Bridging the Digital Divide and the Impact on Poverty in Nigeria

Akanbi B.E
Department of Economics
Faculty of the Social Sciences,
Osun State University,
Osogbo, Osun State, Nigeria

Akanbi C.O.
Department of Information and Communication Technology
Faculty of Science
Osun State University, Osogbo
Osogbo, Osun State, Nigeria
akanbico@uniosun.edu.ng

Corresponding Author:
akanbico@uniosun.edu.ng

ABSTRACT
This paper examined the issue of the gap in access to Information and Communication Technology(ICT) known as the digital divide and its linkages to poverty in Nigeria. The study found that the contributions of access to the use of ICTs to poverty in Nigeria has been marginal. This was also found out to be partly due to some teething problems such as poor quality of service caused primarily by network capacity constraints, lack of physical and transmission infrastructure, scarce spectrum resources, unreliable electric supply e.t.c which are still confronting ICT usage in Nigeria. Finally, a summary with some policy recommendations are presented.

Keywords – Keywords: Digital divide,   Information and Communication Technology, Poverty,Digital Access

1.0. INTRODUCTION

Poverty is a state where individual is not able to cater adequately for his/her basic need of food, clothing and shelter, unable to meet social and economic obligations, lack of gainful employment skills, asset and self esteem and has limited access to social, economic infrastructure, such as education, health, portable water and sanitation and as a result has limited chance of advancing his or her welfare to the limit of his/her capabilities. Poor people can be found in both urban and rural areas though the incidence of poverty is much higher in the rural areas than in urban areas (Oye, 2012). UNDP (2009) reported that 54.4% of the population lives below the national poverty line. Moreover, unemployment rate in Nigeria rose from about 12 out of 100 working age people in 1999 to 21.1 in 2010 with the rate of youth unemployment rising in urban area than rural area (NBS, 2010).

Consequently, the impact of Information Communication Technology utilization has cut across all fields of human development. Thus access to ICT, the internet technology in particular, has provided people with a foundation for building up and applying knowledge globally and particularly in developing nations. The impact of new ICTs has permeated virtually all sectors of society and it is of paramount importance that Nigerians embraced a common vision and strategy for an information-based society that not only recognizes ICT as a tool for economic innovation but also as a platform for poverty reduction.

Access to information and knowledge is a prerequisite to reducing poverty and achieving basic healthcare and education, all part of achieving Millennium Development Goals (MDGs). However, the threats posed by the digital divide calls for an all-inclusive approach that should result in improved economic development by ensuring equitable access to and use of ICTs. Digital divide is a state of inequality in access, distribution, and use of information and communication technologies between two or more populations'' (Wilson, 2006).

The barrier that cost of access imposes on the poor and the other trade-offs and the focus on benefits rather than a cost-benefit analysis make the impact worrisome, thus provoking the thought that the impacts of information and communication technologies especially on the poor may have been exaggerated. Therefore, this study analyses the relationship between digital divide and poverty in Nigeria. This paper examined the issue of gap in the rate of adoption and usage of Information and Communication Technology called digital divide, as it relates to poverty

2. LITERATURE REVIEW
2.1 Conceptual Clarifications on Poverty and Digital Divide

Digital divide has been defined as "an inequality in access, distribution, and use of Information and Communication Technologies between two or more populations" (Wilson, 2006). Also, it was viewed as ".the gap between those who do and do not have access to computers and the internet" (Van Dijk, 2006). It is believed that barriers such as poverty, illiteracy and so on are holding people back from having access to computers and the Internet, such that only the wealthy are able to afford the technology, especially the most advanced machines and software. The poor, sometimes in the role of ethnic minorities, are the ones benefiting least from access to information and communication technology. The idea of closing the Digital divide is now at the core of many poverty reduction efforts. Political leaders in many developing countries, having failed to address poverty in their countries, are grasping at new technologies and global trade as their last best hope to raise their populations' standard of living (Venkat, 2002).

According to Van Dijk and Hacker (2003), there are four types of barriers to access: lack of "mental access" refers to a lack of elementary digital experience, lack of "material access" means a lack of possession of computers and network connections, lack of "skill access" is a lack of digital skills, The lack of "usage access" signifies the lack of meaningful usage opportunities. Chowdhury (2000) defined poverty as inadequate ownership or gainful control over assets (tangible and intangible), manual motor power or other forms of production skills. He outlined a number of issues that characterize the poor people. These include lack of literacy and lack of access to accurate information. Some of the causes of poverty listed by Chowdhury (2000) are lack of 'info-telecommunication' infrastructure and appropriate skills. Most arguments related to poverty focus on insufficient nutrition, inadequate shelter and so on. It is only recently that some have started to argue that lack of access to information and communications technologies (ICTs) is an element of poverty.

This contention is not comparable to traditional discussions of poverty issues (Kenny, 2001), although it is recognized that ICTs have the potential of having a crucial role in poverty reduction efforts. A number of studies have examined the relevance of ICT and the internet technology in particular with regard to the socio-economic development of developing countries; and the disparity in access to the new technology in these countries (Venkat, 2002) According to Samuelson (2002), the growth of the internet is not evenly distributed; internet still reaches fewer than 7% of the world population . Moreover it tends to reach the wealthier and most educated of this population. On the African continent, low level of education and poverty are dominant factors that inhibit access to the internet; with a resultant higher level of digital divide among the people. Fong (2009) assessed the impact of ICTs on Gross National Income (GNI) per capita in developing countries in 2005 and found a significant relationship between GNI per capita (in PPP international dollar) and adoption of each ICTs (mobile phone, personal computer, and telephone) but not for Internet technology

adoption. Jensen, (2007), World Bank, (2003), Tella, Amaghionyeodiwe and Adesoye, (2007) confirmed the positive relationship between ICTs and economic growth. They suggest that ICTs have potential in alleviating poverty in poor countries. These technologies have also been viewed by governments and international aid agencies as important tools for national integration because they are capable of enabling greater access to health and education services and creating economic opportunities for underprivileged population groups. In fact, the 2006 Information and Communications for Developments report published by World Bank (2006) for example, considered ICTs to be crucial to poverty reduction.

It has been more recently observed that internet usage in Africa has risen to 18 million in 2004, giving an internet user penetration of 2.1 per 100 inhabitants, compared to the African average of 1.6 per 100 in 2003 (Oyeyinka, 2004). Oyeyinka (2004) further stated that, the modest achievement notwithstanding, Africa still lags behind other continents in the area of ICT development and internet use. The inequitable access to the internet in Africa is basically attributable to the poor state of ICT infrastructure and lack of adequate investment on manpower to support the new communication technology. Muir and Oppenheim (2002) have discussed different strategies adopted by various governments in developed countries to provide universal access to information, including attempts to bridge the digital divides that exist within these countries.

Information and communication technologies have also been viewed by governments and international aid agencies as important tools for national integration because they are capable of enabling greater access to health and education services and creating economic opportunities for underprivileged population groups. In fact, World Bank (2006) concluded that Information and Communication technologies is crucial to poverty reduction. Also, Jensen, (2007), Urama and Oduh (2012) have suggested that ICTs and telecommunication facilities have potential in alleviating poverty in poor countries. The crucial question here is to examined the extent to which the issue of access to ICTs have influence on poverty and vice-versa. This is the focus of this paper.

3. METHODOLOGY

The study utilized secondary sources data which were collected from the Nigerian Communications Commission (NCC), National Bureau of Statistics (NBS) and World Development Indicator Database. This study adopted the one of the United Nations Indicators on ICT infrastructure access and relative headcount and incidence of poverty . ICT covers access to five specific devices: radio, television (TV), Mobile phone, personal computers (PC) and the Internet. Thus, digital divide was captured using the above mentioned areas. In addition poverty indicators such as incidence, dimension of poverty and poverty gap were also used. These data were analysed using descriptive statistics such as the use of tables, charts and simple percentages in showing the relationships between indicators of ICTs infrastructure access and indicators of poverty.

4. RESULT AND DISCUSSION

The extent and dimension of poverty in Nigeria varied by region, sector and gender, poverty impacted more on Nigeria youths, children and mothers than the male adult population. Unfortunately, the data needed to drive government anti-poverty programmes are not available or inadequate (NBS, 2010). This section utilized available data from (NBS,2011) to analyse digital access in relation to poverty in Nigeria.

4.1 Distribution of the Access and Usage of ICTs

A person is regarded to have access to a particular ICT if he/she has opportunity to harness benefits from that particular ICT. Thus, the percentage of persons with access to a particular ICT refers to the proportion of the population which benefits from using such ICT device/resource. It is considered a critical driver in enhancing economic development in poor communities, by facilitating greater access to market information, as well as raising incomes of families. Figure 5.1 showed statistics on the distribution of ownership and access to these ICTs by States in 2011. This result showed that the most widely used devices by Nigerians are radios with 82.9% and Mobile phones with 63.9%. This result reflect traditional role occupied by radio as the oldest and leading source of information acquisition and the rising wave of the usage of mobile phones as a result of telecommunication liberalization in Nigeria.
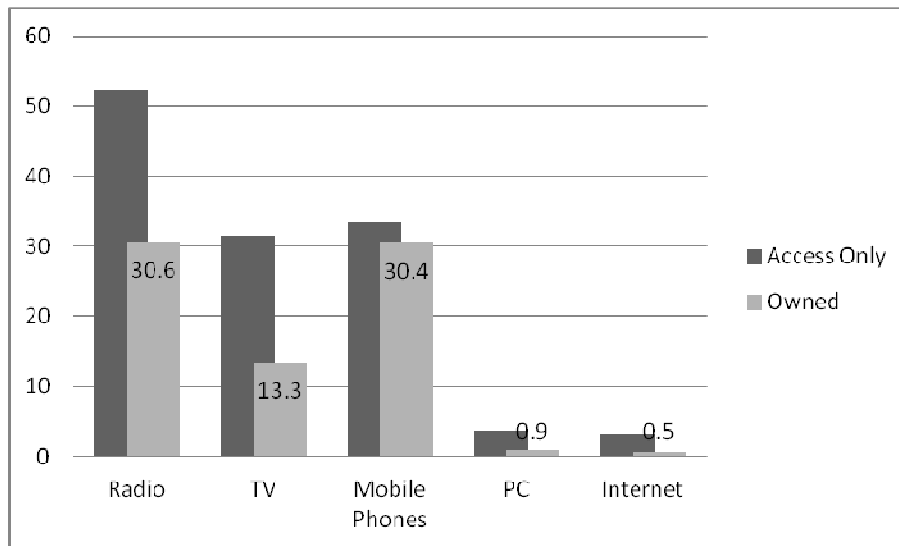

Figure 5.1: **Percentage Distribution of Ownership and Access to ICT, 2011**

Moreover, when this information was disaggregated into the 36 states of federation, about twenty three States recorded significantly high levels of access to radio, with only 14 having less than the national average. Given the poverty levels in the country combined with the fact that electricity supply still remains a major challenge in most parts of the country, access to TV, PCs and internet facilities could remain difficult for most users, hence the trend shown in figure 5.2.
Access to personal computer and internet are low as earlier mentioned, while the percentage of population without access showed the extent of digital divide in this regard. The extent of digital divide is shown by the percentage distribution of personal computer and internet access. A t the State level, figure 5.3 showed that Kogi State has the highest percentage total access to personal computers in Nigeria, with 17.4 percent, though all of it is not owned.

Also, Lagos has total access rates at 15.8% respectively of which only about 5% are owned. All other states have lower than 10% total access rates. Figure 5.3 showed State-by-State distribution of access to PCs in Nigeria as at 2011.

From aggregate perspective, internet access rates stood at 3.6% in 2011 but with only 0.5% claiming to own a connection device. Compared to total PC access among persons, a fair number of States performed better than the national rate. Lagos states top the list with value of (27%). Sokoto emerged as one of the states with least access to internet, with only 0.3% . Others were Kebbi, Zamfara, Kano, Bauchi, Kaduna, and Ebonyi States which also turn out to have low internet access rates of less than 1%.
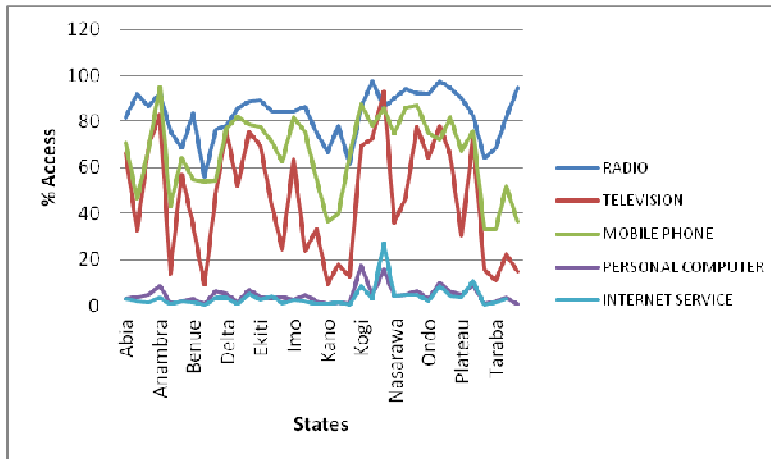
Figure 5.2: Percentage Distribution of Access to ICT Equipment by States, 2011

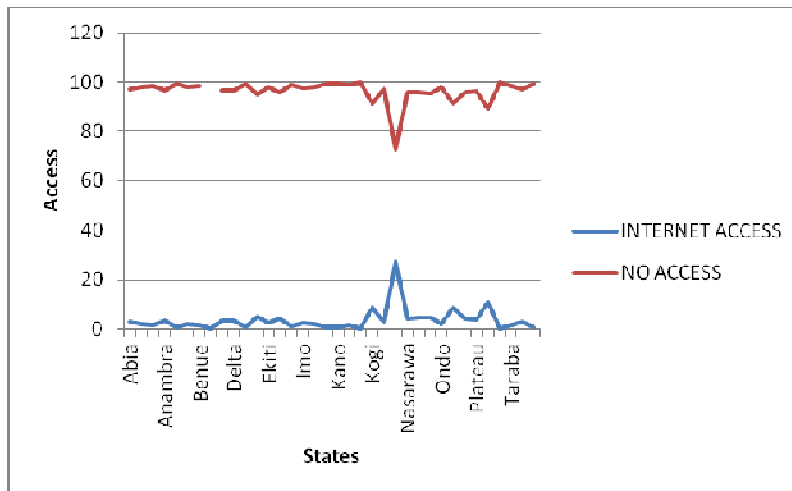**Figure 5.3: Percentage Distribution of Access to Personal Computer**

Figure 5.4: Percentage Distribution of Internet Access by States, 2011

4.2 Incidence and Dimension of Poverty in Nigeria

The type of dwelling and quality of life of the citizenry actually is determine by the level of access to information that are available to any household at any period of time. The scourge of poverty goes beyond mere measurement of a household's expenditure or welfare. Poverty has many dimensions and may include inadequate access to government utilities and services, environmental issues, poor infrastructure, illiteracy and ignorance, poor health, insecurity, social and political exclusion. There are many debates on how well-being should be measured and what indicators should be used.

Among the various dimensions of well-being considered in the literature which focus on the rights, opportunities and capabilities of individuals in terms of their access to resources which could be ICT resources and their potential consumption. Despite the fact that Nigerian economy is paradoxically growing, the proportion of Nigerians living in poverty is increasing every year as shown in figure 5.5. The proportion of the population living below the poverty line increased significantly from 1980 to 2004.
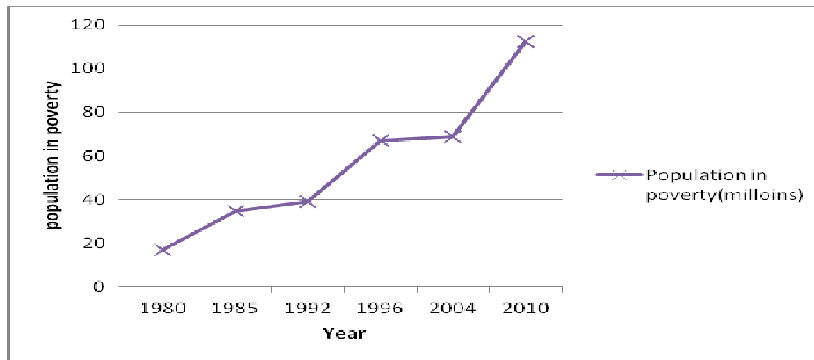

Figure 5.5: Population in Poverty (1980-2010)

As seen in figure 5.6, incidence of poverty rose from 27.2 percent in 1980 to 65.6 percent in 1996, an increase of 141.2 percent. However, between 1996 and year 2004, total poor which declined 65.6 percent to 54.4percent, marginally rose to 69 percent by year 2010. This slight trend in poverty reduction may be attributable to liberalization and deregulation programme of government which commenced in the late 1990.

It was also observed from the figure that despite the decline in the proportion of the population in poverty between 1996 and 2004, in absolute terms the population in poverty rose from 67 to 68.7million. This result therefore implied that even though Nigerian economy is paradoxically growing, the proportion of Nigerians living in poverty is increasing every year as shown in figure 5.6
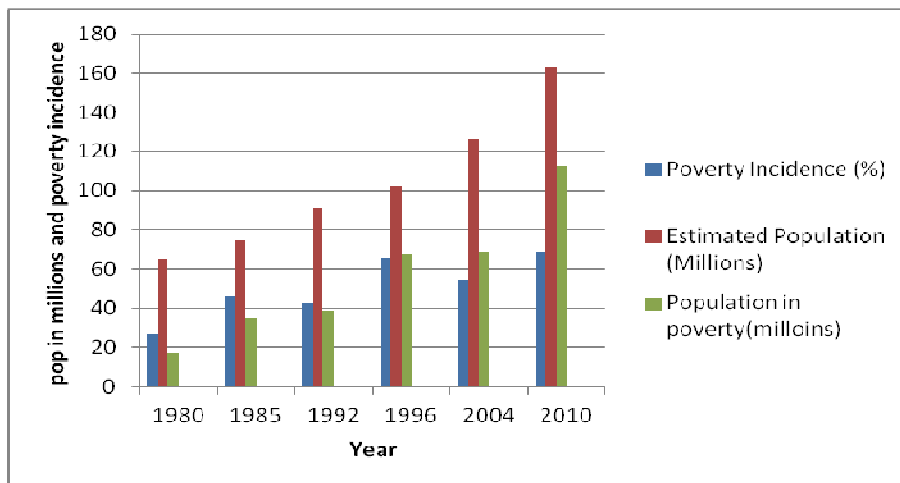

Figure 5.6: Relative Poverty Headcount (1980-2010)

5. GOVERNMENT ICT INITIATIVES TOWARDS BRIDGING DIGITAL DIVIDE IN NIGERIA

Following the above trend, a great number of efforts have been initiated by the Nigerian government and the international communities have been at improving basic ICT services for the rural and urban population as well as extending access to the use of ICT. According to Ndukwe (2008) the Federal Government through the Nigeria Communication Commission (NCC) embarked on certain initiatives to bridge this gap in digital divide, and to help stimulate and promote private sector led investment into the sector. Some these initiatives include:

(a) Wire Nigeria (WiN) Project
The WiN project is designed to facilitate the build out of huge fibre optic cable infrastructure all over Nigeria, and link all the States of Nigeria to a national optic fibre cable backbone infrastructure. To this end, NCC is offering subsidies and incentives that will encourage the rapid development of fiber transmission cables. So far, over 17,000km new optic fiber cables have been installed. There are other ongoing projects aimed at the installation of fiber cable over electric power lines.

(b) State Accelerated Broadband Initiative (SABI)
The SABI project is focused on stimulating demand for internet services, as well as drive broadband to home at affordable price levels. This project is designed to encourage the private sector with Government subsidies and incentives - to build broadband infrastructure in all the 36 state capitals, the urban and semi urban centres of the country, and subsequently all over the country.

(c) The Digital Bridge Institute (DBI)
As part of the provisions of the National Telecommunications Policy (NTP) 2000, the Commission is mandated to reverse the dearth of skilled Nigerians in the telecommunications sector. In May 2004, the ultra modern Digital Bridge Institute (DBI) was commissioned in Abuja, as an international centre for advanced telecommunication studies. Its primary focus lies in providing international standard technical training in all sectors of the telecommunications industry, at affordable prices.

(d) Digital Awareness Programme (DAP)
The Digital Access Programme (DAP) is aimed at encouraging the use of ICT in primary, secondary and tertiary institutions all over Nigeria. As at 2008, a total of 141 schools have so far benefited and have been provided with computers, internet facilities, computer laboratories, and standby generators. Furthermore, in collaboration with the DBI, the Commission provides basic ICT training for the teachers and students to enable them effectively use the facilities provided. About 80 schools benefited from the program in 2008.

(e) Universal Service Provision
The Universal Service Provision Fund (USPF) was established by the Nigeria Communication Agency (NCA) in 2003, and mandated to provide ICT access to rural and urban unserved and underserved areas, through the provision of subsidies to the private sector. Some of their ongoing projects include: Community Communications Center (CCC), Schools, Universities Access Programme (SUAP), Rural Broadband Internet (RUBI) Access, Accelerated Mobile Phone Expansion (AMPE) Project, Backbone Transmission Infrastructures

6. CONCLUSION AND RECOMMENDATIONS

This paper in complied with existing study in the literature have pointed out that inequality in society is the main cause for different types of the digital divide most especially in developing countries. This paper examined bridging digital divide and its impact on poverty in Nigeria. It has been shown that there is low rate of Internet access and usage in Nigeria. It has been demonstrated that the policies of liberalization, deregulation, and privatization of the telecommunication sector have relatively succeeded in bridging digital divide. In Nigeria, markets have been extremely liberalized, but the number of Internet users is still very low, whereas poverty and the income gap are high. The digital divide is a problem for Africa and Nigeria in Nigeria. In our contemporary times, Literacy is no more defined as the ability to read and write but now includes the ability to use the computer. Therefore development effort must go side by side with ensuring that all part of the states are adequately covered by telephone, internet and broadband signals. Such a policy framework should foster improvement in the key areas of the economy.

Finally, access and skills access have some challenges. Some of these include poor quality of service caused primarily by network capacity constraints. Others include the lack of physical and transmission infrastructure; scarce spectrum resources; unreliable electric supply; disparity in telecommunications facilities between urban and rural areas; shortage of long term investment capital; skill shortages; security challenges; theft; transmission cable cuts; amongst others.

REFERENCES

1. Chowdhury, N. (2000) 'Information and Communications Technologies and IFPRI's Mandate: A Conceptual Framework.' Sept. 18, 2000.
http://www.ifpri.org/divs/cd/dp/ictdp01.pdf

2. Fong, M. (2009). Digital Divide: Reaping the benefits of ICT. Europe's productivity challenge. Report sponsored by Microsoft Euro monitor International, GMI Database. Retrieved November 12, 2008, from http://graphics.eiu.com/files/ad_pdfs/MICROSOFT_FINAL.pdf

3. Jensen, R. (2007). The digital provide: Information (technology) market performance, and welfare in the south Indian fisheries sector. The Quarterly Journal of Economics, CXXII(3), 879-924.

4. Kenny, C. (2001) 'Information and Communication Technologies and Poverty.' TechKnowLogia, July/August 2001. http://www.techknowlogia.org/

5. National Bureau of Statistics (NBS)(2005) Poverty Profile for Nigeria, Abuja

6. Ndukwe E.C. (2008): The role of telecommunication in the development of Nigeria Infrastructure *Nigeria Infrastructure Exhibition and Confere*nce International Conference Centre, Abuja ,Nigeria

7. NBS (2010): Nigeria Poverty Profile

8. Oyeyinka B. and Lal K. (2004) "The Internet Diffusion in Sub-Saharan Africa: A cross-country Analysis",Telecommunication Policy.

9. Samuelson, Robert J. (2002) "Debunking the Digital Divide" **Newsweek**, Volume 139,

10. Tella, S. A., L. A Amaghionyeodiwe, and B. A. Adesoye. (2007) Telecommunications infrastructure and economic Growth: Evidence from Nigeria. UN-IDEP and AFEA joint conference on "Sector-led Growth in Africa and Implications for Development" to be held in Dakar, Senegal from November 8-11, 2007.

11. Urama and Oduh (2012). Impact of Developments in Telecommunications on Poverty in Nigeria. Journal of Economics and Sustainable Development. Vol.3, No.6

12. United Nations Human Development Report (2005). UNHDP 2005.

13. United Nations (1999**) Human Development Report** "New Technologies and the GlobalRace for Knowledge" Chapter 2, pp.57-75.

14. Van Dijk, J and Hacker, K. (2003). The Digital Divide as a Complex, Dynamic Phenomenon. *The Information Society*. 19, 315-326.

15. Van Dijk, J. (2006). *The Network Society. Social Aspects of New Media*. Second Edition. London: SAGE.

16. Venkat, Kumar (2002) "Delving into the Digital Divide" IEEE Spectrum, Volume 39, Issue 2, February, p.14

17. World Bank (2003). ICT and MDGs: A World Bank Group Perspective", Washingtong, D.C.: The World Bank Group,

18. The World Bank. (2006). 2006 Information and Communications for Development: Global Trends and Policies. Washington DC: The World Bank.

19. UNDP. (2009). Nigerian Human Development:. Technical paper on realising the Millennium Development Goals. http://uk.oneworld.net/guides/nigeria/poverty?gcl id=COmShJjC1KMCFVw65QoddFWruw

20. Wilson, E. J. (2006). *The Information Revolution and Developing Countries.*Cambridge, MA: MIT Press.

21. Wresch, W. (1996) Disconnected: Haves and Have-Nots in the Information Age. New Brunswick: Rutgers University Press

22. Oye, D (2012): Inflation and Poverty in Nigeria: The Role of ICT in Poverty Reduction. Universal Journal of Management and Social Sciences Vol. 2, No.7; July.