from recession in the fourth quarter of 2020, contributing 12.45 percent to GDP. Telecommunications and Information Services under Information and Communication grew by 17.64% in fourth quarter of 2019, according to the latest data from the National Bureau of Statistics (NBS).

According to statistics, the telecom industry accounts for \$520 billion in annual global spending. The United States, with one of the world’s biggest telecom market, is predictably the frontrunner. People now have access to learning opportunities outside of conventional schooling thanks to technological advancements. To perform a search, read a review, or watch

a how-to video on virtually any subject, all you need is a computer, smartphone, and access to the internet. Telecommunication is also being used by several of the biggest organizations to provide long-distance or remote education. For students, this is highly cost-effective, as it allows them to save money that would otherwise be spent on accommodation and transportation. Furthermore, online courses offer students the versatility and independence to balance their job and school obligations. For classmates and teachers to communicate and exchange knowledge, social media has become a powerful tool. The sector has grown dramatically as cell phone use has progressed from basic phone telephony to modern enhanced services and the implementation of new technology into various sectors of the country's economy. Nigerians benefit from convenient banking services (bank mobile apps) and access to e-learning platforms thanks to the sector's rapid growth.

1.1 Statement of the Problem

Emerging technologies as a result of globalization have effects on economic and social activities of nations, particularly in the area of economic development.

Therefore, the purpose of this research is to investigate globalization and economic development and its effects on the telecommunications industry in Nigeria with particular reference to Airtel Nigeria Limited.

The telecommunications industry which took a centre-stage in the economic development of many nations in the wake of globalization and information technology (IT) can no longer be ignored by any well-meaning nation-state that want to matter in this 21st century. Hence, the study becomes relevant as to proffer solutions to enhance the effective assessment of globalization and economic development and its effects on the telecommunications industry in Nigeria, with empirical evidence from Airtel Nigeria Limited.

1.2 Objectives of the Study

The main objective of this study is to investigate globalization and economic development and its effects on the telecommunications industry in Nigeria with particular reference to Airtel Nigeria Limited. The specific objectives of the study were:

- i) To identify the historical antecedents to globalization;
- ii) To assess the benefits of globalization to Nigerian economy;
- iii) To analyse the role of the key players in the telecommunications industry to Nigeria's economic development;
- iv) To highlight the activities of Airtel Nigeria Limited in their contributions to Nigeria's economic development.

2.0 Review of Related Literature

2.1 Concept of Globalization

Globalization, which is a term derived from the word 'global' (from globe) has been interpreted by many writers and scholars to mean so many things –like an omnibus –that its original meaning seemed to have been lost (Okene, 2004). Globalization refers to a cluster of interconnected phenomena transforming world politics to describe alternately, a process,

policy, predicament and the product of vast and invisible international forces. Looking for 'globalization' is like looking for air. You can't see it, because it is everywhere (Kegley, 2017).

As a complex social phenomena, Nnoli (2000) asserts that globalization interfaces with various elements of social life and is suffused with ambiguities, variations, uncertainties and incompatibilities, its core, is the inevitable expansion of capitalism worldwide including the spread of its values. Explicitly, globalization can be defined as a process which intensifies the integration of the world economy and the people through technological advancement in several areas, particularly in the area of information technology.

It has also produced a differentiation in the production process (Alli, 2016). Lending credence to Alli's vituperation, globalization can be viewed as a process of interaction and integration among the people, companies and governments of different nations; a process driven by international trade and investment and aided by information technology. The process has effects on the environment, culture, political systems, economic development and prosperity, and on human, physical wellbeing in societies around the world.

Ibeanu (2017) interpreted the term globalization from three different perspectives. First, from a universalistic point of view, globalization signifies phenomena, characteristics, events and problems that are universally present, or are becoming so. In this sense, there is a meaning of presence, visibility, immediacy and availability worldwide or in what can be considered important global centres (Ama, 2019). There is also a sense of universal risk from problems that are fundamentally cross-scale, trans-sectional, trans-cultural and trans-disciplinary. Hence, Holmen (2016) asserts that today we read about the global character of many things, for example, global economic restructuring, global food crisis, global demographic transition, global warming, global spread of disease and so on.

Globalization as conceived by Friedman (2010) entails the integration of markets, nation-state and technologies in a way that enables individuals, corporations and nation-states to reach around the world faster, further, deeper and cheaper than ever before. On another note, Rennen and Martens (2003) describe globalization as intensification of cross-national interactions with the aim of promoting established transnational strategies for facilitation of economic, social, cultural, ecological, political, technological and social processes on global, supranational, national, regional and local levels. Researchomatic (2010) simply puts the concept as the process of economic integration of the entire world through the removal of barriers to free trade and capital mobility, and diffusion of knowledge and information. In essence, globalization is a kind of development effort with a platform created for human interaction across the world and ease of movement of goods and services between countries for attainment of social and economic benefits of all the interacting countries. According to Gyamtsho (2005), globalization causes man's socioeconomic development through trade liberalization on a level-playing ground allowing all nations and individuals to compete on the world range.

Ever since the conceptualization of globalization and its attendant definitions, social and economic researchers have apparently found it crucial to ascertain the impacts of the globalization drive; using indicators from political, economic, socio-cultural, technological, and environmental domains as the guiding criteria.

Based on these measuring criteria, variables such as absolute number of embassies and high commissions in countries, (Dreher, 2006; Dreher et al., 2010; Figge and Martens, 2014), and involvement of countries in conventional arms trade and international military aid (Held et al. 2000) have been used as measures of political impacts on the countries experiencing globalization.

Measurement of the economic domain has been in trade and the spread of neoliberalism, capitalism and market economy (Antonio, 2007), multilateral trades of goods and services between countries. In the cultural domain are variables such as trade of differentiated products, promotion of understanding between cultures, tourism and flows of immigration – (both legal and illegal), international migrant group as a share of the population and the technology domain, variables such as modern communication technologies, particularly as for mobile cellular subscriptions per 100 inhabitants, internet users, and transportation system have been used. The environmental impacts have been measured in ecological footprints of imports and exports as a share of bio-capacity (Figge and Martens, 2014).

2.2 Role of Telecommunications in Nigeria's Economic Development

Telecommunication service as infrastructure plays an important role in the economic, political and social development of any country. Like any infrastructure, it is expected to stimulate economic growth and development. It has been shown that telecommunication services are used in connection with a wide range of economic production and distribution activities, delivery of social services, and government administration (Saunders, R. J. et al (2014). Similarly, the National Policy on Telecommunication (2000) observed that, telecommunication is a vital engine of growth of any economy, it is an essential infrastructure that promote the development of other sectors such as agriculture, education, industry, health, banking, defence, transportation and tourism. It is indispensable in times of national emergency or natural disasters. It considerably reduces risks and rigours of travel and arrests rural-urban migration.

Telecommunication is now widely considered a strategic investment to maintain and develop competitive advantage at all levels – national, regional and firm. It constitutes the core of, and provides the infrastructure for the information economy as a whole. For instance, telecommunications service is the bedrock upon which information technology and its derivatives such as electronic banking and commerce are built. Telecommunications facilitate market entry, improve customer services, reduce costs, and increase productivity. It is an integral part of financial services, commodities markets, media, transportation and the travel industry and provides vital links among manufacturers, wholesalers and retailers. Information is regarded today as a fundamental factor of production, alongside capital and labour.

The information economy accounted for one-third to one-half of Gross Domestic Product (GDP) and of employment in the Organization for Economic Cooperation and Development for a substantial proportion of GDP in the newly industrialized economies and the modern sectors of developing countries.

For example, in their study of some countries in the Asia and Pacific region, Jusawaila, M. et al (1988), using data of the late 1970s, found that information sector as proportion of GDP were: Singapore 25 per cent, Indonesia 19 per cent and Malaysia 14 per cent. However, in Nigeria the telecommunication services contribution to GDP was paltry, averaging 0.3 per cent of total GDP during the period 1960 – 2000. Similarly, in terms of employment generation, private telecommunications operators generated only 7,000 new jobs since the first licence was issued in 1996.

Telecommunication services can substitute for other forms of communication (mainly postal service and personal travel) and are often more effective and more efficient than those forms in their use of time, energy and materials and in their effect on the quality of the environment.

Telecommunication is an essential feature of globalization of affecting international trade-flows of investment, technologies, services and the world economy as a whole, of which free market is today the moving spirit. Global telecommunication provides the opportunity for a country to share in the wave of science and technology developments, and the general economy in positive ways that account for the remarkable economic growth in advanced countries and the newly industrialized countries.

2.3 The Role of Airtel Nigeria Limited to Nigeria's Telecommunications Industry

Airtel Nigeria is a subsidiary of Bharti Airtel of an Indian Multinational telecommunications Services Company headquartered in New Delhi India. Bharti Airtel is now the third largest mobile operator in the world with over 303 million customers across 20 countries in Asia and Africa. The history of Airtel Nigeria dates back to the year 2000 when it entered the Nigerian market under the brand name Kencell which was later rebranded in 2004 to Celtel Nigeria. Celtel Nigeria was later acquired by Zain group in 2005. On June 2010, the Zain was acquired by Bharti Airtel and rebranded to Airtel Nigeria. Its current name was adopted after Bharti Airtel bought out the Africa mobile operations of Kuwaiti telecommunications from Zain. The company offers mobile voice & data services, fixed line, high speed broadband, turnkey telecom solutions for enterprises and national & international long distance services to carriers with market share of 22.6%. It acquired Vmobile subscribers in November 2014. It is the second tele-communications operator in Nigeria, after MTN Nigeria, to host mobile virtual operators (MVNOs) in the country. Airtel Nigeria prides itself of being the most innovative mobile telephone operator company in Nigeria. This is attested by the many products, that it offers namely: Value Added Services (VAS), Airtel Money, Prepaid and Postpaid plans, One Network, 3.75G Network, Blackberry devices and services, International roaming, Local and international messaging, 24-hour customer care center, Internet access, Directory enquiries, SMS information services, Mobile Top up and Me2U services.

Several banks in Nigeria have their Airtel Mobile Apps by which customers can conveniently carry out transactions of about 50 billion or more according to individual bank policies.

Also, customers with the upgraded version of mobile phones also known as Android and IOS can use their bank-generated transfer code to implement transactions successfully. The status quo has reduced the rate of armed robbery basically as people hardly move with large sums of money (Jackson, 2017). Although, Micah (2017) argued that the current state of things may have drastically increased Cyber Crimes. In any case, the risk of GSM has achieved a stupendous improvement in the significant area of the economy, like banking, telecoms, and commerce in general. GSM is perhaps the most massive improvement at any point to have occurred in the telecommunications industry (Wojuade, 2015). The penetration of GSM has brought enormous profits which incorporates expanded financial sector turnover through loans, advances, progresses, e-commerce, e-banking (Iwayemi, 2017).

Additionally, e-electronic banking like Automated Teller Machine (ATM) services, online monetary exchanges, international credit uptake of debit and credit cards and debit card facilities, airline ticketing, and reservations are a portion of the various ways that the introduction of GSM in the telecommunications industry has helped the improvement, refinement, security and fast transactions in the Nigerian financial sector (NCCE, 2017). Nigeria as of now is positioned as the biggest and quickest developing telecommunications market in Africa, and among the 10 fastest growing telecommunications markets in the world, a sign of its heartiness and great profits on investment (Anioke, 2011).

2.4 Theoretical Framework

Current scholarship in organizational strategic management and technological development recognizes that theory is just not a conduit for truth but rather plays the constitutive role in the creation of truth (May & Mumby, 2015). Littlejohm, (2013) defined theory as someone's conceptualization of an observed set of events. The author further explained that theories consist of ideas and guide researchers in making decisions and taking action.

The theory or formulation that underpins this study, amongst others is the systems theory. According to Weckowicz (2000), this theory was initially advanced in 1968 by a biologist, Ludwig Von Bertalanffy. Von Bertalanffy's research attempted to explain the link between parts and whole of living organisms.

The theory details that the entire is more than the total of its components. Each component should be assessed as it relates with adjustments and is changed by recurring components inside the system. The components of a specific system are presumed to be connected and it is fundamentally via communication that this connection is facilitated (Schrader, 2018). According to Coombs and Holladay (2012), the systems perspective sees an organization as a grouping of interconnected parts with a sole motive of maintaining balance.

Bivins (1992) noted that the systems theory has gone beyond the borders of biology and has been embraced in other academic fields such as psychology, history, cybernetics, sociology and strategic management. According to Almaney (2014), telecommunications development, which is an offshoot of strategic management is important to the systems theory. He explained that the systems theory is built on the thought that there exists an independent link between an organization and its sub-systems.

The systems theory guided the study in identifying how economic globalization impacted on the business activities of Nigeria's telecommunication industry, particularly, Airtel Nigeria and also to demonstrate how communication was important in ensuring continued business for the organization (Airtel Nigeria Limited) which in essence translates to the very survival of the company.

2.5 Empirical Review

Jhu and Khaleja (2018) in a study on the perspective of determining the significance of telecommunication on economic development argued that telecommunication has a crucial impact on the development of the economy. In Nigeria, Teilla et al. (2007) and Tiruneh, Wamboye & Sergi (2017) investigated the simultaneous relationship between telecommunications and economic growth.

In the same vein, Osotimehin et al. (2010) conducted a study on the effects of investment in telecommunication infrastructure on economic growth and found that telecommunication infrastructure measured by tele-density and telecommunications employment is both statistically significant and positively correlated with economic growth (See also Tchamyou, 2017, Salahudin & Gow, 2016). But the research conducted by Onakoya (2013) from his study of the impact of economic reform on the telecommunication sector concluded that telecommunications sector is statistically insignificant to explain GDP growth and the impact of investment in telecommunications was found to be an insignificant predictor of GDP even when the investment was lagged by one year. While that of Oji-Okoro (2010) and Costello & Donnellan (2016) on the relationship between FDI and Telecommunications growth in Nigeria shows a negative relationship between FDI and GDP. This was corroborated by the findings of

Gold (2008) which shows a negative relationship between tele-density and GDP growth from his aggressive analysis of the impacts of telecommunications infrastructural development on Nigeria economy.

The study conducted by Ganger –Sims causality test with a 50 years' time series data of United States of America, Beil et al. (2005) proved that there is a causal relationship between telecommunication investment and economic growth. Based on another extensive study with the data of 105 countries, Shiu and Lam (2007) strongly agreed that telecommunication development is significantly related to the economic development.

William et al. (2011) observed that revenue generated from the telecommunication services has a significant impact on the GDP in the economy of China. On the other hand, Stiglitz (2018) argued that the revenue of the telecommunication industry has significant influence over the economic growth of the developing countries. From another empirical research from Ovum (2006) proved that in India mobile industry has a combination of 313 million RS equivalent to 7.8 billion dollars towards the gross domestic product (GDP).

A comprehensive study, study by Mcknisey (2007) claimed that telecommunication industry particularly including the mobile operators have a significant contribution towards the growth of the GDP which is two times larger than any other industry in China. The mobile economy GSMA technology (2015) reported that the telecommunication revenue has a greater variation based on the region to region. In developing markets such as Sub-Saharan Africa, Asia Pacific region the revenue growth is tremendous but in Europe it is slowing down only because of the subscriptions rate. They also reported that the forecasted revenue growth rate will be declined by 3.1 percent per annum until 2020. Based on an empirical study in Egypt, Saudi Arabia and India, Graber & Venkata (2013) and Niebel (2018) suggested that the revenue of telecommunication industry which generated from providing various services is accountable for two or three percent of total GDP.

Badram et al. (2012) in a study on telecommunications industry and economic growth argued that in many emerging countries telecom industry is one of the most important source of revenue for national treasury. Based on an empirical study in Egypt, Saudi Arabia and India, Graher and Venkata (2013) suggested that the revenue of telecommunication industry which is generated from providing various services is accountable for two or three percent of total GDP.

Zhang (2013), Bowles, (2012) both of them argued that the presence of internet continuously transforms the economy of Australia as the internet user was increased from 73 percent in 2007 to 87 percent in 2009. In another study based on the internet consumption model Zhang (2013) and Song (2013) found that internet diffusion has a strong positive correlation with GDP per capita.

World Bank (2013) in a study on the tele-density and its impact on the economy, reported that as the world wide tele-density of telephone users is increased by 10 percent, the world wide Gross Domestic Product (GDP) also increased by 6 percent. In a similar study but only based on Young and Ernest (2013) and Bhattacharyya & Hodler (2014), study on the tele-density and its impact on the economy strongly emphasized that because of the higher growth of tele-density, the GDP of India had been growing faster than ever.

3.0 Methodology

The research utilizes both qualitative and quantitative approach to empirically investigate the ‘Economic Globalization and Telecommunication Industry, using Airtel Nigeria Limited as case study’. Gross Domestic Product (GDP) is used as a proxy for Economic Growth in Nigeria. While the independent variables shall be Tele-density, Telecommunications Sector Revenue and Investment in Telecommunication Sector. Secondary data were employed to conduct this empirical analysis. The data were sourced from National Bureau of Statistics (NBS), Central Bank of Nigeria (CBN), Statistical Bulletin, Nigeria Communication Commission (NCC) and corroborated by data from World Trade Organization (WTO) and World Bank Development Indicator.

3.1 Model Specification

In building the model for the study, the Ordinary Least Square (OLS) Method of regression analysis shall be used. This is given as: $Y = B_0 + B_1X_1 + B_2X_2 + B_3V_3 + \dots + B_iX_i$ (3.3)

Where: Y = Dependent variable

$B_0 - B_i$ = Parameters to be estimated

$X_i - X_0$ = Independent variables

3.2 Model

Multiple Linear Regression Analysis model was constructed to explain the relationship between the dependent variable and the independent variables using econometrics model as statistical tool. The model built for the regression analysis is stated below.

$$GDP = \alpha + \beta_1telrevi + \beta_2telinv2 + \beta_3Telden + \beta_4Agrici + \beta_3unenpt + \beta_tEcI + u \dots \dots \dots (3.4)$$

GDP is the dependent variable, $\beta_1telrevi + \beta_2telinv2 + \beta_3Telden$ are the explanatory variables while $\beta_4Agric + \beta_3Unemp + \beta_0Ec$ are the control variables. Growth figure (i.e. percentage growth) were used to measure the relationships between the dependent and the independent variables.

The u (error term) encapsulates all other unobserved variables not directly included in the regression equation that could influence the dependent variables. Several economic interactions have capacity to influence GDP Growth in any economy. It is however not feasible to incorporate all these interactions in one regression equation. Thus, the error term was included to capture the effect of the unobserved interactions.

The underlying theoretical assumption of the research is that after the liberalization of the telecommunications sector, substantial investments were attracted into the sector (Telinv) which helped to galvanize telephone usage (Tele-density). As the numbers of telephone usage increases together with other externalities also increases. These increases are therefore expected to influence growth in the economy (GDP growth).

4.0 Results and Discussion

From the regression result, Economic growth was the dependent variable proxy by Gross Domestic Product while Tele-density (TELD), Telecommunication Sector Revenue (TSR) and Investment in Telecommunication Sector (INVT), Agricultural sector, unemployment and Electricity Consumption were the independent variables. The regression results obtained were presented in the table below.

Table 3: Dependent Variable: GDP

Variable	Coefficient	Standard error	t-statistic	Probability
C	9266.593	3857.515	3.242885	0.0031
TELD	140.0973	107.8694	1.298767	0.2050
TSR	14.65944	8.587348	1.707097	0.0993
INVT	1008.747	233.2914	4.323977	0.0002

R square = 0.882541, F-Statistic = 67.62246, Adjusted R square = 0.869490, Prob. (F-Statistic = 0.000000, D. W Statistic = 1.543241

(Source: Author's Computation)

The interception of the regression equation presented on table 4.1 above is 9266.593. All things being equal, it represents the value of Gross Domestic Product (GDP) if Tele-density (TELD) is zero holding Telecommunication Sector Revenue (TSR) and Investment in Telecommunication (INVT) constant. The regression coefficient of Tele-density (TELD) is 140.0973. It shows that a unit increase in Tele-density (TELD) will bring about 140.0973 units increase in Gross Domestic Product (GDP) in Nigeria. Hence, the increase in Gross Domestic Product (GDP) led to increase in economic growth in Nigeria. The regression coefficient of Telecommunication Sector Revenue (TSR) is 14.65944. It shows that a unit increase in Telecommunication Sector Revenue (TSR) will bring about 14.65944 units increase in Gross Domestic Product (GDP) in Nigeria.

It is positive showing a direct relationship between Telecommunication Sector Revenue (TSR) and Gross Domestic Product (GDP) in Nigeria. Hence, the increase in Gross Domestic Product (GDP) also led to increase in economic growth in Nigeria within the study period.

The regression coefficient of Investment in Telecommunication (INVT) is 1008.747. It shows that a unit increase in Investment in Telecommunication (INVT) will bring about 1008.747 unit increase in Gross Domestic Product (GDP) in Nigeria. It is positive showing a direct relationship between Investment in Telecommunication (INVT) and Gross Domestic Product (GSP) in Nigeria. Fence, the increase in Gross Domestic Product (GDP) led to increase in economic growth in Nigeria.

4.2 Policy Implications

From the ongoing presentation and analysis of results, it was revealed that Tele-density had insignificant impact on Gross Domestic Product in Nigeria. This implied that an increase in Tele-density brought about increase in Gross Domestic Product (GDP), hence, increase in

economic growth. Furthermore, the result also revealed that Telecommunication Sector Revenue (TSR) had insignificant impact in Gross Domestic Product (GDP), hence, increase in economic growth in Nigeria.

Lastly, the result showed that Investment in Telecommunication Sector had significant impact on Gross Domestic Product in Nigeria (See for instance, Snezana, Zoran, Zorana, 2019; Amavilah, Asongu, Andres, 2017). This implies that an increase in Investment in Telecommunication Sector also resulted in increase in Gross Domestic Product, hence, increase in economic growth in Nigeria.

Table 4.2: Results of the LogRGDP function

Variables	Coefficients	Standard Errors	t-values
LogFDI	0.33128	0.0443923	9.23
BC	-0.21563	0.432188	-4.64
Unemp	-0.23481	0.345221	-4.32
Telcom	0.000232	0.0000523	3.7
TOP	-0.024457	0.0080248	3.42
Constant	12.12345	0.463832	33.62

Source: Author's Computation

In the model, the coefficient of the constant is 12.12345 which shows the value of LOG (RGDP) even if the impact of all explanatory variables are individually zero. It has a positive sign implying that if other variables are assumed constant, the rate of growth will be equal to 12.1%, a unit increase in FDI leads to 0.33128 increase in RGDP. In other words, a percentage increase in FDI changes RGDP by 0.33%. A change in electricity consumption leads to a 21.5% decrease in Real GDP while unemployment and trade openness decrease RGDP by 0.23%.

5.0 Conclusion and Recommendation

Economic growth in Nigeria is principally a function of variation in some macroeconomic fundamentals. There is need for a macroeconomic environment that will encourage telecommunication industry and foreign direct investment in order to enhance economic growth in Nigeria. The outcome of the empirical and stochastic investigations shows that Telecommunication Infrastructural Development has a positive relationship with output growth in Nigeria (See Ayse et al., 2016; Mohammed, & Sulong, 2017). The introduction of Global System for Mobile telecommunication (GSM) led to 17 percent rise in the output growth. The use of mobile phones in Nigeria has become very useful for individuals and industries in both the urban and rural areas.

Therefore, the output of industries has increased and the life of many Nigerians improved within the era of improvement in telecommunication industry. The demand side of electricity is determined by the amount of energy supplied. This is why we have contrary result to a priori expectation of the parameter for electricity consumption. On the side of the degree of trade

openness, Nigeria is still a developing nation that needs a mild check on the nature of openness which her infant industries face.

There is need to checkmate the trend of unemployment as it impacts negatively on economic growth in Nigeria. Telecommunications can aid sustainable economic development when used appropriately, with the full participation of all stakeholders in the developing economies. The intrinsic value of telecommunications does not lie in easing communication and information but in enabling growth and development. In a country like Nigeria, where a vast section of the population is below the poverty line, telecommunications offer a chance to empower the residents and transform them into more productive human capital.

Based on findings and conclusions presented above, the paper recommends that government should expand tele-density and directly make telephone communications cheap and accessible through granting more licenses to GSM operators in order to allow for healthy competition among the GSM operators (See Wamboye, & Sergi, 2019; Wanboye, Adekola, & Sergi, 2016; Song, 2015). In addition, the interests of the consumer of telecommunication services should be protected by promoting competitive pricing of such services and combating the abuse of market power. The government should provide non-monetary incentives including the funding of the development of other infrastructure particularly electricity. To encourage rural telephony, the government should consider providing further concessionary fiscal incentives to investors who are willing to commit resources to the marginally profitable areas. The development of rural telephony will greatly assist growth of employment and incomes. The outcome of our study shows that investment in telecommunications infrastructure have direct and indirect linkage to economic growth. This is corroborated by the works of Anyasi and Otubu (2009) and Osotimehin et al. (2010).

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