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The Importance of Information and Communications Technology in Reducing Poverty

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Introduction

ICT investments can reduce poverty by increasing not only economic development, but by also increasing other aspects of development such as political inclusion, freedom of speech, and gender equality. While investments in technology in general can reduce poverty, most of these investments mainly increase economic development. ICT investments, however, are particularly important because they reduce poverty by promoting development beyond just the economic aspect.

To understand the importance of ICT's role in reducing poverty, it is useful to conceptualize poverty in a context of development beyond economic development. Amartya Sen's work helps explain this concept of development beyond economics.[1] Instead of using economic measurements like GDP per capita as the only indicators of development, Sen explains how various freedoms should be benchmarks of development, which enriches the discussion of poverty and the types of freedom ICTs offer. He also mentions how the various freedoms contribute to each other.

In the debate about the importance of ICT, proponents of ICT assert that developing countries need ICT to expose them to new technologies in general. As the United Nations Millennium Report states, "New technology offers an unprecedented chance for developing countries to 'leapfrog' earlier stages of development. Everything must be done to maximize their peoples' access to new information networks."[2] Skeptics of the importance of ICT believe that directly combating issues such as health, education, and basic infrastructure take overwhelming priority over investments in ICT. For instance, Bill Gates of the Bill and Melinda Gates Foundation has given the following critique:

[1] Sen.
[2] Steinberg, 46.

> Let's be serious. Do people have a clear view of what it means to live on $1 a day?. . .There are things those people need at that level other than technology... .About 99 percent of the benefits of having [a PC] come when you've provided reasonable health and literacy to the person who's going to sit down and use it.[3]

While directly combating issues such as health and education should take priority over certain ICTs such as internet or 4G wireless services, investments in mobile phones (basic models, not smart phones) and radio ICTs can improve health and education while reducing poverty in the short run. For long-run poverty reduction, developing countries should eventually focus on investments in low-cost, widespread internet connectivity.

While advances in ICT are certainly important, they must ultimately be pursued along with social developments such as health, education, and basic infrastructure. While advancing ICTs can provide the job opportunities to support economic development, a lack of social development can prevent those ICTs from distributing those economic opportunities to the general population. ICT implementations in the Indian state of Andhra Pradesh illustrate this interdependence. India has invested heavily in the ICT sectors of the major cities of this state, but because various social development investments have been lacking, the gained wealth from the ICT industry has failed to provide economic opportunities for many rural citizens.[4]

However, this interdependence among various aspects of development and poverty reduction does not mean that developing countries should place advancing social development far above ICT advancements. Instead, developing countries should pay similar attention to developing ICTs along with those other social developments. By doing so, ICTs can work with

[3] Ibid.
[4] Ramachandraiah, 1192.

the other aspects of development to support a more sustainable development marked by poverty reduction through economic and social development.

Contextualizing Poverty Reduction

In order to examine the importance of ICT's role in reducing poverty, it is useful to conceptualize development beyond economic development so the impacts of ICTs on poverty reduction can fully be appreciated. Instead of using economic measurements like GDP per capita as the only indicators of development, Amartya Sen explains how enhancing freedom should be the benchmark of development. He has two main reasons for why freedom is central to the idea of development. The first reason is an "evaluative" reason that means development should be measured by how people's freedoms are enhanced. His second reason is the "effectiveness" reason which means development depends on people being able to choose from a set of capabilities.[5] The effectiveness reason acknowledges that various freedoms bolster each other. He organizes freedom into five instrumental categories: political freedoms, economic facilities, social opportunities, transparency guarantees, and protective security. Regarding the two reasons, one example is that increased social opportunities embody progress because they are inherent to development and because they can bolster economic facilities (another inherent part of development). Sen explains that political freedoms include civil rights, and the freedoms to choose between political parties or criticize the government.[6] Economic facilities are the opportunities to consume, produce, and trade, which means having the opportunity to connect with markets. Social opportunities include education, health care, and literacy. Transparency

[5] Sen, 4.
[6] Sen, 38.

guarantees mean corruption is absent from society.[7] Lastly, protective security means that there is a safety net to prevent unfortunate events from impoverishing people, for example, unemployment insurance could provide part of the safety net.[8] All of these instrumental freedoms are important to poverty reduction, and ICTs help bolster several of them. The true worth of ICT investments are found in its support of the "effectiveness" reason. ICTs help the various instrumental freedoms bolster each other, and Sen explains that freedom encourages more freedom.

Several case studies showcase how ICTs reduce poverty and which types of ICTs are especially effective at reducing poverty in the context of Sen's ideas in *Development as Freedom*. Specifically, access to mobile phones and radio is more important than access to internet or landline phone infrastructure. Case studies include ICT access in India, Bangladesh, Kenya, and various other countries in Sub-Saharan Africa.

Economic facilities

While Sen's approach to mitigating poverty extends beyond economic growth, economic growth is an important part of reducing poverty, and ICTs have enormous potential to promote that economic growth in developing countries. There are numerous economic benefits of ICTs. Aker and Mbiti (2010) explain five ways ICTs promote economic growth. The first way is that mobile phones increase people's access to information. Secondly, mobile phones help firms improve their production processes. A third benefit is that mobile phones help create opportunities for more jobs. Mobile phones also help people create social networks that ultimately reduce household risk. Lastly, the fifth economic benefit is a concept called m-

[7] Ibid, 39.
[8] Ibid, 40.

development, which involves mobile phones facilitating the delivery of better services such as those related to finance, health, education, and agriculture.[9]

Increased access to information

ICTs allow increased access to information by lowering search costs. Such information useful to households includes input prices, output prices, new technology, politics, and even the status of friends and family.[10] For example, a rural farmer can ascertain crop price information by making a phone call rather than making a long journey to the closest market. For instance, between the years 2001 and 2006, Niger widely adopted mobile phones. Several anecdotes illustrate the benefits of the mobile phones in Niger. One grain trader in Magaria, Niger reported, "'[With a mobile phone], in record time, I have all sorts of information from markets near and far…'"[11] Another grain trader explained, "'[With a mobile phone], I know the price for US $2, rather than traveling (to the market), which costs US $20.'"[12] This second anecdote is in light of the fact that in Niger, an average roundtrip to the market 65 kilometers away can take a farmer or trader 2-4 hours, whereas a phone call often takes two minutes. Furthermore, Aker used a local daily wage of 500 CFA francs (US$1) to find that, on average, mobile phones reduced searched costs by 50 percent compared to personal travel costs.[13] This reduces price dispersion among sellers and increases market efficiency. One mobile phone service called TradeNet operates in 17 countries to offer information about agricultural goods for both buyers and sellers. While basic information is free, TradeNet charges for more personalized and enhanced information services.[14]

[9] Aker and Mbiti, 213
[10] Aker and Mbiti, 215.
[11] Aker, 46.
[12] Aker, 47.
[13] Aker and Mbiti, 215.
[14] Africa Partnership Forum, 13.

Increased Firm Efficiency

ICTs also allow firms to better manage their supply chains thereby increasing their production efficiencies. Firms can also coordinate more effectively with other firms using mobile phones. These benefits are similar to those provided by other forms of ICTs such as the internet, though mobile phones are more accessible in developing countries. Studies in South Africa and Egypt concluded that increased mobile phone usage was associated with increased profits, significant time savings, and improved communication among small-scale firms in various supply chains.[15]

There are examples of pro-poor implementation of ICTs with firms in rural India. Computerized milk collection in Gujarat helps small farmers work more closely with dairy cooperatives. The computerization of measuring the fat content in milk and the quantity of milk sold created more trust in business. The old manual way of analyzing milk made farmers harbor more distrust and resulted in more underpayments by the staff of the cooperatives. The manual method also meant that farmers were paid ten days after giving the milk, and the computerized method allowed for instant payments. Thus, ICTs increased transparency while targeting a common group among the poor: small farmers.[16]

Job Growth

Investments in ICTs are important to economic development because they provide jobs and, consequently, income for many people in developing countries. India is an excellent example of the significance of ICT, since its government enacted policies in 1988 that bolstered the industry, which then stimulated its economy. Furthermore, ICT fosters networks and communities of scientists and engineers that provide the skilled labor much needed by

[15] Aker and Mbiti, 219.
[16] PREM Notes, World Bank, Number 70.

developing countries. On one hand, transportation infrastructure has been found to attract scientists, engineering, and other professionals because they want to live in easily-accessible places that offer a multitude of economic and lifestyle opportunities. Professionals can more easily meet in places (usually cities) that have good transportation infrastructure, so they have greater incentives to live in those places. Likewise, places with strong ICT sectors attract professionals because the ICT helps them bolster their professional communities by facilitating the sharing of information and by helping them find economic opportunities within those communities.[17]

Increased ICT usage also promotes growth in various formal and informal sectors. Increased usage creates opportunities for more jobs in ICT sectors and other complementary sectors such as private transportation. Kenya is an excellent example of this economic benefit. Between the years 2003 and 2007, as mobile phone usage increased, the private transport and communications sectors grew by 130 percent. Certain small businesses arose such as mobile phone repair, battery charging, not to mention selling mobile phones. Furthermore, it is more feasible for many Kenyans to use pay-as-you-go phones, so many small stores or peddlers sell these on local streets. Many of these businesses are in the formal sector, but many are in the informal sector, such as those who ask for a fee to charge mobile phones with their car batteries.[18] Also in Kenya, an SMS job service created a revenue of US$100,000 and attracted 30,000 subscribers. This service sent subscribers 150 to 200 announcements a week informing them of job vacancies, and subscribers only pre-pay for how many messages they want to receive rather than paying monthly fees. This service helps employer find employees more efficiently,

[17] Malecki, 307-311.
[18] Aker and Mbiti, 219.

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because 60 percent to 70 percent of the job vacancies that are announced through this SMS service are filled.[19]

Social Networks that Household Reduce Risk

ICTs also foster the growth of social networks. Households can use mobile phones to more easily and frequently communicate with friends, family members, and neighbors. These people can live within their village, cities, countries, or even internationally. Because mobile phones allow information to flow faster, social networks can respond faster to disaster and reduce the individual risk of each household in the network. Such disasters could be violent conflicts, natural disasters, or epidemics. Networks of farmers can even share technology such as better agricultural practices.[20] More empirical studies should be conducted to better measure these network and risk-reducing benefits.

Enhanced Mobile Services

Many of the economic benefits of mobile phone usage come from this ICT's ability to enhance the effectiveness of many types of services through fast, cheap, mobile communication. These benefits fall under the name "m-development" (mobile development) and include areas in finance, healthcare, education, data collection/analysis, agriculture, and governance. Regarding finance, mobile phones allow mobile banking, often called "m-banking or "m-money." Kenya has a successful m-money service called M-Pesa which had 8 million users and 13,000 agents as of 2009. In the same year, M-Pesa transferred US$3.7 billion which was almost 10% of Kenya's GDP. Even though most of the users of M-Pesa live in urban areas and are wealthier than people in rural areas, this ICT has the potential to grow over time as mobile phones become cheaper and

[19] Africa Partnership Forum, 13.
[20] Aker and Mbiti, 220.

coverage more widespread.[21] In fact, South Africa has a similar system called Wizzit. While allowing clients to manage bank accounts from mobile phones, the application also allows clients to make person-to-person payments, transfers, and pre-paid purchases without needing to own a bank account.[22]

Healthcare also receives benefits from mobile phones. Health workers can go to remote villages and call centralized doctors to receive diagnoses for patients who would be otherwise unable to travel long distances. There are also low- cost-medical imaging systems that allow central processors to analyze data collected from rural locations.[23] Healthcare workers can be trained over the phone to better serve patients. Spreading epidemics can be found and attacked more quickly by centralized processing centers that gather data from phoned-in reports from rural villages throughout a state or nation.[24]

One example of pro-poor poverty reduction is the InfoDev-sponsored India Healthcare Delivery Project in Andhra Pradesh. Handheld computers are distributed to auxiliary nurse midwives to reduce overlapping paperwork and time spent entering data. This allows the auxiliary nurse midwives to focus more time on delivering healthcare to poor communities. This increased efficiency is much needed, because each health worker serves roughly 5000 people across several villages and offers services such as immunizations, family planning counseling, and educating residents about mother-child health programs. They also have the important task of gathering data on birth and immunization rates to be analyzed in centralized offices. Whereas the midwives spend 15 to 20 days each month collecting data without the handhelds, handhelds

[21] Aker and Mbiti, 221.
[22] Africa Partnership Forum, 13
[23] Aker Mbiti, 223.
[24] "One Million Community Health Workers: Technical Task Force Report." The Earth Institute.

allow them to reduce time spent collecting data by up to 40 percent. In this case, ICTs enhance healthcare services for poor communities by making scarce resources more effective.[25]

These health benefits can be viewed in the context of Sen's the effectiveness reason: increased health increases labor productivity to grow the economy and economic facilities. Mobile phones strengthen the supportive relationship between social opportunities and economic facilities.

Empirical Studies of Economic Growth and ICTs

Not much research concerns mobile phone usage specifically as it relates to economic growth. However, one study found that there is positive correlation of 0.54 between number of mobile phone lines and real GDP adjusting for country size. Also, a 10% increase in mobile phone penetration correlates to a 0.6% increase in growth rates for developing countries. [26] Furthermore, mobile communications technologies contribute 0.39% of GDP growth for developed countries and only 0.19% of growth for developing countries, which is most likely due to a lack of infrastructure to support mobile usage.[27]

Research has been done on the relationship between poverty and access to ICTs in east Africa. One study used two waves of household survey data from the PICTURE Africa study and initially found that there was a statistically significant relationship between poverty reduction and households' access to ICTs. Furthermore, the study was modified to test for causality, and it concluded that there was a slightly positive but statistically significant effect between the two variables. The study implies that increasing household access to ICTs should reduce poverty.[28]

[25] PREM Notes, World Bank, Number 70.
[26] Gruber et. al. 9.
[27] Gruber et. al. 41.
[28] Julian May, et al, Chapter 2. *ICT Pathways to Poverty Reduction.*

Social opportunities

ICTs can play an important role in reducing poverty by giving women more freedom. The International Center for Research on Women (ICRW) offers various reasons for why ICT gives women increased access to community and entrepreneurial networks[29] and provides them with other economic opportunities as well.[30] Women in developing countries generally do not have as much access to information and communications technologies as men compared to the gender divide in developed countries. ICT investments and policy should attempt to eliminate these discrepancies. The ICRW addresses why this gender divide and technology divide are a problem for women, economic growth, and poverty reduction in developing countries. While there is a gender ICT gap in both developed and developing countries, the gap tends to be smaller for higher-income countries. In the ICT-using sectors of OECD countries, there is a gender gap of between 40 percent and 60 percent for women and men's occupations. In most developing countries, women do not have as much access to ICT such as internet, mobile, phones, and radio. For instance, in Africa, women make up only 25% of internet users. Women are only 22% of internet users in Asia and only 38% of internet users in Latin America. The gender gap is even more severe in the Middle East where only 6% of internet users are women.[31]

The International Center for Research on Women studied the development benefits of four ICT investments: village mobile phones, outsources ICT services, ICT telecenters, and ICT Academies. The impact of mobile phones was studied in the context of the Village Phone Program. The Grameen Bank, a microfinance institution started by Muhammad Yunus, created the for-profit organization GrameenPhone, which partnered with two international telecommunications companies to start the program in the 2003. The Village Phone Program

[29] Malhotra, 5.
[30] Gill, 12.
[31] Ibid, 3.

aims to empower women as entrepreneurs through encouraging mobile phone use. It helps provide the phones and trains women how to use them. It also teaches them how to buy the phones to start and manage phone booth businesses. The phone booth businesses consist of women charging other women in their villages to use their phones. The business provides whole villages with cheaper communication technology, and the women can use the phone booth services for other business as well. As of 2010, the Village Phone Program had given financing and training to 220,000 women living in rural Bangladesh. Furthermore, the program resulted in most entrepreneurs increasing their earnings to 30-40 percent of their entire household earnings.[32]

ICTs empower women entrepreneurs in various ways from strengthening women's connections to markets to providing the flexibility to incorporate business into their daily household lives. Women in developing countries are often the primary caregivers and homemakers of their families, and these responsibilities demand much of their time. These demands often obstruct women's access to markets, but ICTs help eliminate such barriers.[33] ICTs such as computers, internet, and particularly mobile phones allow women to work more from home. For instance, the phone and internet helps women entrepreneurs' access market information and communicate with clients, suppliers, and banks while staying at home and saving the time spent traveling to contact them. Spending more time working at home allows women to also manage household responsibilities and results in increased productivity. Such productivity gains materialize in increased sales and revenues. Furthermore, such gains also result in increased self-confidence, self-value, and community respect as economic providers.[34] This social empowerment of women is an important aspect of poverty reduction, because it

[32] Gill, 20.
[33] Malhotra, 58.
[34] Malhotra, 54.

pertains to bolstering women's freedom to pursue economic ventures. As more women use ICTs as a result of ICT investments, they promote the cultural acceptance of women using them. This increased acceptance encourages more women to use ICTs which further spur increased freedom to use ICTs and connect with markets as well as economic development.[35] Thus, ICTs can reduce poverty by empowering women with social and economic freedoms.

The Village Phone Program not only increases the economic opportunities for women entrepreneurs; it also improves their economic freedom and increases *overall* economic activity in the various communities. Women who paid to use the phones cut down on time spent doing household and market work, such as traveling to communicate with neighbors and clients. The phones also gave women easier and faster access to market information so that they could set better prices for their goods. Ultimately, the phones increased the speed of communication and access to information, which allowed for increased market activity.[36]

Political freedoms

Investments in ICT can bolster freedoms such as free speech, political inclusion, and social inclusion. ICT investment in Kenya serves as an example of how ICTs can support these freedoms in a developing country. Kenya is one of Africa's greatest users of ICTs. In 2012, it ranked second to Ghana among the African countries with the highest internet speed.[37] Kenya has also been one of the African countries with the fastest growing ICT use. Between the years 2006 and 2011, the percent of the population with access to internet increased from 7.5 percent to 60 percent. Mobile phone use in Kenya has also been on the rise. Mobile phone subscription in Kenya grew from 60 percent in June 2010 to 71.3 percent in December 2011 when there were

[35] Malhotra, 58.
[36] Gill, 20.
[37] "Kenya", 1.

28.1 million phone subscriptions. Several factors have been responsible for the increase in mobile phone use. One factor is that mobile phone use has become more popular as a mode of communication. Another factor is the more frequent value-added services offered with the mobile phone subscriptions such as entertainment and mobile money transfer, which lets users perform banking on mobile phones. Other significant, increasingly frequent value-added services offered are mobile data and internet subscriptions. These plans make up 99 percent of all internet subscriptions in Kenya, which reflects that the mobile phone is the primary medium of connecting to the internet.[38] The strong ICT penetration in Kenya has cultivated the favorable development conditions for free speech and political and social activism.

Information and communications technologies have allowed Kenyans to voice their opinions and communicate with their communities, both national and global. They have increased the diffusion of information among Kenyan communities. For instance, internet blogging has allowed more people to voice their political and social opinions to larger portions of their communities. The Kenyan government allows citizens to have unrestricted access to social networking sites like Facebook, video-sharing sites such as YouTube, and blogging sites such as Blogger. All of these sites empower citizens to communicate with those around their country and around the world with internet access. While print outlets, television, and radio provide most of the news for Kenyans, news sources are increasingly spreading information on their own official internet sites. The mainstream news sources are also putting their news on globally popular sites such as YouTube and creating Facebook and Twitter accounts for citizens to connect with. Kenyan citizens even started the crowdsourcing website Ushahidi.com (Ushahidi is Swahili of "testimony") which fostered political and social activism after the disputed Kenyan presidential election in 2007. After the election, there were many acts of

[38] "Kenya", 2.

violence, and this website shared citizen reports of violence and political protests. The website managers received the news reports from text messages sent by individual citizens. Thus, the Ushahidi crowdsourcing website is an excellent example of how ICTs, in this case mobile phones, the internet, and computers, can interact with each other to promote and foster social and political activism. In 2011, these ICTs fostered similar citizen mobilization in Kenya around the issue of rising food and fuel costs in what came to be known as the Unga (Flour) Revolution.[39] ICT's have enhanced Kenya's development beyond just economic development, so Kenya is a testament to the fundamental need for developing countries to invest in ICTs to create social development.

Transparency Guarantees

While ICTs benefit economic development, they are integral to the development process because they also help prevent a significant obstacle to development: corruption. Transparency International defines corruption as the "misuse of power for private gain."[40] Corruption is a major impediment to development for various reasons. It causes government officials to misuse resources by supporting inefficient programs and businesses. It reduces the influence of public policy and hinders economic development by reducing incentives to pursue business and international trade, which drives consumer costs. Furthermore, corruption adversely affects a country's reputation and the chances of getting aid from global institutions such as the World Bank and the International Monetary Fund.[41] Despite all of the economic detriments corruption causes to developing countries, a corruption-free society is desired for more than a means to economic prosperity. The absence of corruption is its own benchmark for development. ICTs

[39] "Kenya," 5.
[40] DiRienzo, 321.
[41] DiRienzo, 320.

tend to decrease the overall level of corruption within countries by facilitating the spread of information.

In a research paper published in the *Journal of International Business Studies*, Cassandra E. DiRienzo et al. found that increased access to information greatly decreased corruption across countries. Furthermore, the study found that diminishing the disparities of access to information across a given nation also tends to decrease corruption. For instance, many developing countries such as Kenya have large disparities between rural and urban populations, and the study suggests that eliminating those differences in ICT access would lower national levels of corruption.

The research controlled for various socio-economic, institutional, and cultural variables that affect corruption so that the impact of access to information could be ascertained.[42] The study also uses a data and regression analysis of the Corruption Perception Index (CPI) produced by Transparency International along with ICT access data. Factors of the CPI include how much politicians and officials are believed to accept bribes or illegal payments from public funds. It takes into account how much citizens believe politicians embezzle public funds or abuse power, so the index is a relative measurement based on perception. Transparency International gathers the perceptions that weigh into the CPI from 10 different organizations that consider the informed opinions of various business people and risk analysts, so the index is informative.[43]

To measure the level of access to information, the study uses the Digital Access Index (DAI), which measures the opportunities for people to access and use ICTs across 178 countries. Components of the DAI include ICT infrastructure, affordability of access, knowledge, quality of ICT services, and usage. The infrastructure category is a measure of the number of telephone subscribers per 100 people and the number of mobile phone subscribers per 100 people within a

[42] DiRienzo, 322.
[43] DiRienzo, 323.

country. The affordability of access component is the cost of accessing the internet as a percentage of a country's GDP per capita. The knowledge component has two factors: adult literacy and the total level of primary, secondary, and tertiary school enrollment. The component labeled quality of services comprises international internet bandwidth per capita and broadband subscribers Tr 100 people. Lastly, the usage category is a measure of internet users per 100 people living in a given country. [44]

The study concludes that increasing access to information is a key factor in reducing corruption. Information availability through digital forms such as the internet or computer networks help create more transparent laws and transactions, which bolster government accountability.[45] Spreading information can reduce corruption levels because it increases the risk of corrupt acts being noticed and punished. People in power then have less of an incentive to commit corrupt acts due to the increased risks, so less corrupt acts are committed. Therefore, ICTs investments are a high priority for development because ICTs combat corruption, which is a root problem of both economic and social development.

Protective security

Many of the ways ICTs provide protective security relate to m-development or the strengthening of social networks cited in earlier sections. M-health services can support protective security by facilitating a strong healthcare safety net. Farmers can call a hotline to receive agricultural expertise if there are certain threats to crop yields. Social networks can warn households of violent conflicts in order to minimize collateral damage and reduce the risk of harm. Violent conflicts include civic protests that become violent, and social media can

[44] DiRienzo, 324.
[45] DiRienzo, 322.

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document government police or protesters' transgressions. As mentioned before, ICTs allow expertise centers to gather health information from many locations so they can detect health epidemics weeks earlier than by other forms of communication. However, while ICTs enhance these mobile services and reduce risk, governments still need to implement safety net policies to take advantage of ICTs.

Mobile phones and radio: the most promising forms of ICT

Aside from mobile phones, other types of information and communications technologies (ICTs) can provide economic benefits in similar ways. For instance, radio and newspapers also increase access to information. Internet also fosters social networks. However, mobile phones can play a particularly effective role in economic growth in developing countries relative to other forms of ICT. Mobile phones are more promising than some other ICTs because they are more accessible to households and firms. Whereas in 1999, only 10 percent of Africa's population had mobile phone coverage, 60 percent had coverage by 2008, and most villages in Africa were estimated to have coverage in 2012. The only countries relatively without coverage include Guinnea Bissau, Ethiopia, Mali, and Somalia.[46] This largely has to do with the lack of infrastructure in many developing countries. For instance, in South Saharan Africa (SSA) in 2009, only 19 percent of households regularly read a newspaper at least once a week. Furthermore, only 4.2 percent of households in SSA had access to the internet. Radio is the only other ICT with prevalence on par with mobile phones. While 55 percent of households in SSA listen to the radio at least once a week, it is not as effective as mobile phones in several ways. For instance, mobile phones generally provide more information than radio. Radio programming,

[46] Aker and Mbiti, 208-209.

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which is usually daily or weekly, is infrequent relative to the ability to make many phone calls during a single day. Also, phone calls are more personal than radio broadcasts and can provide more pertinent, personalized information. Another benefit of mobile phones over radio is that mobile phones offer an active role in the process of searching for information whereas radio only offers a passive role. Mobile phone users can ask questions about the information they receive and they can make other calls to verify information. Radio programming is a passive search process because people cannot generally respond to the programs (unless they call the station with a mobile phone or a less common landline).[47]

Responsible Implementation of ICTs

While ICTs have numerous potential to reduce poverty, merely adopting more ICTs will not be enough. ICTs must be implemented within a transparent policy framework that fosters poverty reduction. Such a policy framework takes into account what groups of people are marginalized and how ICTs can help correct those deficiencies. In this sense, ICTs use must be guided by pro-poor development policy. For example, an important aspect of serving poor communities is health literacy. Many poor communities in rural areas often face language or cultural barriers. To make ICTs effective, information needs to be translated to a language that best serves those communities. This includes recognizing language differences among ethnicities and levels of education. For instance, the India Healthcare Delivery Project uses software designed to accommodate the literacy levels of the health care workers who use the handheld devices.[48] Furthermore, health care recipients need to be able to know about the healthcare process so they can advocate for their health. They need to be able to know what kinds of questions to ask and how to communicate their needs to the health care workers.

[47] Aker and Mbiti, 209.
[48] PREM Notes, World Bank, Number 70.

While India has successfully reduced poverty by implementing certain ICTs, there is significant room for improvement in narrowing the digital divide. Making sure the poor have access to ICTs is very important to reducing poverty but remains a serious challenge. Part of the problem is that many of the poor are illiterate and cannot reap the benefits of certain ICTs. Another large part of the problem is that high access costs prevent use among the poor. A survey was conducted in five villages in Andhra Pradesh, Uttar Pradesh, and West Bengal, and the study concluded that radio was the only ICT owned by most poor families. Most did not even read newspapers, and they received most information from friends and family members.[49] For ICTs to reach poor people, policies have to focus on decreasing the cost of telecommunications connectivity.

Conclusion

Current ICT implementations in various developing countries indicate that ICTs are excellent tools for reducing poverty. They are important because they promote economic growth, but they are also important because they promote social development by empowering poor communities with various freedoms. ICT use in Kenya reveals how mobile phones and radios are currently the forms of ICT most effective at reducing poverty due to their accessibility and efficiency in transferring information. However, investments in ICTs are not sufficient to effectively reduce poverty. As cases in rural India indicate, pro-poor policies must be in place to insure poor people have access to ICTs to receive the many benefits. Though mobile phones and radio are currently the cheapest ways to reduce poverty in developing countries, long-term poverty reduction will require bridging the digital divide by creating low-cost internet connectivity.

[49] PREM Notes, World Bank, Number 70.

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