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RESEARCH ARTICLE

Impact of Communication on Poverty Reduction

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ABSTRACT

It seems difficult to conceptualize under what conditions and to what extent the element of information and communication would be able to empower the poor and marginalized section in various societies. This paper tries to look at this question, concentrating on the role and impact of communication on poverty mitigation. The paper focuses on key factors under which communication and information through radio, telephony, newspapers, journals and the Internet and can be instrumental and substantive for the reduction of poverty. Access to information by the poor and giving chance for them to have a voice in the public media can enhance their capabilities to strategic life choices and obtain the lifestyle they value.

An attempt has been made to conclude that there does not exist a direct and casual relationship between Information and Communication Technologies and empowerment of the poor, but that in fact this relationship is being shaped by a dynamic, multi-dimensional interrelationship between technology and poverty reduction as a social context. However, government authorities should support and firmly focus on opening up private and public provisions of broadcasting and expanding access to communication tools, so that they can effectively play this intermediary role.

Introduction

Recent studies have found that communication is the cornerstone of human development; especially the poor and marginalized need to be able to understand and be also understood to take better decisions for strategic life choices. Communication is the foundation of relationships in social interaction and is the base for learning which positively impacts on all aspects of life. The potential impact of information and communications on

development has recently become a much contested issue within the development discourse (World Bank 2002; UNDP 2001; Braga, 1998) that takes an optimistic view and highlights the positive effects of the Internet and other forms of information and communication technologies to create new economic, social and political opportunities for developing countries where the majority of poor are assembled.

Radio and telephone have an old background and recently these tools of communication have been substituted by the Internet which has also demonstrated its usefulness in boosting the income and quality of services obtained by the citizens. Using Internet-based systems to make phone calls has reduced the cost of international communication; the Internet is being used to facilitate the transaction of goods and services; and the emerging economies like India and China are gaining billions of dollars a year sending software and Information Technology services outside their countries (Grace *et al*., 2001).

Many organizations like NGOs, donors along with governments have strong and long supportive programmes providing radios to schools, refugees, community groups and expanding the rural telephone services and public Internet access, email and other computer applications. There is motility in the development community pushing forward for the widespread roll-out of community access points to the Internet as a tool for poverty relief.

In the poorer areas of the least developed countries, the nature of extreme poverty is recognized by very low incomes, subsistence and unskilled wage labour as the dominant income source, food as the dominant consumption good, low education and high illiteracy, minority language group status and rural location point to an unsustainably high cost and relatively low benefit of direct Internet service provision through telecentres to the very poor. This might suggest that the move for universal Internet access as a tool for poverty alleviation is lost. Instead, the article argues that access strategies concentrated on the telephone and radio might have a higher benefit-cost ratio and lower overall cost as alternatives to and intermediaries for the Internet in poverty reduction strategy.

General Features of the Poor

Taking a cross-country definition of the poor, those surviving on less than $1 a day, we have information on the country location of a little over 1 billion such people. Approximately 40% live in India, a further 22% in China, 8% in Nigeria and a further 14% in Pakistan, Afghanistan, Bangladesh, Ethiopia, Indonesia, Brazil, Mexico, and Russia combined. The remaining 14% are scattered throughout the rest of the world, primarily in Africa. In other words, it is a measure of the conditions prevalent in the average country occupied by poor people. There are certain characteristics that poor people share, beyond their extreme poverty:

Poor people are concentrated in countries and regions with low level of income and higher vulnerability to poverty. The average poor person lives in a country with a little over one-third of the income of the average global citizen, and almost double the population living under $1 a day.

About two-third (75%) of the population in countries where the poor reside are rural. The percentage of the poor that are rural residents is even higher, and the rural poor continuously live in population-sparse environments.

A third characteristic of the global poor is that most are self-employed and subsistence farmers or unskilled agricultural laborers. Linked to this, in percentage terms, the poor spend fewer on purchasing services and buy more physical goods (especially food) than the average consumer. Much of this commerce is carried out on an in-kind basis.

Corresponding to their unprofessional status, the average poor person is illiterate. Average literacy rates in the countries occupied by the poor are 54% and 73% for women and men respectively. Within countries, the poorest are much more likely to be illiterate. Undoubtedly, the same is also true regarding education level, both previous education amongst adults and current education of children. Even those in school see very low per student expenditure.

Poverty is also strongly correlated with minority language status. The average poor person resides in a country where half the population does not speak the official or most popular language. In the great majority of cases, the languages the poor speak are minority, not global languages.

Table 1 — Characteristics of countries of the poor

	Poverty-weighted global average	Population-weighted global average
Income		
GNP per capita (PPP)	2293	6200
Poor people % population	36.4	17.6
PCs/(1000) per capita	7.4	58.4
Fixed telephone lines/(1000) per capita	36.5	144
Mobile phones/(1000) per capita	7.9	40
Radio/(1000) per capita	196	380
Education and language		
Female adult illiteracy (%)	46	33
Male adult illiteracy (%)	27	18
Population not speaking the most widely used language (%)	48	26
Population not speaking official language (%)	53	36
Rural population % total	67	54
Rural population density (per km^2)	483	515
Fixed lines/(1000) in largest city	171	231

Source: World Bank (2000)

Finally, it should be noted that the majority of the poor share the majority of these characteristics. The following sections will discuss what these correlated characteristics imply for the costs, benefits and sustainability of various Information and Communication Technology plans.

Costs of Communication in Areas Where the Majority of the Poor Live Remain Higher

Poor people have very negligible potential expenditure on ICTs. The poorest quintile in Afghanistan, India, Pakistan and Chile are willing to spend almost 2-3% of their resources on communication (de Melo, 1999). This seems to be the highest end of expenditure universally. Supposing the same holds true for people on $1 a day, it suggests maximum yearly communications expenses of about $10. What does this mean for the affordability and sustainability of various ICTs?

The radio as a communication tool particularly for the poor is by far the cheapest electronic communication technology. Receivers cost perhaps 10% plus the cost of power or battery. They do not require an electrical connection and they are stand-alone appliances. This helps to explain why 40% of rural household in the low-income countries of Asia and sub-Saharan Africa already own a radio. On the transmission side, programming and broadcasting are also relatively inexpensive; a low-power transmission system can cost as little as $ 1000. Digital sound recordings can be made on equipment that costs $ 800 or less. It is worth mentioning, that there are at least 12 countries in the world where the average number of years of schooling in the 15-19 age group is zero for the poorest 40% of household (World Bank, 2000). For evidence from Bangladesh, Afghanistan, Vietnam and Sri Lanka, see World Bank 1999.

In Ghana in 1992, educational spending per capita in the poorest population quintile was approximately US$ 26.50, and in the richest quintile, approximately $ 41.50 (World Bank 1995b). The gap in school enrolment rates and health data would suggest that women constitute a majority of the poor (World Bank, 2000). This is not a problem per se, except to note that, because women also face lower literacy and education levels as well as a range of other characteristics of poverty, without specific efforts to overcome these obstacles the Internet will be a poor tool to promote gender equality.

Another important minority class over-represented amongst the poor is the disabled. Disabled people are estimated to make up 15-20% of the poor in developing countries as compared to perhaps 10% of the population at large (Elwan, 1999). However, to the extent that the disabled poor have special conditions that perpetually affect their skills or visions, their ability to access the Internet will be spoiled. As we already mentioned, the community radio fulfils a role as a ‘community telephone’ — it has major source of income and allows radio stations even in poorer areas to become sustainable.

Providing telephone access is considerably more expensive, especially in rural areas. The average cost of building a telephone line used to be estimated at about $1000. Recent developments in mobile telephony and wireless local loop has cut this average

dramatically. James (2000) reports that wireless loop technologies might cut costs of roll-out by a factor of between two and six over conventional technologies in (population-dense) India. Nonetheless, costs in rural areas where the majority of the poor live remain higher, because providing networked services to low population-density rural areas, and especially to mountain and forest regions is significantly more complex and expensive than providing those services in urban areas. Indeed, the market feasibility of networked service provision is even more dependent on geography and population density than it is on income. Because density varies across regions within a country more than income per capita, it tends to have a larger effect on income per unit area — perhaps the most important variable in determining the feasibility of public network access.

The hardship of providing telephone access in the rural or remote areas of poor countries explains why telecommunication density in the rural areas of poor countries is so strikingly lower than in urban areas. The data in Table1 suggest that in the countries of the poor the total telephone gap between the whole country and the largest city is 44 phones per thousand compared with 202 phones per thousand — or about a fivefold gap. The average global difference in access is 171 phones in the country as a whole compared with just 231 in the largest city, or a 26% difference. We have seen that 40% of rural households in low income Africa and Asia have a radio (Pigato, 2001) — and only around 0.18% of those same households have a telephone, compared with 5.22% of urban households.

Table 2 — GDP Density: Selected Regions and Income Levels

Region	Average GDP/km^2
Sub-Saharan Africa	39046
South Asia	498086
Poverty-weighted (top ten)	486503
Low-income	175437
Low-income, excl. China and India	64337
Middle-income	154675
High-income	658367
World	280005
Source: World Bank (2000)	

Overall, the low income of the poor combined with their location in rural areas makes the use of the Internet, in particular, a financially disadvantageous method for information access for many people in poverty, even if the necessary inputs are available. Evidence from South Africa, where the telecommunication centre movement is fairly well developed, suggests that these potential problems do translate into significant financial difficulties. Even in this fairly rich (upper middle-income) country, almost all Internet-enabled telecentres rely on government, donor or NGO funding to remain viable (Pigato, 2001).

Benefits of Utilization

Evidence shows that there are plenty of benefits arising out of information technology. Radio, in spite of being the only accessible mass medium, is a trusted source of information. In Nepal, 71% of the rural people interviewed used the radio as a source for information and found it useful. Relatives, friends, family and political leaders were the only information sources ranked as more effective, and the radio was evaluated as better than education institutions, newspapers, television, telephone and the computer (Pigato, 2001). Clearly, the radio has exhibited itself to be a strong tool for development.

In the Philippines, for instance, one development initiative is providing local radio equipment and training to a number of remote villages. The project has not only increased local business and agricultural productivity, but also resulted in the formation of civic organizations and more constructive dialogue with local officials (UNESCO, 1996).

At the cross-country level, the availability of free radio channel has been found to be positively and significantly correlated with a range of development results including life expectancy, lower infant mortality, schooling results and well working markets (Djankow *et al*., 2011). The radio has a particularly important role in extension and education. In a survey financed by UNESCO, Paul Neurath investigated the impact of a Radio Farm Forum project at Pune, India. According to Neurath, Radio Farm Forum as a representative for transfer of knowledge has proved to be a success beyond expectations. Increases in knowledge in the forum villages between pre- and post-broadcasts

were breathtaking, whereas in the non-forum villages it was insignificant.

Coming to telephony, a recent work found that in rural Thailand the introduction of telephones which enabled farmers to check prices regularly had as much as doubled farm income (ITU, 1999). In Colombia, community telephone access in Tumaco in 1994 accelerated business, increased employment opportunities and income of the poor; in the Indian state of Punjab, for instance, there were 10000 telecentres, each producing an average of $ 9000 in revenue in 1996 (Grace *et al*., 2001). The strong relation between telephone roll-out and income growth has also been found in many cross-country research. Cross-country information further reveals that low access to telephony within a country is a powerful force behind growth in income inequality; those with access benefit, whilst the incomes of those unconnected to the telephone network stagnated (Forestier *et al*., 2001).

On the other hand, the Internet connection is a more powerful information source than radio and telephony, not least combining the broadcast features of the radio with the interactive features of the telephone. As such, it has a range of capabilities that cannot be matched by the two more basic ICTs. Direct access to Internet-enabled computers has also made a difference for many poorer people in developing countries. For instance, in Chile, the national agricultural extension service generated an Internet based rural information service for farmers' groups, local bodies and NGOs. Transferring prices and market information through the Internet cost 40% less than using a printed bulletin, and was almost instant, rather than taking 45 days (Balit, 1998).

Corresponding to e-commerce opportunities as contemporary means of communication, even if we disregard the multiple restrictions to the poor's use of such technology, a recent study has forecast that transaction savings from e-business on food items in the US would be of the order of 3-5%, compared with 29-39% for electronic elements, for instance (Goldman Sachs, 1999). In turn, this might suggest that the poor as agent of physical consumption will not see dramatically lower prices for their largest consumption item (food), and the poor as producer will not see dramatically increased demand for their products because of lower prices. The Internet is also not a particularly efficient tool

for the utilization of unprofessional labour. It might have some use as an information means for connecting unskilled labourers with employers who have a demand for them, but, as a direct source of income generating activities, the Internet is a strong means for skilled employees, as we have seen.

In contrast to the case of radio and telephone, the poor people face multiple obstacles both to national and international utilization and to benefiting from that use. They have little to spend on communications, live in areas where the Internet is costly and difficult to provide, have low rates of education and universal languages weakly represented on the World Wide Web. The multiple factors behind the low provision of the Internet compared with more traditional ICTs is also suggested by two recent studies that have found low Internet usage rate even in rural areas with access to the technology.

A survey of two villages in Uganda carried out by Samuel Kyabwe and Richard Kiboombo at the time when Internet-enabled telecentres were being established in the villages suggests that even villages with Internet access may see usage rates as low as compared with close to 30% telephone and almost 100% radio usage.

If providing Internet access would be very expensive, and yet providing that access might be of limited additional benefit beyond access to radio and telephony, this must raise questions as to the advisability of embarking on large-scale Internet direct access plans as a tool of poverty mitigation, especially as compared with access plans focusing on the more suitable technologies of radio and telephony. Nevertheless, there is an important role for the Internet to support poverty alleviation efforts indirectly, through the more efficient functioning of governments and expanded business opportunities, for instance.

The Internet is a very powerful tool for information transfer; switching from fax to email can reduce the costs of sending 10,000 pages of text from Mozambique to the US over the course of a year by 83% (Africa Internet Forum, 1999). The CARD project in Andhra Pradesh, India is but one example of networked computer use in developing country government operations that help the poor. The computer-aided system has significantly reduced the time needed to register property and reduced corruption in the

Table 3 — ICT use in Uganda

Internet	2%
Email	6%
Fax	10%
Video cassettes	40%
Telephone	41%
Television	65%
Postal services	75%
Audio cassette	80%
Radio	95%

process, making the security of registration much more accessible to the poor.

Furthermore, traditional ICTs can act as a sustainable intermediary for the poor to access the power of the Internet indirectly. Rural radio, in particular, can benefit from the presence of the Internet. In Kothmale, Sri Lanka, a joint project between UNESCO, the Ministry of Posts, Telecommunications and the Media, the Sri Lanka Broadcasting Corporation and the Sri Lanka Telecommunication Regulatory Commission uses radio as an interface between rural people and the Internet. A daily one-hour live radio programme in which an announcer and a panel of resource persons browse the Internet at the request of listeners, has proved capable of overcoming linguistic obstacles in using the Internet for non-English speakers. The radio station adds value to the information by interpreting it for the local context, by broadcasting it in vernacular languages and by providing a platform for feedback through local discussion and networks of local correspondents.

Conclusion and Policy Option

Radio is a powerful, sustainable technology for meeting many of the information needs of the poor. A policy that promotes access to as wide a range of radio and television broadcast options as possible is clearly important for the development of opportunities for the poor. Opportunities for private, competitive provision of radio content will expand choices and development impact. Governments should therefore legalize the private provision of national and local radio and issue spectrum licenses for

broadcasters. In Colombia, for example, over 1,000 new licenses were issued to community stations in 1995, dramatically increasing listener choice and information flow. Even in poorer countries, opening the airwaves increases choice and information flow. There are 19 independent rural or community radio stations in Mali alone; Mauritania now boasts at least four such stations; and South Africa has over 80 (Vogt, 2001).

In addition to opening up to private and community provision, there also remains a crucial role for government in the broadcast sector, especially in the delivery of public service content in areas such as education health and disaster preparedness. Furthermore, there might be a role in providing access to receivers. Radio sets are already fairly ubiquitous in developing countries. Nonetheless, there might be an argument for providing wind-up sets to schools and community centers to ensure wider access amongst the poorest people. Donors, including the World Bank and the UK's Department for International Development have supported carefully designed programmes of providing communities with radios.

The case of telephones is slightly different. Because of the historical concentration of access amongst wealthy urban populations, we have seen that telephone roll-out has traditionally been a force for divergence in incomes both between rich and poor countries and within poor countries. However, technological change, policy reform and innovative universal access programmes such as that in Chile have made the goal of extending telephone access to the majority of the poor an increasingly feasible idea.

It is clear that the first step remains a programme of reform towards well-regulated private, competitive markets, which have repeatedly delivered expanded network access at lower cost (Kenny, 2001). To extend access beyond the market, subsidy auctions to provide lowest-cost, privately-provided public access in un-served areas have proved affordable and sustainable (Wellenius, 1997). It is hoped that this will turn telecommunications roll-out from a force for divergence into a force for convergence. It will be a while before the same can be said of the Internet.

Again, this does not mean that the technology is irrelevant to developing countries. It will have a range of uses in production, trade and the provision of government services that should increase incomes and improve the quality of life of the poorest. Via intermediary technologies including radio and telephony, the Internet might also have a significant impact on information flows directly to and from the poorest people.

However, at least until technological advance has made Internet access less expensive and more straightforward for the illiterate and minority-language speaker to use — and until education has become more widespread — the use of traditional computers hooked up to the Internet as a tool for poverty alleviation should probably not involve programmes for universal access. Even the cost of universal access to simple telephony would be a large burden on government and aid budgets. If we assume that service can be provided to the great bulk of the poor who currently lack access at the same cost as in Chile ($10 per head), this cost is equal to half of the annual per capita expenditure on health in low-income countries. Adding the Internet to universal access goals would greatly increase that cost. As we have seen, such programmes are likely to be complicated and very costly, and quite possibly of limited benefit. Instead, the Internet should be used as an indirect supporting tool in efforts to improve information and communications flows that do benefit poor people.

References

Adkins, D. (1999). Cost and Finance in A. Dock and J. Helwig (eds), *Interactive Radio Instruction: Impact, Sustainability and Future Directions*. Washington, DC: World Bank.

Africa Internet Forum (1999). Economic Toolkit for African Policy Makers. Available at http://www.worldbank.org/infodev/projects/finafcon.htm.

Autor, D., Katz, L. and Kreuger, A. (1998). Computing Inequality: Have Computers Changed the Labour Market?, *Quarterly Journal of Economics* 113 (4): 1169-1214.

Balit, Silvia (1998). Listening to Farmers: Communication for Participation and Change in Latin America. Available at http://www.Fao.org/WAICENT/ FAOINFO/SSTDEV/CD direct/Cdan0018.htm.

CABECA (1998). (Menou, M.J.) Connectivity in Africa: Use, Benefits and Constraints of Electronic Communication - /Synthesis Report. Part2:

Overview of the Findings of the Porject. Study carried out under the CABECA project of Padis as part of the IDRC-sponsored research programme on the Impact of Information on Development. Addis Ababa: UNECA/PADIS, May.

Datt, G. and Gunnewardena, D. (1997). Some Aspects of Poverty in Sri Lanka: 1985-90. World Bank Policy Research Working Paper 1738. Washington, DC: World Bank.

De Melo, J. (2000). Telecommunications and the Poor. Internal World Bank Report. Washington, DC: World Bank.

Djankov, S., McLiesh, C., Nenova, T. and Shleifer, A. (2001) Who Owns the media, Background paper for World Bank World Development Report 2002. Washington, DC: World Bank.

Elbers, C. and Lanjouw, P. (2001). Intersectoral Transfer, Growth, and Inequality in Rural Ecuador', World Development 29(3):481-96.

Elwan, A. (1999). Poverty and Disability: A Survey of the Literature, Background paper for World Bank World Development Report 200/1. Washington, DC: World Bank.

Goldman Sachs (1999). B2B — just How big is the Opportunity?' Available at http:/www.gs.com/high-tech/research.

Heeks, R. and Kenny, C. (2002). Is the Internet a Technology of Convergence or Divergence? Washington, DC: World Bank.

World Bank (2000). World Development Indicators. Washington, DC: World Bank.