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Can Information and Communications Technology application contribute to poverty reduction? Lessons from Nigeria

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There is a growing optimism among international organizations such as United Nations Development Programme (UNDP) that Information and Communication Technology (ICT) can transform developing countries such as Nigeria to developed ones in a relatively short time. Experiences from Asian and European countries such as India, Bangladesh, Malaysia, Thailand, Serbia and Ukraine tend to confirm this claim. However, there are very few of such studies on African sub-regional experience. This study attempts to provide evidences from African sub-region particularly Nigeria. Data collected from Central Bank of Nigeria (CBN) is used to find relationships between poverty reduction indicators and telecommunication in Nigeria. The study reveals that generally, telecommunication contributions to indicators of poverty reduction are not significant. The major reason that can be adduced for the minimal contribution of telecommunication lines to poverty reduction is their concentration in urban centre coupled with level of literacy and poor infrastructural facilities in the sub-region and indeed Nigeria. Similarly, the poor's are not properly linked to demand and supply chains information including produce and labour markets as well as services such as credits extension, inputs and research information. The pervasive and widespread "quiet corruption" in public institutions in Nigeria also reduces effects of telecommunication on poverty reduction.

Key words: Information and Communications Technology, Nigeria, telecommunication, Central Bank of Nigeria.

INTRODUCTION

Nigeria fares very poorly in all development indices. The country has one of the widest gaps between the rich and the poor, a Gini index of 44.3. It also hosts the third largest number of poor people after China and India. There are rural-urban, gender, occupational spatial, temporal and enterprise dimensions to poverty in Nigeria (Okunmadewa, 2009). Hence, poverty is a complex and multidimensional phenomenon. It is manifested in a myriad ways viz. malnutrition, disease, illiteracy, poor

shelter, vulnerability, voicelessness and powerlessness in the society. Since poverty is a complex problem its solution must also encompass a wide range of interventions and policies.

As a result of the complexity of poverty, it is amendable to various kinds of definitions and measures depending on the perception of the authors. However, the most comprehensive definition and measure is the Human Development Index (HDI) adopted by the UNDP. Human Development Index (HDI) measures level of development with a combination of three indices viz. (a) life expectancy which indicates the extent of long and healthy life. (b) Knowledge which is measured by adult literacy level and

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primary school enrolment rate. (c) Standard of living which is measured by the average Gross Domestic Product (GDP) or average Gross National Income. This study aligns with this definition because it incorporates the social and economic dimensions of poverty.

Information and Communication Technology (ICT) are revolutionising the way which societies interact, conduct business, compete in local and international market and set their national economic and human development agenda. Authorities including the United Nations Development Programme (UNDP) currently have a rising optimism in the potential of ICT to transform developing countries into modern knowledge based societies. Precisely, it is said that ICT has ability to contribute to poverty reduction. This claim is stimulated by the perception that ICT open new opportunities for poor countries to advance rapidly to the modernization levels of the industrial societies. Experiences from nations that have succeeded in harnessing the potential of ICT show that they have expanded economic growth, improved human welfare and stronger form of democratic government. Similarly, there is increased evidence in the developed countries of ICTs' contribution towards increase factor productivity. Some private companies are experiencing changing cost economics of production and distribution. Many of them are achieving annual savings of about 20% by putting their supply chains on the web. The development is bound to impact on the economies of developing countries too (Mohammed, 2001). There are also contrary views that existing inequalities, poor infrastructural facilities and ability to procure or access ICT as well as poor ICT skills and illiteracy are serious constraints to the use of ICT by the poor.

Some studies and opinions such as Cecchini and Scott (2003), Morales–Gomez and Melesse (1998), Mohammed (2001) and Qureshi (2003) confirm the potential of ICT to contribute to poverty in South East Asia. However, as yet very little is known about the veracity of ICTs' contribution to poverty reduction in the African sub-region particularly in Nigeria. Therefore, this study attempts to provide evidence of the contribution of ICT to poverty reduction in Nigeria. Specifically, the study measures the effects of communication facilities on poverty reduction in Nigeria.

Objectives of the study

In line with the above, this study attempts to examine the effects of telecommunication on poverty reduction. Specifically it;

- a) Examines the influence of telecommunication on opening and increasing opportunities for the poor's;
- b) Identify extent to which telecommunication enhances empowerment. that is, making states institutions work;
- c) Examine extent to which telecommunication assist in wealth distribution.

Scope and rational for choice of ICT device for the study

The study use telecommunication as a case for the following reasons;

- i) Rapid growth in the telecommunication industry as well as its wide spread to the rural areas;
- ii) Paucity and infrastructural decay especially electricity which affects the use of computer and internet facilities;
- iii) Inability to procure computers and poor access to ICT facilities; and
- iv) Poor ICT skills and level of illiteracy in the country. This made telecommunication a ready choice for this kind of study.

CONCEPT OF INFORMATION AND COMMUNICATION TECHNOLOGY

Information and communication technology concept started as Information Technology (IT). It is defined by Information Technology Association of America (ITAA) (2003) as the “study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware.” IT deals with the use of electronic computers and computer powers and computer software to convert, store, protect, process, transmit, and securely retrieve information. Technical Center for Agriculture and Rural Cooperation (CTA) (2003) define ICT as technologies that facilitate communication, processing and transmission of information by electronic means. Lawal–Adebowale and Adebayo (2006) and Morales–Gomez and Melesse (1998) suggested that the concept embraced a multitude of other simple communication devices such as telephone (mobile or fixed line) televisions, radio, audio compact disc (CD) of cassette recordings, video tape or compact disc (VCD/DVD) recordings, satellite dishes to fibre optics, e-mail, internet, micro electronics.

METHODOLOGY

In line with the definition of Human Development Index (HDI) this study will examine the effect of communication on growth, enhancing empowerment, increasing opportunities and distribution of wealth.

Data collection

The study relied on secondary data collected by Central Bank of Nigeria (CBN) from 1997 to 2009. Data are collected on indicators of poverty reduction and number of telecommunication lines and teledensity.

Variables specification and identification

The following variables were identified as the depended variables;

Y_1 = Index of agricultural production
 Y_2 = Gross national savings
 Y_3 = Gross Domestic Product (GDP) in US dollars
 Y_4 = Average prices of major Nigerian agricultural exports
 Y_5 = Unemployment rate
 Y_6 = Contribution of agriculture to Nigerian GDP
 Y_7 = Life expectancy
 Y_8 = Adult literacy rate
 Y_9 = GDP per capita
 Y_{10} = Incidence of poverty

The independent variables are;

X_1 = Teledensity
 X_2 = Fixed telephone lines
 X_3 = Mobile telephone lines
 X_4 = Total of fixed and mobile telephone lines

The dependent variables are grouped into classes of factors indicating poverty reduction. This includes, growth, increasing opportunities, proper targeting of health and educational programmes as well as measure of wealth distribution. Dependent variables Y_1 , Y_2 , Y_3 and Y_4 indicate growth, Y_5 and Y_6 indicate increasing opportunities, in the economy, Y_7 and Y_8 for targeting of health and educational programmes as well as while Y_9 and Y_{10} shows the distribution of wealth in the economy.

Data analysis

A multiple linear regression analysis is used to determine the relationship between telecommunication variables and each indicator of poverty reduction. However, descriptive statistics such as average and range are used to describe telecommunication and the various indicators. The approaches described above are supported by the three priority areas for reducing poverty. This includes growth, increasing opportunity, enhancing empowerment, and wealth distribution. Opportunity makes markets work for the poor and expands poor people's assets. Empowerment makes state institutions work better for the poor people and removes social barriers. Increasing opportunities make market work better for the poor people (Cecchimi and Scott, 2003; World Development Report, 2000, 2001).

EXPECTED RESULTS

Drawing on existing knowledge and the natural or planned inter-relationship among the variables under examination some logistical outcomes are expected. A 'priori' we expected a positive relationship between X_1 , X_2 , X_3 , and X_4 and Y_1 , Y_2 , Y_3 , Y_4 , Y_7 , Y_8 , and Y_9 , while X_1 , X_2 , X_3 and X_4 will have a negative relationship with Y_5 , Y_6 , and Y_{10} . Therefore, if R_i denotes partial derivative of Y_i , Y_2 , Y_3 , Y_4 , Y_7 , Y_8 and Y_9 with respect to the first explanatory variable then R_1 , R_2 , R_3 and $R_4 > 0$ while that of Y_5 , Y_6 and Y_{10} will be R_1 , R_2 , R_3 and $R_4 < 0$.

The result of the regression equations explaining the relationship between the different dependent variables and independent variables are presented in Table 2. The parameter estimates b_1 shows the change in the dependent variable as the i^{th} teledensity changes while the b_2 show the changes in dependent variables as the i^{th} fixed lines. On the other hand, b_3 shows the change in

dependent variables as the j^{th} mobile lines as well as b_4 indicates change in dependent variables as the j^{th} total lines changes. The expectations are that statistically significant and positive coefficients on Y_1 , Y_2 , Y_4 , Y_7 , Y_8 and Y_9 as well as statistically and negative coefficients on Y_5 , Y_6 and Y_{10} imply contribution to poverty reduction. In the same vein, coefficients that are not significantly different from zero imply no contribution towards poverty reduction.

Potential of ICTs in poverty reduction

Any social or management intervention that will have effect on poverty reduction must address the issue of growth, increase opportunity, enhancing empowerment and distribution of wealth. ICT has the potential of increasing opportunity and growth via:

- Opening up opportunities for generating incomes and employment for the poor;
- Enhancing agricultural production and productivity;
- Higher earnings for the poor through better pricing;
- Improved internal efficiencies which enhance productivity and reduce leakages and wastes;
- Speeding up decision making and removing red tape.

Similarly, ICT enhance empowerment through

- Better delivery of education and health care in a cost effective manner;
- Better targeting of poverty reduction programmes;
- Improved accountability and transparency in governance and management.

However, wealth distribution can be determined through GDP per capita and incidence of poverty. In a study covering Serbia, Bangladesh, Ukraine, Malaysia and Thailand, Wald and Koblo (2008) observed that the mobile phone technology contributed between 4.5 and 6% Gross National Product (GNP) and between 36,000 jobs (in Serbia) and 244,000 (in Pakistan) had been created, the majority in retail trade of mobile telephones and prepaid cards. Similarly, the levies paid by network operators make up as much as 24% of the tax revenue of the countries studied.

Significant additional benefits in terms of market efficiency include access to market data such as prices and commodity availability which saves money and time-consuming traveling. It also makes it possible to reach markets further afield, or new customers who would not be contactable without mobile phone. Traore (2008), Wald and Koblo (2008) and Scherf and Negic (2008) observed that farmers have been able to achieve 50% higher and significantly increase their sales (and as a result their income).

ICT also facilitates social integration through better communication with business partners, relatives and

friends in other villages and regions. In many countries migrants to industrial countries communicate with relatives well through telecommunication devices. In many countries most migrants send money home to their relatives. These remittances constitute an important source of income for the local population.

New possibilities for medical care and disaster/risk management are also emerging through telecommunication. Medical advice or emergency calls via mobile phone can provide quick and efficient assistance; and in the case of disasters or periodic isolation, for example because of rain or snow, the mobile phone makes it possible to get help and support.

Telecommunication in Nigeria

Teledensity which measures the number of telephone per square area in Nigeria ranges between 0.73 in 1999 to 48 in 2009 with average of 17.4. It starts to increase significantly in 2002. Fixed telephone lines ranges between 450,000 lines to 2.45 million lines in 2007 with an average of one million lines a year. A fixed line was increasing slowly until 2008 when it starts to decline. Mobile telephone lines started in 2002 with 1.59 million lines. It ranges between 1.59 million in 2002 to about 69 million lines in 2009 with an average of 22.94 million lines. The increases in mobile telephone lines have been consistent and rapid. The addition of both fixed and mobile lines ranges between 450,000 lines in 1999 and 70 million in 2009 with an average of 24 million (Table 1).

Relationship of telecommunication and poverty reduction in Nigeria

The indicators of poverty reduction is classified into; economic growth, increasing opportunity, enhancing empowerment and measure of wealth distribution. Growth in the economy is measured by indicators such as index of agricultural production, Gross National Savings, GDP in US dollar, Average prices of major Nigerian agricultural exports. Index of agricultural production measures productivity in the agricultural sector. It ranges between 161.7 in 1999 and 235 in 2009 with an average of 189.58 per year. It has a steady increase with a decrease in 2003 only. Evidence presented in Table 2 shows that all coefficients of the independent variables except mobile lines are negatively signed. Therefore, it is only mobile lines that contribute to index of agricultural production though not significant. The independent variables determine the index of agricultural production 96.4%.

Gross National Savings measure the level of savings in the economy. It measures amount of resources available for investment. Hence, it indicates the level of growth in the economy. It ranges between 5.4 in 2003 and 38.71 in

2009. Gross National Savings grows steadily with an average of 20.84 per year with a few decreases in 2003 and 1999. Table 2 shows that all the coefficients are positive except teledensity. Hence, fixed and mobile lines as well as total lines contribute towards increasing Gross National Savings (GNS). Telecommunication variables determine the GNS 90.3%. Gross Domestic Product (GDP) measures the level of economic activities in the economy. The GDP represents the level of economic activities in a country. GDP has been increasing in Nigeria between 1999 and 2009. It ranges between 41 billion dollars in 1999 to 195 billion dollars in 2009 with an average of 102 billion dollars per year. Evidence presented in Table 2 shows that all the coefficients of the independent variables are positively signed except teledensity. This indicates that all the variables except teledensity contribute moderately to GDP. However, fixed lines have the highest contribution. The model represents reality of Nigerian GDP by 94.9%.

Average prices of major Nigerian agricultural exports measures the value obtained from the major preoccupation of the rural poor. The prices have been fluctuating. It ranges from 48.1 US dollars in 2000 and 235 US dollars in 2009 with an average of 224.53 US dollars. It witnesses a level of decrease between 2004 and 2005. Table 2 shows that all the coefficient of the independent variables are negatively signed except teledensity. Hence, it is only teledensity that contributes moderately to increase in prices of major Nigerian agricultural exports. However, the model represents reality in the pricing of Nigerian agricultural exports 94.1%. The study reveals that teledensity affects positively average price of major Nigerian agricultural exports while mobile lines affects positively index of agricultural production, Gross National Savings and GDP in US dollars. However, fixed lines affect negatively Gross National Savings and GDP in US dollars. Hence, mobile lines have the highest impact on growth of the economy. Generally, telecommunication has minimal contribution to growth in the Nigerian economy. This may not be unconnected with the concentration of telecommunication in urban centres coupled with poor knowledge and skills on its uses.

Increasing opportunities in the Nigerian economy is measured by contribution of agriculture to GDP and the unemployment rate. Contribution of agriculture to GDP indicates the proportion of economic activities that are in the agricultural sector as against other sectors such as manufacturing and services. The contribution of agriculture to GDP has an inverse relationship with level of development. This is because it indicates the number of people in the extractive industry as against manufacturing and services sector. Similarly, it is an indication of lower value addition to products in the economy. Hence, it indicates availability of opportunities and presence of social and economic barriers. The contribution of agriculture to GDP in Nigeria hovers

around 35% in 1999 to 42.07% in 2008 with an average of 40.5%. Evidence presented in Table 2 shows that all the coefficients of the independent variables are positively signed except total lines. Hence, an only total line has a modest contribution to poverty reduction while others contribute to the increase in the contribution of agriculture to GDP. The independent variables only explain 29.9% of the contribution of agriculture to GDP.

Unemployment rate indicates the level of human resources that are willing and able to work but has no job. It is an indication of poverty as well as availability of market in the economy. Unemployment fluctuates between 10.9% in 2005 and 19% in 1999 with an average of 14% per year. Table 2 shows that mobile lines and total lines have positive relationship with unemployment while teledensity and fixed lines reduce it. The independent variables (telecommunication) explain the unemployment rate 48.4%. The study reveals that teledensity and fixed lines has impact on reduction of unemployment while total lines help to reduce the contribution of agriculture to the GDP. Generally, evidence from Table 2 seems to have very small contribution to increasing opportunities for the poor's.

Enhancing empowerment makes states' institutions work better for the poor and remove social barriers. Indices of enhancing empowerment include adult literacy and life expectancy. It also measures appropriate targeting and transparency of programmes.

Life expectancy indicates the state of health facilities and their uses in the country. The index has a direct relationship with state of health facilities and health status of the people. It is a measure of appropriateness of health programme targeting and transparency. The life expectancy in Nigeria has been 54 years since 1998 to 2009. Evidence presented in Table 2 shows that all the coefficients of the independent variables are positively signed but not significant except for teledensity that is negative. This indicates that telecommunication has very negligible impact on proper targeting and transparency of health programmes and subsequently the life expectancy.

Adult literacy indicates the literacy level in the country. It is a signal to how appropriateness of the country education programmes. It also points to the targeting and transparency in the country education programmes. Indeed it is an indication of how public and private institutions have been made to work for the poor. Adult literacy has been within 57% in 1997 to 69% in 2009 with an average of 60.8% in Nigeria. The ratio is constant at 57% from 1997 to 2003 when it started to increase to 62% in 2004. Table 2 shows that fixed and mobile lines care negatively signed while teledensity and total lines are positively signed. Hence, only teledensity and total lines have negative impact on targeting and transparency of education and health programmes and hence adult literacy. The model for adult literacy represents 84.2% of reality. The study reveals that fixed and mobile lines as

well as total lines contribute to life expectancy while teledensity and total lines contribute to increase in adult literacy. Generally, telecommunication has insignificant impact on health and educational programmes targeting and transparency.

The pervasive and widespread "quiet corruption" (malpractices such as absenteeism and negligent management in public institutions) could be said to be one of the reasons why telecommunication could not contribute significantly to targeting of education and health programmes. Quiet corruption is a threat to development in Nigeria and indeed Africa. However, it affects the poor more and probably more harmful to them because they depend more on government services.

Other indices indicate the level of distribution of wealth in the economy. This includes the GDP per capita and incidence of poverty. GDP per capita indicates the share of the individuals in the country on the average. It assumes even distribution of wealth. It ranges between \$385 in 1999 to \$1480 in 2009 and an average of \$813 in Nigeria. This shows that on the average Nigerians earns \$2.20 a day. GDP per capita in Nigeria has witnessed a steady increase. Evidence presented in Table 2 shows that only teledensity and mobile lines has positive impact on the GDP per capita. However, teledensity has the greatest positive impact on GDP per capita. Fixed and total lines are negatively signed. The GDP per capita model represents 95.8% of reality.

Incidence of poverty indicates the proportion of Nigerians that live below the poverty line. The incidence of poverty ranges between 70% in 1999 to 54 in 2009 with an average of 61%. The ratio is constant at 70% from 1999 to 2003 while it was 54% between 2006 and 2009. Considering the GDP per capita and incidence of poverty, it means that the distribution of wealth in the country is highly skewed and far from normal distribution. Table 2 shows that teledensity and total lines are negatively signed while fixed and mobile lines are positively signed. Hence, teledensity and total lines contribute insignificantly to poverty reduction. The model for incidence of poverty represents 79.8% of reality. The study reveals that teledensity and mobile lines contributes GDP per capital while teledensity and total lines helps to reduce incidence of poverty in Nigeria. Generally, telecommunication has minimal contribution of distribution of wealth in Nigeria.

From the above, teledensity and mobile lines contribute more to poverty reduction. However, it seems that telecommunication has insignificant contributions to poverty reduction. The contributions may have been hampered by the concentration of telecommunication lines in urban centres. This is buttressed by the fact that about 70% of the poor reside in the rural areas. Other reasons for the insignificant contribution of telecommunication includes non use of telecommunication as information enhancement for the

Table 1. Indicators of poverty reduction and telephone lines in Nigeria (1997 - 2009).

Years	Life expectancy (%)	GNS US\$ (%)	GDP (US\$b)	Incidence of poverty (%)	Unemployment rate (%)	Agric share of GDP (%)	Index of agric prod (%)	Adult literacy (%)	Average prices of major exports (US\$)	GDP per capita (US\$)	Teledensity	Fixed lines (Millions)	Mobile lines (Millions)	Total lines (Millions)
1997	53	13.9	NA	NA	NA	NA	NA	57	83.7	NA	NA	NA	0	NA
1998	54	9.2	NA	NA	NA	NA	NA	57	92.3	NA	NA	NA	0	NA
1999	54	10.5	41	70	19	35	161.7	57	63.8	385.17	0.73	0.45	0	0.45
2000	54	9.4	44.7	70	18.1	35.83	167	57	48.1	388.1	0.49	0.497	0	0.497
2001	54	11.3	63.1	70	13.7	42.3	173	57	62.8	530.7	0.72	0.6	0	0.6
2002	54	15.3	66	70	12.2	42.14	179.9	57	92.2	539.1	1.89	0.702	1.59	2.292
2003	54	5.4	78.4	70	14.8	41.01	165.4	57	194.5	620.9	3.36	0.85	3.1	3.95
2004	54	19.27	76.2	54.4	13.4	40.98	175.7	62	174.6	658.02	8.5	1.12	9.2	10.32
2005	54	18.03	88.4	54.4	11.9	41.19	186.9	62	172.4	826.3	16.3	1.223	18.59	19.813
2006	54	32.8	145	54	14.6	41.72	200.1	57.2	206	1030.3	24.2	1.668	32.32	33.988
2007	54	33.16	149	54	10.9	42.2	212.8	66.9	413.6	1136.1	41.2	2.449	55.24	57.689
2008	54	35.31	175	54	12.5	42.07	227.9	66.9	514.8	1349.1	45.9	1.307	62.99	64.297
2009	54	38.71	195	54	13.9	41	235	69	527	1480	48	1.17	69.3	70.47
Average	54	20.835	102	61.345	14.09091	40.4945	189.58	60.8	224.5273	813.1	17.4	1.0942	22.939	24.033

Table 2. Linear regression parameters for relationships of poverty reduction indicators and telecommunication.

S/N	Dependent variables	Coefficients of independent variables					Other statistics			
		Constant	Teledensity	Fixed Lines	Mobile Lines	Total Lines	R ²	Adj. R ²	F-Ratio	F-Signif
1	Index of agricultural production	171.23 (39.2)	-0.123 (-0.046)	-1.276 (65535)	3.24 (65535)	-2.181 (65535)	0.964	0.94	40.24	0.002
2	Gross National Savings	9.151 (2.74)	-0.881 (-0.427)	3.756 (65535)	0.227 (65535)	0.736 (65535)	0.903	0.838	13.96	0.0034
3	GDP in US dollar	56.209 (5.127)	4.489 (-0.663)	8.839 (65535)	3.767 (65535)	1.153 (65535)	0.949	0.915	27.76	0.0005
4	Average prices of major Nigerian agricultural exports	99.22 (2.56)	9.974 (0.417)	-42.512 (65535)	-0.048 (65535)	-0.022 (65535)	0.941	0.902	24.015	0.0008
5	Unemployment rate	16.984 (10.55)	-0.897 (-.902)	-1.033 (65535)	0.602 (65535)	0.001 (65535)	0.484	0.141	1.41	0.3362
6	Contribution of agriculture To GDP	38.016 (19.727)	0.272 (0.229)	2.454 (65535)	0.608 (65535)	-0.786 (65535)	0.299	-0.169	0.639	0.6539
7	Life expectancy	54 (4.00E+14)	-1.76 (-.2.336)	0.772 (65535)	0.772 (65535)	0.772 (65535)	0.981	0.99	-1.5	0.002
8	Adult literacy	57.51 (33.677)	1.112 (1.055)	-2.465 (65535)	-0.756 (65535)	0.17 (65535)	0.842	0.736	7.973	0.014
9	GDP per capita	500.495 (7.157)	17.056 (0.395)	-22.68 (65535)	9.063 (65535)	-6.952 (65535)	0.958	0.93	34.491	0.0003
10	Incidence of poverty	71.297 (21.372)	-3.328 (-1.616)	0.181 (65535)	2.726 (65535)	-0.616 (65535)	0.798	0.663	5.922	0.028

poors to link to both products and labour markets for inputs, sales venues, research, credits and extension services. Similarly, it is not used to improve efficiency and effectiveness of states' institutions and programmes.

CONCLUSIONS AND RECOMMENDATIONS

The paper focuses on the contribution of ICT on poverty reduction in Africa such region and indeed Nigeria. Table 1 show that until 2002 Nigeria has mainly fixed telephone lines. Mobile telephone lines started in Nigeria in 2002. Most of the telecommunication lines are concentrated in the urban centre while the teledensity is low in Nigeria. However, telecommunication which is fast spreading to the rural area due to falling cost has a potential in poverty reduction in Nigeria. It can assist in poverty reduction via economic growth, employment generation and improved access to market data and access to new markets as well as achievement of higher prices and increased sales. Social integration and better medical care and disaster management can also be achieved through telecommunication.

The study reveals that telecommunication currently has insignificant contribution to economic growth, increasing opportunities, enhancing empowerment, wealth distribution and indeed poverty reduction. Reasons that can be adduced for this poor contribution are inadequate infrastructures such as electricity as well as infrastructural decay. Another important reason is inadequate knowledge and skills to properly employ telecommunication to reduce poverty. Similarly, inadequate integration of telecommunication facilities into poverty reduction programmes. Telecommunication is only used as poverty reduction strategy through employment generation in sales of prepaid cards, telephone lines etc. Therefore, employment often generated through telecommunication mainly amounts to under-employment. Other means of using telecommunication to reduce poverty which are often neglected include prices and sales enhancement as well as proper targeting of development programmes. Quiet corruption also reduces the effects of telecommunication on poverty reduction in Nigeria.

Finally, we recommend that there should be concerted efforts by government to upgrade infrastructural facilities especially electricity in the country. Efforts should also be

made to ensure that poor's can be linked to source of information on markets for produce, inputs and labour as well as other services such as credit; research and extension. Similarly, conscious efforts should be made to extend telephone to cover adequately the rural areas where a sizeable proportion of Nigerian poor's live. In the same vein, citizens and indeed the poor's should be empowered to demand information about government programmes and budgets and provide public servants with incentives to do their jobs. These recommendations have capacity of will increasing the relevance of telecommunication to poverty reduction agenda through economic growth, increasing opportunities, targeting of programmes as well as improving wealth distribution.

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