

Review Article

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Economic Evolution of The Nigerian Telecommunication Industry: Emne's and Downstream Value Chain Transmission

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ABSTRACT

Recent developments in the Nigerian telecommunication industry have significantly been attracting multinational investors from emerging markets into the country, especially from African and Asian countries. This has led to massive influx of investors into the country's Global System for Mobile (GSM) communications market since 2001. This paper investigates the value chain effect of these developments on the telecommunications sector of the Nigerian economy. There is focus on the industry itself, subsidiary industries as well as the downstream value chain creation arising from the influx of emerging markets multinational enterprises (EMNEs) into the sector. Using basic statistical techniques, the study finds that the entrance of the multinational investors into the industry following the market liberalization policy of 1999 has not only created a vibrant telecommunications market but also enhanced the value chain on the Nigerian economy at large. The findings of this study provide further insight into the value chain creation debate as it concerns the telecommunications industry not just in Nigeria but in countries of similar economic stature and structure. Additionally, the findings are important to the regulators and policy makers in developed and developing economies alike, for evidence-based policies.

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Introduction

Information and communication have always been a source of concern to humanity. With greater interconnectedness and the world becoming a global village, the need for telephone and telecommunication services as necessary tools gets more pertinent by the day. Obviously, without distant wireless communications, modern civilization cannot advance [1].

Telecommunication services are vital tools in accelerating business activities and invariably economic growth. Greater attention has been placed on information and communication technology (ICT) by both developed and developing nations.

Nigeria is equally not left out as the country has witnessed reforms in the her telecommunication industry to meet with global demand [2]. Before the recent reforms in the Nigerian telecommunication industry, which led to significant capacity investments, the Nigerian telecommunication industry was grossly underdeveloped. By 1992, the sector was deregulated with the establishment of Nigerian Communications Commission (NCC). This brought about expansion and introduction of new technology which made it easier for new entrants to build wireless telecommunication services [3].

Fundamentally, the need for telecommunication is beyond facilitating business activities and stimulating many diverse and novel job opportunities. Interestingly, telecommunication has a catalytic effect on the development of other sectors of the economy, but the value chain effect of telecommunication in Nigeria is yet to be fully captured. It is this gap that this study is set to fill. To this end, the aim of this study is to investigate the value chain effect of the growth of the telecommunication industry in Nigeria following the introduction of GSM wireless as an aftermath of the multinational companies' investment into the sector. To achieve this aim, the rest of the paper is structured thus: section two documents the stylized facts, section three shows an excerpt on the growth of subsidiary industries and downstream value chain creation while section four contains issues on competition and the role of new entrants into the telecommunication industry followed by section five which discusses the Nigerian experience of telecommunication value chain. Summary, conclusions, and policy implications are shown in section six.

Stylized Facts

The telecommunications service came into existence in Nigeria in 1886 [4]. The establishment was towards providing communication channels with the home office in London for the then Colonial Administrators. By 1960 when Nigeria gained her independence, the British owned cable and wireless company provided link that led to progressive expansion of the sector. Between 1960 and

1985, the Posts and Telecommunications (P&T) were in charge of communications within the country while Nigerian External Telecommunications (NET) was in control of communications outside Nigeria. Their services, unfortunately, were not just expensive but the qualities were highly unreliable.

Due to these lapses, by 1985, there was an emergence of the Nigerian Telecommunications Limited (NITEL). NITEL was a Federal Government company for providing public telecommunication services in the country. Their establishment gave rise to an Increased patronage and improved services. In line with worldwide trend, NITEL established digital technology by 1990s. The aim was towards a more competent and dependable services. Before this period, all the exchanges were analogue and there was a great need to harmonize the external and internal telecommunication services. NITEL had a monopolistic status which left her without competitors in the telecommunications industry. This scenario may have contributed immensely to NITEL poor performance in the distribution of her services.

By 1992, a regulatory body was established, the Nigerian Communications Commission (NCC). The NCC was to protect the public interest among other functions. However, a new era of telecommunications industry came into existence with the privatization and commercialization exercise of 1998. The privatization opened door for private establishments like Motorphone, Multilinks, Mobitel, Intercellular, and so on. By 1999, Nigeria returned to democracy, and the then president of Nigeria, President Olusegun Obasanjo granted licenses to GSM service providers.

The need for GSM across the globe was to guarantee seamless telecommunications through Europe. The service providers that came into Nigeria were MTN and ECONET. The ECONET later transformed to V-Mobile and to the present AIRTEL. These GSM providers came into existence in 2001. By 2003, GLOBACOM came into the market while ETISALAT (the present 9Mobile) came into existence in 2007. Figure 1 shows the market share of these major industry players as at 2016 year ending.

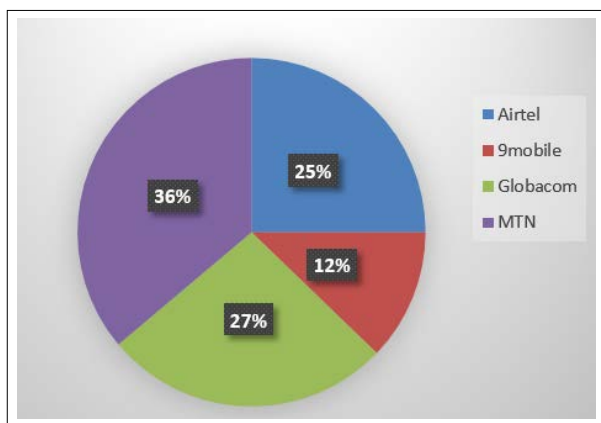


Figure 1: No. of Active Subscribers as at 2016
Source: National Communications Commission (2016)

From Figure 1, MTN controls the market with 36% of the market share followed by GLOBACOM with 27% while the remaining 37% is controlled by the other two GSM service providers. The rapid takeoff of internet services and mobile wireless has enhanced communications across Nigeria.

More so, the telecommunications service industry has been a major contributor to the growth of the Nigerian economy. From a

modest contribution to GDP of 7.4% in 2010 to over 9% in 2016, according to NCC Sources. Figure 2 captures the growth trend of the telecommunications industry contribution to the overall growth of the Nigerian economy.

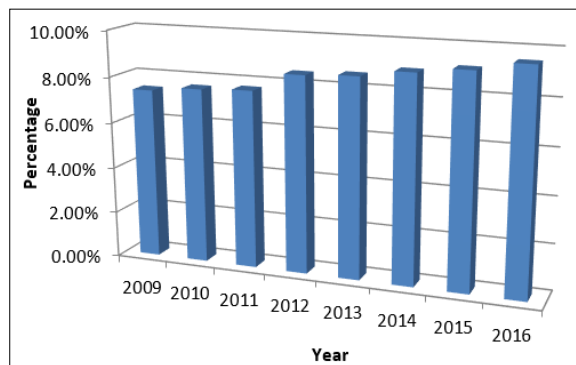


Figure 2: % Contribution to GDP

From Figure 2, telecommunications industry competes favorably with other key sectors as a major contributor to the growth of the economy. Statistical evidence from the Central Bank of Nigeria shows that in 2016 agricultural contribution to GDP stood at 24%, with Petroleum and Natural Gas (excluding refining) at 8% while telecommunications stood at 9%. There is no doubt about the key position that this industry occupies as it grows and expand on a daily basis.

With an increasing population and undoubtedly the most populous black nation, Nigeria has become a key market not just for telecommunications and allied services, but also for other ancillary products and services. This is evidenced by the country's ever increasing teledensity. Teledensity is the number of telephone connections for every hundred individuals living in a given area. Figure 3 captures a 15-year growth trend in teledensity, which arguably has made the telecommunications service industry a veritable contributor to the growth of the economy.

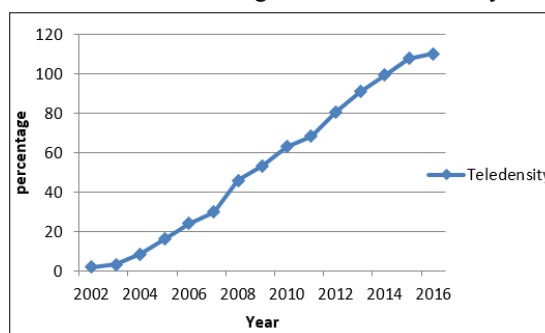


Figure 3: Teledensity in Nigeria

With a positively significant correlation of 97% ($t = 14.08875$, $p\text{-value} = 0.0000 < 0.05$) between teledensity and GDP, it can be argued that teledensity shares a positive linear association with the overall growth of the Nigerian economy.

Growth of The Industry's Subsidiaries and Downstream Value Chain Creation

The Nigerian telecommunications industry is one of the fastest growing markets in Africa. It is one of the largest and most vibrant telecommunications markets in Africa [5-7]. As at 2016, evidence shows that the industry has over 154 million active subscribers in the voice and 94.8 million subscribers in internet connectivity with a teledensity of over 110.3% (www.ncc.org.ng), while the active mobile-broadband and internet penetrations stood at 20.95%

(against 10% the previous year) and 47.44% apiece in 2016 [7]. Over 100% teledensity means that the number of connections is higher than the population of the country.

Over the time, the industry has evolved to a business model described by Kaplinsky and Morris as moving from 'wall garden' to 'public garden', albeit an oligopolistic market [8]. The growth witnessed in the industry is aftermath of some strategic reforms in the industry as earlier noted. Among those strategic reforms are:

- The enactment of the Nigerian Communications Commission Decree No. 75, 1992, which provides the regulatory framework;
- The Telecommunications Liberalization policy of 1999, which enabled a competitive market;
- The enactment of Public Enterprises (Privatization and Commercialization) Act 1999, which provided the legal platform for the privatization of the Nigerian Telecommunication Plc and Nigeria Mobile Telecommunication Limited in 2003.

The main focus of the NCC Act, 1992 (as amended) was to: create a regulatory environment to facilitate the supply of telecommunication facilities and services; facilitate the entry of private entrepreneurs into the telecommunications market; and promote fair competition and efficient market conduct. The industry was liberalized in 1999 in line with the third objective. Before the liberalization of the market, the industry was monopolistic but the policy opened up market activities, investment opportunities, and enhanced general business operations. The market was formerly dominated by local indigenous operators such as Multilink, Intercellular, Reltel, Starcoms, and Mobitel whose operations were based on Code Division Multiple Access (CDMA) technologies. The policy saw the introduction of Digital Mobile Licences (DML), which resulted to the introduction of GSM based technology services. The monopolization of the industry by NITEL affected the growth and development of the sector majorly due to incompetency and lack of technology-know-how by NITEL.

The introduction of GSM technology opened the floodgate for emerging market multinational enterprises (EMNEs) from across Africa and Middle East to investing in the Nigerian telecoms market. The two important attractions to the investors were the return to democracy in 1999 and the demographic advantage of the country. As a result, in August 2001 NCC issued licence through spectrum auction to three companies to operate as Telcoms in providing GSM services [6]. Among these companies were: ECONET, a multinational company from India; and MTN, a South African multinational firm; while M-TEL (a subsidiary of NITEL) was the third. M-TEL licence was later re-auctioned to

GLOBACOM Limited, an indigenous multinational company in 2002 while ETISALAT, a United Arab Emirate multinational company emerged in the market in 2008. As at date, the leading GSM multinational enterprises players in Nigeria are MTN, AIRTEL, GLOBACOM, and 9MOBILE. Some of the multinational companies operate under license while some operate under contract, merger, amalgamation, charter, etc.

Though, both CDMA and GSM technologies develop side by side in Nigeria, but GSM technology dominates the market with 99.70% share of the market while other technologies stood at 0.15% for CDMA, 0.09% for fixed (wireless/wired), and 0.04% for voice over internet protocol (VoIP) as at November 2017, according to NCC. However, the dominance of GSM over CDMA and others is not surprising because it is a global trend [9]. The operations of these GSM multinationals has resulted to a vibrant market with diversified services into other areas of business and expanded value added services as well as emergence of other investors-- both foreign and local; small, large, and multinational companies into the market.

The free market system in Nigeria attracted huge investment (including foreign direct investment) into the industry. As at 2011, about USD18 billion in private sector investment was made in the sector in areas such as licence fees, building of infrastructure, development of local manpower, empowerment of local companies that provide support services [6]. In 16 years of GSM operators in the country, investment in the sector has moved from a mere \$50 million in 2001 to about US\$70 billion in 2017, while the foreign direct investment (FDI) into the sector was USD955.186 million as at December 2016 [7]. The huge investments into the sector have significantly impacted on the numerical growth of operators licensed under different operational clusters in the industry as shown in Table1. The increase in the telecommunications service providers from service production to delivery and after sales services significantly broadened the value chain downstream in Nigeria telecommunication sector.

Downstream value chain creation has been on increase due to increased number in the operational and value added service activities of these companies licenced under different undertakings. This is true because value chain "identifies the full range of activities that firms undertake to bring a product or a service from its conception to its end use by final consumers" [10]. By and large, downstream value chain in the Nigerian telecommunications industry has increased due to the activities of the GSM multinationals from the emerging markets around the globe.

Table 1: List of Companies under Different Categories of Telecommunications Undertakings

S/No	Telecommunications Undertaking	No. of Companies
1.	Sales and Installations	9
2.	Repairs and Maintenance of Telecoms Facilities	9
3.	Cabling Services	9
4.	TeleCent/Cyber Café	10
5.	Public Payphone Services	10
6.	Internet Services	8
7.	Non-Commercial Closed Users Group	3
8.	Sales and Installation of Major Equipment	5
9.	Satellite	7
10.	Unified Access Services Licence	8
11.	Digital Mobile Licence (GSM)	1
12.	Electronic Directory Information Services	2
13.	Interconnect Exchange	5
14.	Metropolitan (Fibre) Cable Network	7
15.	International Data Access	8
16.	International Gateway	1
17.	National Carrier	2
18.	National Long Distance Communications (NLDC)	6
19.	Public Mobile Communications Trunk Radio Services	1
20.	International Submarine Cable Infrastructure and Landing Station Services	3
21.	Value Added Services (VAS) and Call Centre Services (CCS)	7
22.	Call Directory Services	6
23.	Content Services Using Shortcodes (SNC)	7
24.	Prepaid Calling Services (PPC)	1
25.	Special Number Services (SNS)	6
26.	Infrastructure Sharing and Collection Services	7
27.	Central Equipment Identity Registry Services	1
28.	Automated Vehicular Tracking Services	8
29.	Open Access Fibre Infrastructure Network (INFRASCOS)	1
30.	Wholesale Wireless Access Services	1
31.	Private Network Links (PNL) – National	4
32.	Private Network Links (PNL) – Regional	8
33.	Local Exchange Operator	8

Source: Nigerian Communications Commission (<http://www.ncc.gov.ng>) Accessed on 06/01/2018 [14].

Competition and The Role of New Entrants

As noted earlier, the market is robust, oligopolistic yet competitive within as well at the international markets. The operators in the telecommunications industry in Nigeria created intrinsic value in a number of areas such as job creation, facilitating of commerce, trade, social, and community interactions, money exchange

potentials, advocacy, and enlightenment campaigns among others. The competitiveness of the sector has resulted to diversification by telecommunications companies in Nigeria into other areas of businesses such as mobile money, insurance services, music and video marketing because of their huge clientele base advantage [11, 12]. The competition has also enhanced the service quality, cost and expansion. As at 2016, the number of active subscribers was 154,529,780 while the teledensity was 110.38%. The tariff for voice for all major telephony operators in Nigeria were ₦12.01 (On-net) and ₦12.64 (off-net) in 2016 compared to ₦34.20 (On-net) and ₦41.10 (off-net) in 2007.

Today, telecommunications companies provide range of value-added services, which include but not limited to, telecommunications infrastructure; business support services (BSS); operations support services (OSS); enterprise application integration (EAI); Vas and mobility solutions; telecommunications strategy and management; IT solutions and services; business process management (BPM), and outsourcing services. These services evolve along the value chain from production to consumers and after sales services in the industry. The telecommunications sector acts as a supplying means to other sectors and has enhanced human capabilities in areas such as health, education, agriculture, finance, transportation, commerce, governance among other areas in Nigeria [7].

The Nigerian Experience of Telecommunications and Value Chain

The telecommunications industry has created many job opportunities and has generated employment to the Nigeria's teeming population. Many Nigerians that were previously unemployed can boast of having source of livelihood. The business of phone calls is thriving both in the rural and urban areas. Business transactions are carried out under umbrella stand refer to as 'Call Centers'. Both graduates, non-graduates, skilled and non-skilled Nigerians queue into this arrangement as a survival strategy. This kind of arrangement has been rewarding as startup capital could be affordable by many. Interestingly, such business arrangement is lucrative as many people patronize them either to make calls or buy rechargeable cards.

The GSM has enabled low income earners to save money to finance other business ideas. Many Nigerians are engaged in retailing of cell phones and phone accessories. Similarly, a good number of people are gainfully employed and make good living through phone repair business.

Many Nigerians directly or indirectly are employed by mobile operators. The GSM more than any other sector has created more jobs for Nigerians [13]. Some Nigerians are self-employed within the technical aspect of the business by repairing and fixing damaged mobile phones whereas mostly graduates are employed by the GSM companies. Many that would have been in the labour market due to unemployment have something to do now. This is a step in the right direction in reducing poverty.

The GSM services have enabled the government and law enforcement agencies improve their security network. Quick calls are easier to make when there are security challenges. Many fire incidences were arrested through phone calls. Besides employment generation, business transactions have been positively improved. The associated risk with long business trips has been reduced as businesses could be transacted over the phone. The sector has provided prospects for security personnel. For instance, the opportunities provided by GSM for connectivity offers information concerning security situation. This has enabled security operatives disseminate security reports quicker.

One of the areas that have experienced uncommon transformation and have led to improved value chain arising from the telecommunications service industry is the banking and finance sector. There have been consistent increases in the volumes of Automated Teller Machines Transactions (ATM), Point of Sales (POS), Web and mobile payments over the period 2009 and 2014. Table 2 is culled from Central Bank of Nigeria sources and clearly reflects a 6-year growth trend in the electronic payment systems in Nigeria as well as its contributions to the deepening of the Nigerian financial system.

Table 2: Annualized Summary of the Volume of Electronic Payment Transactions in Nigeria, 2009 – 2014

Year	ATM	POS	WEB	MOBILE
2009	109,161,646	918,256	2,703,516	1,809,251
2010	60,133,610	1,072,426	1,601,086	1,156,533
2011	347,569,999	2,100,673	1,932,355	3,649,374
2012	375,487,756	2,555,045	2,276,464	2,297,688
2013	295,292,940	9,402,255	2,900,473	15,812,435
2014	400,102,507	20,817,423	5,587,081	29,156,406

Source: Central Bank of Nigeria Statistical Bulletin (2014)

The graph below shows the increasing but oscillating growth in the use of telecommunications enabled electronic payment channels since the turn of 2009.

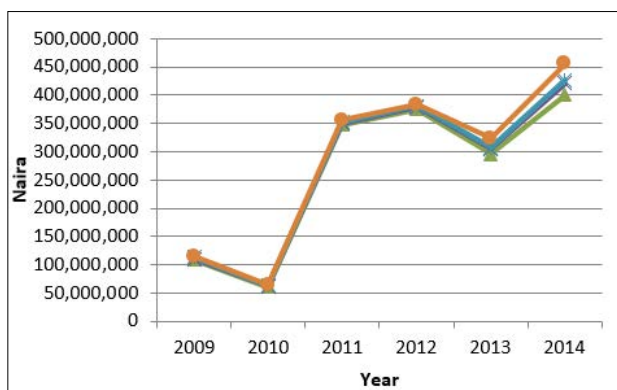


Figure 4: Annualized Electronic Payment Systems, 2009-2014

A dip is observed between 2009 and 2010 with a consistent increase between 2010 and 2012. With shocks and dynamics of an emerging industry probably playing out in 2013, a decreasing trend was recorded with a corresponding increase in the year 2014. In relating expansion in electronic payment channels to financial development in Nigeria, some forms of causal relationships were found between electronic payment channels and financial development. The electronic payment channels were represented by ATM and POS while the financial development is measured by broad money (M2) and credit to private sector (CPS).

Table 3: Pairwise Granger Causality Tests for the period, 2009-2014

Null Hypothesis:	Obs.	F-Statistic	Prob.
ATM does not Granger Cause CPSGDP	5	14.3856	0.0630
CPSGDP does not Granger Cause ATM		22.8680	0.0411
M2GDP does not Granger Cause ATM	5	22.0971	0.0424
ATM does not Granger Cause M2GDP		0.01462	0.9148
MOBILE does not Granger Cause M2GDP	5	88.7436	0.0111
M2GDP does not Granger Cause MOBILE		0.35320	0.6126
POS does not Granger Cause M2GDP	5	71.3526	0.0137
M2GDP does not Granger Cause POS		0.14021	0.7440

Note: ATM means automated teller machine, CPSGDP refers to credit to private as a ratio of gross domestic product, M2GDP refers to broad money as a ratio of gross domestic product, MOBILE represents mobile telephone services, POS means point of sale system.

Source: Authors' calculations

From Table 3, a unidirectional causality was found between financial deepening proxy by CPSGDP and M2GDP and the use of ATM, Mobile Payment, and POS. In some of the cases, it runs from financial development to the electronic payment channels while in other cases, the flow is the other way round.

Conclusion

The recent reforms in the Nigerian telecommunications industry, notably, the liberalization policy of 1992, privatization of NITEL/ MTEL, and the establishment of NCC, attracted multinational enterprises from the emerging markets, especially, Africa and Middle East into the country's market. This paper investigated the value chain effect of telecommunications industry as created by the coming of these companies on the Nigerian economy via the downstream value chain. The study used analytical technique and found that the emergence of the EMNEs into the Nigerian telecommunications industry revolutionized the sector. The revolution manifested into competitive, improved service, customer-oriented and cost effective industry.

The study found that EMNs vis-à-vis the value chain has impacted significantly in diverse areas of the economy such as labor market, security, commerce, financial service development among others since 2003 when these companies started operations. The gains of the evolution were pass-through the ancillary companies along the value chain from service production through to distribution to the final consumer and after sales services. Hence, value chain has changed the dynamics in the industry from monopoly and near single product to competitive and diversified service industry which in turn has contributed significantly to the Nigerian economy.

The import of these findings is for policymakers to incorporate value chain enhancing policies in telecommunications sector of the economy because of the role of the sector in poverty reduction. The Federal Government economic recovery and growth plan (ERGP) may be achieved faster in the face of value chain friendly policy framework [15].

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