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Comparative Analysis of Per Second Billing System of GLO, MTN, Etisalat, Airtel and Visafone in Nigeria

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Authors' contributions

This work was developed in collaboration by both authors, who contributed equally to the literature review and writing of the manuscript. Both authors read and approved the final manuscript.

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ABSTRACT

This study compares per second billing system of network providers such as MTN, AIRTEL, GLO, ETISALAT and VISAFONE in Nigeria. The area of research cluster in this study is to assess price, usage and beneficial Comparisons among communication companies (Network providers) along with their market competition in Nigerian economy and to evaluate the factors that influence the decisions of Nigerian telecommunication commission on price changes. Data of network subscribers and other network bundles were collected via Nigeria Communication Commission (NCC) database and other valuable medium. Comparison of active, inactive and installed capacity was inferred using multiple bar charts for efficient comparison. The study, with the aid of drift analysis, surveyed the effects of the competition on availability, quality and cost of telecommunications services in Nigeria.
The method of price comparison employed in this study centered on the five telecommunication network operators' tariff plans (both prepaid and postpaid), an approach which defined separate service price data on the basis of service usage levels, service merits, economic factor, tariff rate and accessibility. This study showed that, telephone density (teledensity) increased from 97.60 to

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108.11. It was inferred that, Visafone offers better per second billing system, follow by MTN Nigeria. Airtel Nigeria per second billing system is also moderate; Globacom Limited followed Airtel Nigeria; Etisalat tariff rate would have follow Visafone as the second best had it been it does not offers its service with access fees. It was observed according to the official data that, MTN Nigeria has the highest number of subscribers, follow by Globacom Limited, Airtel Nigeria, Etisalat and Visafone Limited in rapid succession. Hence, factors that determine the rate of subscription to individual network service among others, include, age of the network, quality service render, network coverage, tariff rate, accessibility, benefits, etc.

Keywords: Nigerian communications commission (NCC); tariff; data plans; subscribers; teledensity; per minute billing; per second billing (PSB).

1. INTRODUCTION

According to Oghojafor et al. [1], 2014, for any country to achieve national development, some parts of the economy are anticipated to change positively. A strategic part of these anticipations is the quality of services of the telecommunications industry [2]. The introduction of the Global System of Mobile communications (GSM) into the Nigerian market in August, 2001 brought amazing transformation to the telecommunications industry. In fact, it made telephone lines available to most Nigerians who are GSM users. According to Onwuegbuchi [3] and sequel to the above, telephone lines increased from 656,461 in 2001 when GSM was introduced to 81,195,684 in 2010.

The Nigerian telecommunications industry has gone through series of development efforts to make services available to consumers and to provide quality services. Telecommunication facilities were first established in 1886 by the colonial administration.

In 1960, the total number of telephone lines was only 18,724 for a population estimated at about 40 million. Moreover, between 1960 and 1985, the provision of telecommunication services in the country was also restricted because of the huge capital outlay required. Consequent to this, government set up two organizations namely, the Department of Posts and Telecommunication (P&T) to take charge of the internal network and the Nigerian External Telecommunication (NET) to provide a gateway to the outside world [4]. Thus, the quality of both the internal and external telecommunication services was unsatisfactory. The unsatisfactory situation had to do with equipment oldness, unreliable and congested lines, expensive service delivery and customer unfriendly services [5].

Despite the challenges encountered by Nigerians in the past to own personal telephone as a result of cost implication, today it has become a lot easier to acquire a personal telephone while service quality has moved up some notches. Though telecommunication tariff in Nigeria has fallen over 75 per cent since 2001, Nigerians are calling for more tariff reduction, for SMS and voice communication.

Historically, the year 2000 marked the evolution of GSM in Nigeria [6], before it eventually roll-out in August 2001. Meanwhile, GSM was already in use in more than 140 countries with more than 4000 operating member companies worldwide. Afore the arrival of GSM in Nigeria, only few Nigerians had access to telephony, which was seen as the special rights of the rich in the society as at that time. Many Nigerians all because they want to make local or international call had to make long booking in advance at Nigeria Telecommunication (NITEL) office during this period.

Notably, it was discovered that call tariff in Nigeria fell from about N50 in 2001 to about N45 around 2005 and about N12 today - for peak period; the tariff for SMS in the country has also fallen from about N15 in 2001 to N9 around 2010 and about N4 in 2013. SIM pack was initially sold for about N12, 000 in 2001 but fell to about N5, 500 in 2004 and is now being given freely on the streets [7].

In Nigeria Today, one of the dividends of privatization, deregulation and consumer democracy in Nigeria telecommunication Sector is the recent "forcing" of the GSM operators to include per second billing (PSB) into the mix of charges offered out to consumers across the country [8]. In fact, this is a great relief to the masses compare with the formerly charged rate known as per minute billing (PMB). In the past,

PMB was available at the rate of N50 per minute to network service consumers in the country; sequel to this, consumers howled loudly about such a rip-off. However, the emergence of per second billing system in Nigeria is as a result of the efforts made by NCC to normalize tariff rates offer to consumers by various GSM network providers in the country.

In this study, comparative analysis of per second billing (PSB) of five Mobile/GSM network operators in Nigeria namely, Globacom Limited, Airtel Nigeria, MTN Nigeria, Etisalat (EMTS Limited) and Visafone Lmited were carried out.

Telephone density or simply teledensity is refers to as the number of telephone connections for every hundred individuals living within an area. It varies widely across the nations and also between urban and rural areas, within a country. It has significant correlation with per capital GDP of such area. When teledensity is greater than 100, it means there are more telephones than people.

2. LITERATURE REVIEW

2.1 The Evolution of Mobile Communication System; Global System of Mobile (GSM) Technology and Operation

As history we have it, Mobile Communication could be traced to 1897 when great innovator called Giovanni Marconi substantiated radio wave's ability to provide continuous communication, over about 30km route, with ships sailing in the English Channel [9]. In the light of this, the effectiveness of mobile radio services was first recognized by the public services/security agencies, and later spread to private sector (taxis, lorry fleets, oil, and electric power). Mobile Communication System has therefore evolved over two centuries through the following technologies: Radio Paging, Cordless Telephone, Radio Dispatch System, Citizens Band Service, Mobile Satellite Communication (an extension of cellular system) and Cellular Radio System, of which GSM service is one.

However, the Global System of Mobile Communication (GSM) is a second generation cellular mobile radio system. It is a system with innovative technology and was established as a result of joint initiative of members of the Conference of European Posts and Telecommunications (CEPT) administration, all with the aim of structuring a cohesive pan – European network; giving the user a near uniform service throughout all European countries [9].

2.2 The Launch of GSM in Nigeria

Historically, the first GSM license was issued to EMIS in 1993, but the company did not showcase anything until 1998 when it installed about 3000-lines analogue fixed wireless telephone system in Lagos [9]. According to Adediran [9], in 1994 Telecel International received another license; its partnership was stillborn and separate licenses issued to Mono-phone, Wireless Systems, Telkom and Tele-Africa.

However, the year 2000 marked the evolution of GSM in Nigeria before it eventually roll-out in August 2001. Meanwhile, GSM was already in use in more than 140 countries with more than 4000 operating member companies worldwide. Before the arrival of GSM in Nigeria, only few Nigerians had access to telephony, which was seen as the special rights of the rich in the society as at that time. Many Nigerians all because they want to make local or international call had to make long booking in advance at NITEL office during this period. Apart from the issue of booking in advance that is common in the society then, the customer had to wait in long queues for several hours in order to make any of their calls.

The advent of the widespread mobile phone was, however, at the outset defected by the obstructions of epileptic services and high tariffs offered by the operators; formerly, some consumers used to involve in fisticuffs with public telephone operators at various public phone booths over having to pay N50 for a full minute call when such call dropped before the end of the stipulated one minute call [6]. It was during this period that NCC gave three GSM operators (Econet Wireless, MTN and Mtel), five years exceptionality period and did not license other GSM operator(s), until 2003 when Globacom was licensed and in 2008 when Etisalat joined the queue. Though licensing of MTel was that of a negotiated deal, since it did not pay the $284 million that other operators paid [6]. Today, more telecommunication companies such as Visafone, Multilink etc. has joined the league of GSM network providers in Nigeria, though the

country yearn for more of this companies in order to promote competitions and by extension improve quality delivery at better and cheaper prices.

2.3 The Emergence of Per Second Billing System in the Country

To start with, price is the sum of money a buyer pays to a seller in exchange for a good or service [10]. There is this question that is highly germane in terms of telecom service, most especially in Nigeria, i.e. when the cost of acquiring and using telecom services is low, does it lead to customer satisfaction? People not only may refrain from purchasing a product when they examine the price too high but may be suspicious of the quality of a product if its price is below what they consider acceptable [11]. Also, customers want a fair price for a product; otherwise they will switch to other service providers offering lower prices [12].

As history will have it, the emergence of per second billing system in Nigeria is as a result of the efforts made by NCC to normalize tariff rates offer to consumers by various GSM network providers in the country. Globacom Limited on August 22, 2003, upon its launching as the fourth entrant into the field of GSM, was the first to introduce Per Seconds Billing (PSB) system into its GSM offering "Glo-Mobile" instead of Per Minutes Billing (PMB) that was been charged by then existing operators; very quickly Econet on November 26, 2003 and MTN on December 1, 2003 joined the queue.

In fact, this new progress finally put an end to the rounding off of calls from seconds to minutes by then phone calling units across the country, even when the call time ended in seconds. During this time, provided a call ends in 3 minutes, 5 seconds, it would automatically be rounded-off to 4 minutes and by implication the subscriber is charged for four (4) minutes call.

Aside per second billing, Globacom Limited also introduced other licensed services, which include a Digital Mobile License (GSM), the National Carrier license (Fixed and Fixed wireless), International Gateway, and Online Services Licenses. The sudden introduction of per second billing (PSB) by Globacom Limited, forced other operators to change their billing system to that of per second billing, a system that was hailed by subscribers and the NCC because it saves a lot of costs for consumers (subscribers) across the country.

3. METHODOLOGY

This research implemented comparative study method that comprises of obtaining data from past and present studies, government and non-government bodies and existing literature, using price comparison. This study relied on both primary and secondary data; the secondary data was obtained from the Nigeria Communication Commission (NCC), Published and Un-Published materials, Books, Newspapers, Conference and Seminar Papers, Journals and the internet. The data obtained was analyzed using numerical and descriptive method; from the analysis, logical conclusions were drawn and progressive presentation of facts from the data was ensured. The analysis gives a clear picture of the problem and trends. Telecommunication monthly subscriber data was obtained. The Nigeria price data was as well obtained from different telecommunication network service providers such as Globacom, MTN, Aitel, Visafone and Etisalat. The Method of price comparison employed in this study centered on the five telecommunication network operators' tariff plans (both prepaid and postpaid), an approach which defined separate service price data on the basis of service usage levels, service merits, economic factor, tariff rate and accessibility. Collected data was analyzed using excels statistical software and was also graphically presented.

4. PRESENTATION OF DATA

4.1 Operator Data (GSM Providers)

Table 1 shows the Quarterly Summary of Telecommunications Subscribers in Nigeria within the period of March 2015 – December 2015.

In Table 2 shows monthly subscriber data for March 2015 - June 2016 is display.

4.2 Tariff Data

Table 3 shows the summary for both prepaid and postpaid tariff plans for Airtel Nigeria MTN Nigeria, Globacom Limited, Etisalat and Visafone Limited as telecommunication providers in Nigeria.

Table 1. Quarterly summary of telecommunications subscribers in Nigeria (June 2015 – March 2016) (GSM and CDMA Providers)

Operator	Jun 2015	Sept 2015	Dec 2015	Mar 2016	Q2—Q3 (2015)	Q3—Q4 (2015)	Q4—Q1 (2016)
MTN Nigeria Communications (GSM)	62,813,111	62,493,732	61,252,387	57,045,721	(0.51)	(1.99)	(6.87)
Globacom Limited (GSM)	31,256,677	31,306,472	32,999,384	34,608,793	0.16	5.41	4.88
Airtel Nigeria (GSM)	29,564,766	31,134,625	32,866,798	33,680,757	5.31	3.64	4.95
EMTS Limited (Etisalat) (GSM)	22,852,232	23,492,214	22,161,290	21,877,542	2.80	(5.67)	(1.28)
Visafone Limited (CDMA)	2,095,193	2,031,802	2,140,299	1,163,914	(3.03)	5.34	(45.62)
Multilinks Telkom (CDMA)	10,788	10,213	8,428	6,117	(5.33)	17.48)	(27.42)

Source: [13]

Table 2. Monthly subscriber data: March 2015 - June 2016

	Operator	Jun '16	May '16	Apr '16	Mar '16	Feb '16	Jan '16	Dec '15	Nov '15	Oct '15	Sep '15	Aug '15	Jul '15	Jun '15	May '15	Apr '15	Mar '15
Connected Lines	Mobile (GSM)	213,113,202	210,016,312	214,668,963	211,732,836	210,202,453	210,465,003	-	-	-	-	-	-	-	-	192,769,198	190,385,026
	Mobile (CDMA)	3,664,581	3,664,594	3,678,680	3,678,796	3,677,676	3,678,068	-	-	-	-	-	-	-	-	3,799,949	3,795,352
	Fixed Wired/Wireless	353,201	353,189	353,278	353,830	353,923	351,625	-	-	-	-	-	-	-	-	371,978	369,032
	Total	**217,150,404**	**214,034,921**	**218,700,921**	**215,765,462**	**214,234,052**	**214,494,696**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**196,941,125**	
Active Lines	Mobile (GSM)	149,179,083	148,189,043	146,866,356	147,398,854	146,288,370	149,022,919	148,681,362	149,787,120	149,683,259	148,427,043	148,703,160	148,495,205	146,486,786	144,386,841	143,057,234	141,642,836
	Mobile (CDMA)	454,092	487,141	525,743	1,170,031	2,147,323	2,147,982	2,148,727	2,149,120	2,130,345	2,042,015	2,125,941	2,057,519	2,105,981	1,993,278	2,234,302	2,106,285
	Fixed Wired/ Wireless	170,539	171,974	176,211	176,579	184,666	186,868	187,155	186,772	189,517	191,573	189,523	188,281	182,643	181,625	184,790	185,087
	Total	**149,818,906**	**148,848,158**	**147,568,310**	**148,745,464**	**148,620,359**	**151,357,769**	**151,017,244**	**152,123,172**	**152,003,124**	**150,660,631**	**151,018,624**	**150,741,005**	**148,775,410**	**146,561,744**	**145,476,326**	**143,934,208**
	Teledensity	**107.01**	**106.32**	**105.41**	**106.25**	**106.16**	**108.11**	**107.87**	**108.66**	**108.57**	**107.61**	**107.87**	**107.67**	**106.27**	**104.69**	**103.91**	**102.81**

Source: [13]. Teledensity is calculated based on a national population of 140 million. According 2006 last census population figures.

Table 3. Summary of both prepaid and postpaid tariff plans of Airtel, MTN, Globacom, Etisalat and Visafone in Nigeria

Service render			Operator				
			MTN	**Globacom**	**Airtel**	**Etisalat**	**Visafone**
PREPAID	Monthly Access Fees/Service Rental		N/A	N1,000	N/A	N/A	
	Daily Access/Charge Fees		N/A	N5	N5	N/A	N5 – N50
	1st Minute Per Day		N/A	N/A	40 – 42 k/sec	N/A	25 - 54 k/sec
	On-Net/Peak (k/sec)		40 k/sec	15 – 50 k/sec	13 – 20 k/sec	15 – 40 k/sec	7 - 28 k/sec others (GSM) 7 - 67 k/sec
	Off-net/Off-peak (k/sec)		12 – 40 k/sec others at 20 k/sec – N8.33 k/sec	15 – 50 k/sec	15 – 30 k/sec	15 – 40 k/sec	7 – 32 k/sec others (GSM) 7 – 53 k/sec
	International Calls (k/sec)		N/A	N/A	Top 5 @20k/sec after 1st minutes @60k/sec; Others @ zone rates	N/A	
	SMS	Same network	N4/SMS	N4/SMS	N4/SMS	N4/SMS	N4/SMS
		Other network	N4/SMS	N4/SMS	N4/SMS	N4/SMS	N4/SMS
		International	N15/SMS	N10 - N15/SMS	N15/SMS	N15/SMS	N15/SMS
POSTPAID	Monthly Access Fees/Service Rental				N150.00	N0 - N20, 000	
	Daily Access Fees					N5	N5 – N50
	1st Minute Per Day						25 - 54 k/sec
	On-Net/Peak (k/sec)		40 k/sec	0 – 38 k/sec	15 – 30 k/sec	N0.15 - N0. 40 (15 k/sec – 40 k/sec)	7 - 28 k/sec others (GSM) 7 - 67 k/sec
	Off-net/Off-peak (k/sec)		15 – 40 k/sec others at 20 k/sec – N8.33 k/sec	25 – 42 k/sec	18 – 35 k/sec	N0.20 - N0. 40 (20 k/sec – 40 k/sec)	7 – 32 k/sec others (GSM) 7 – 53 k/sec
	International Calls (k/sec)		N/A	N/A	N/A	N/A	
	SMS	*Same network*	N4/SMS	N4/SMS	-	N4/SMS	N4/SMS
		Other network	N4/SMS	N4/SMS	-	N4/SMS	N4/SMS
		International	N15/SMS	N10/SMS	-	N15/SMS	N15/SMS

Source: [13]

5. RESULT ANALYSIS AND DISCUSSION

In Table 1 Q2 – Q3 is considered for quarterly subscription, and the Global System of Mobile (GSM) and CDMA operators; captured are MTN, Globacom, Etisalat and Airtel been the ultimate and colossal GSM operators with highest coverage in 36 states and accessible in most mega cities, town and villages across the country together with Visafone and Multilinks as CDMA service providers.

Table 2 shows the Monthly Subscriber Data for March 2015 to June 2016. In this Table, data obtained shows that there was subscribers on the Connected Lines (Mobile GSM, Mobile CDMA and Fixed Wired/Wireless) from March 2015 April 2015, but no single subscriber on these lines from May 2015 to December 2015. It is also evident in this Table that for Active Lines (Mobile GSM, Mobile CDMA and Fixed Wired/Wireless) there were subscribers on these lines from January 2016 to June 2016; the total subscribers increased from 143,934,208 in March 2015 to 149,818,906 in June 2016 and by extension increased teledensity from 102.81 to 107.01 within this same period.

Table 3 shows the summary of both prepaid and postpaid tariff plans services render by Airtel Nigeria, MTN Nigeria, Globacom Limited, Etisalat and Visafone Limited in Nigeria, (Note: Each of this telecommunication service providers has different tariff plans on their prepaid and postpaid data plans for subscribers to make choices. However, the Table was summarized to solely consider the minimum and maximum prices based on all these divers plans that are available at customers' disposal in kobo per second).

Looking through this Table, MTN Nigeria does not offer any access fees and no special price for international calls, but on its prepaid plans it offers On-Net/Peak at 40 k/sec; Off-net/Off-peak at 12 – 40 k/sec others at 20 k/sec – N8.33 k/sec depending on the choice of tariff plan; SMS is at N4 /SMS, N4 /SMS and N15 /SMS for same network, other networks and international respectively. These are also applicable to postpaid tariff plans except for the Off-Net that is offer at 15 – 20 k/sec.

For globacom limited: Glo on its prepaid plans offers Monthly Access Fees/Service Rental at N1, 000 and Daily Access/Charge Fees at N5; no special price for international calls; both On-Net/Peak and Off-net/Off-peak at 15 – 50 k/sec depending on the choice of tariff plan; SMS is at N4 /SMS, N4 /SMS and N10 – N15 /SMS for same network, other networks and international respectively. For postpaid plans, On-Net/Peak is at 0 – 38 k/sec; Off-net/Off-peak at 25 – 42 k/sec depending on the choice of tariff plan; SMS is at N4 /SMS, N4 /SMS and N 10/SMS for same network, other networks and international respectively.

Also, for Airtel Nigeria: Airtel on its prepaid plans offer daily access/charge fees at N5 and 1st minute per day at 40 – 42 k/sec; international calls are offer as Top 5 at 20k/sec after 1st minutes at 60k/sec, others at zone rates; On-Net/Peak is at 13 – 20 k/sec; Off-net/Off-peak at 15 – 30 k/sec depending on the choice of tariff plan; SMS is at N4 /SMS, N4 /SMS and N15 /SMS for same network, other networks and international respectively. On prepaid it offers Monthly Access Fees/Service Rental at N150; On-Net/Peak is at 15 – 30 k/sec; Off-net/Off-peak at 18 – 35 k/sec depending on the choice of tariff plan.

For etisalat: on prepaid tariff plans Etisalat offers its On-Net/Peak and Off-net/Off-peak at 15 – 40 k/sec depending on the choice of tariff plan; SMS is at N4 /SMS, N4 /SMS and N15 /SMS for same network, other networks and international respectively. On postpaid plans, Monthly Access Fees/Service Rental is at N0 – N20, 000 and Daily Access/Charge Fees at N5; On-Net/Peak is at N0.15 - N0.40 (15 k/sec – 40 k/sec); Off-net/Off-peak at N0.20 - N0.40 (20 k/sec – 40 k/sec) depending on the choice of tariff plan; SMS is at N4 /SMS, N4 /SMS and N15 /SMS for same network, other networks and international respectively.

For Visafone Limited: on both prepaid and postpaid tariff plans, Visafone offers Daily Access/Charge Fees at N5 – N50, and 1st minute per day at 25 - 54 k/sec; On-Net/Peak is at 7 - 28 k/sec, others (GSM) 7 - 67 k/sec; Off-net/Off-peak at 7 – 32 k/sec, others (GSM) 7 – 53 k/sec depending on the choice of tariff plan; SMS is at N4 /SMS, N4 /SMS and N15 /SMS for same network, other networks and international respectively.

6. CONCLUSION

As it was earlier stated in this study, call tariff in Nigeria fell from about N50 in 2001 to about N45 around 2005 and about N12 today, (for peak period). The tariff for SMS has also fallen from

about N15 in 2001 to N9 around 2010 and about N4 in 2013. The cost of SIM pack has fallen from about N12, 000 in 2001 to about N5, 500 in 2004 and is now being given freely on the streets.

However, sequel to the area of this research cluster, it can be deduced that as at June 2016, there are 149,818,906 active subscribers in Nigeria. There are 149,179,083 active GSM subscribers, 454,092 active CDMA users and 170,539 active Fixed Wired/Wireless subscribers. There are 217,150,404 connected lines. 213,113,202 connected GSM lines, 3,664,581 CDMA and 353,201 for Fixed Wired/Wireless, according to the official statistics.

By considering the prepaid and postpaid tariff plans (for both on-net and off-net) analyzed in above data, and to fix ideas, we will only consider the vanilla charge options offered by the operators. Airtel Nigeria offers its minimum tariff rate at 13 k/sec with the first minute per day at 40 k/sec and maximum tariff rate at 35 k/sec; Etisalat offers its minimum tariff rate at 15k/sec and maximum tariff rate at 40 k/sec, with monthly access fees between N0 and N20, 000; Globacom Limited offers its minimum tariff rate at 15 k/sec and maximum tariff rate at 50 k/sec, also offers Per Minute Billing at N15 and N25 for On-net and Off-net respectively on 1derful tariff plan, with monthly access service rental between N5, 000 and N12, 000; MTN Nigeria offers its minimum tariff rate at 12 k/sec and maximum tariff rate at 40 k/sec, it also offers fixed/mobile services in zones with minimum tariff rate at 20 k/sec and maximum tariff rate at N4.17k/sec – No rental or access fees; Visafone offers its minimum tariff rate at 7 k/sec and maximum tariff rate at 67 k/sec – No rental or access fees.

From the above analysis, it can be adjudged that one of the dividends of privatization, deregulation and consumer democracy in Nigeria has been the recent "forcing" of the GSM operators to include per second billing (PSB) into the mix of charges offered out to consumers across the country. In fact, this is a great relief to the masses compare with the previously charged rate known as per minute billing (PMB). Previously, per minute billing was available at the rate of N50 per minute to network service consumers in the country and sequel to this, consumers howled loudly about such a "rip-off." Hence, individual operator can still make efforts to improve service quality and reduce tariff rate for the betterment of network consumption in the country.

Consequently, it can be inferred that, Visafone offers better per second billing system, follow by MTN Nigeria. Airtel Nigeria per second billing system is also moderate; Globacom Limited followed Airtel Nigeria due to its monthly access service rental fees; Etisalat tariff rate would have follow Visafone as the second best had it been that it does not offers its service with access fees. Meanwhile, according to the official data, MTN Nigeria has the highest number of subscribers, follow by Globacom Limited, Airtel Nigeria, Etisalat and Visafone Limited in rapid succession. Hence, factors that determine the rate of subscription to individual network service among others, includes, age of the network, quality service render, network coverage, tariff rate, accessibility, benefits, etc. Though all the operators offer better tariff rate, there is therefore needs for improvement.

7. RECOMMENDATION

The call for lower tariff and better service quality is highly recommended to be implemented by each of the telecoms operators across the country because over fifty percent (over 50%) of Nigeria's population live in multi-dimensional poverty. Tariffs must capture all telecoms operational costs and also balance the need to provide quality services to consumers at affordable rates. Since tariffs are critical in NCC's determination of subscribers classified as "underserved group" and general implementation of the Universal Service Provision Policy of the NCC. This accentuates necessity for close monitoring, and regulatory supervision to ensure that a majority of the population is able to benefit from essential services.

Operators should also take proper steps to minimize losses leading to increased operational cost such as co-location and shared facilities.

There is need for government to work on energy and security and ensure that a multi-sectorial approach is inculcated. Also, efforts need to be stepped up in regard to naming of telecom infrastructure as national infrastructure and deserving of enhanced security. Multiple-taxation needs to be decisively tackled with the involvement of States and Local Government Councils. Government should continue to taking bold step through the office of the Minister of Communications Technology and by the National Economic Council to proffer salient resolution to resolve the issue of Right of Way.

The Nigerian Communications Act, CAP N92 Laws of the Federal Republic of Nigeria 2004, ("Act") made very ornate provisions for tariff regulation. The Act forbids holders of individual licenses from imposing any tariff or charges for the provision of telecom services without a prior approval of the NCC. Section 108(4) of the Act highlights the guiding principles for the establishment of tariff rates and these include: tariff rates shall be fair and not biased, cost oriented and in general, cross-subsidies shall be eliminated, it shall not contain discounts that unreasonably prejudice competition, and that it shall take into account regulations and recommendations of international member organizations. Network providers are therefore enjoined to comply with these Laws and make use of all stipulation therein.

Government should also make telecoms industry open to more investors so that more communication satellite can be launched by NCC in order to, dismiss superficial dominance, promote competition among operators and by extension culminate into tariff reduction and quality services.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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