

CAN ICT BE A CATALYST IN MICROFINANCE PROGRAM: A CONCEPTUAL MODEL

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Abstract: The use of Information and Communication Technologies (ICTs) is widely recognized as a vital tool to promote various socio-economic goals in developing countries. In this paper, we explore two crucial areas in South Asia, namely, the role of microfinance towards the expansion of ICT in the region as well as its effects on development and poverty alleviation. This paper draws from the example of an NGO microfinance organisation, the Gameen Foundation, to develop several postulations. In particular, this paper proposes that through the intervention of microfinance, ICT can both directly and indirectly impact on socio-economic development. It presents a conceptual theoretical model which facilitates the intervention of microfinance to aid the poor in this region through the use of IT.

Keywords: Microfinance, MFIs, NGOs, ICTs, Poverty alleviation, Socio-economic Development

INTRODUCTION

The emergence of information and communications technology (ICT) is changing the world dramatically, not only in our daily lives but also in transforming the old economy to a new one. The real potential lies in creating a New Society - a society that will allow every one of its member's unprecedented opportunities to unleash their creativity and ingenuity. If this potential can be realised, poverty can be overcome (Yunus, 2001a). Unlike other technology, ICT has tremendous capacity to eliminate various social and economic

barriers impeding the poor and help them gain opportunities to discover their potential. Recent growth in the use of mobile telephony and internet services in developing countries demonstrates that ICT is providing climates that encourage innovation and growth (Greenberg 2005). As such, it is essential to understand the paradigm of the 'digital divide' and how technology could benefit all levels of society.

Specifically, this paper examines the role and impact that *microfinance* can have on improving the institutional environment for the extremely poor by supporting entrepreneurs and small enterprises through the use of ICT. This paper will discuss socio-economic development in South Asia and draw from the example of Microfinance Institutions (MFIs), in particular the Gameen Foundation, to develop several postulations. In particular, it proposes that through the intervention of microfinance, ICT can both directly and indirectly impact on socio-economic development. It presents a theoretical model which facilitates the intervention of microfinance to aid the poor in this region through the use of ICT.

The following section discusses various aspects of non-government organisations (NGOs), given their importance to the microfinance sector. It includes their typology, early development and the theoretical underpinnings of their growth. Subsequently, this section also explains how MFIs, as a subset of NGOs, have become so prevalent in emerging economies.

NGOs and Microfinance: An Overview

The term 'non-governmental' is translated from the classical *Greek* word of "anarchist", which means "non" or "without" government (Fonseka 1991). Several classic scholars, namely Tolstoy, Proudhon, and Kropotkin, promoted the usage of the term to connote "freedom from external (government)" control. The word "anarchism in social affairs means "replacement of the authoritarian state by some form of non-governmental cooperation between free individuals" (Fonseka 1991). The Association of Development Agencies of Bangladesh (ADAB), an apex body that coordinates NGO activities and recognises NGOs as 'Private Voluntary Development Organisations (PVDOs), put forward the following notions that encapsulate a more complete meaning of NGO (Iftekher 2003): (a) *"There are many kinds of organizations which are non-government-ranging from clubs to commercial enterprises. PVDOs are non-profit organizations committed to the development of the underprivileged and the underserved.* (b) *We are part of the private sector-but the non-profit sector of the private sector. No member of the initiating group receives profit from our work, but our organizations/associations are set up privately, on the initiative of individuals/group"* (Iftekher 2003, p. 23).

In most developing countries, NGOs are now treated as an alternative to the public sector. The failure of the public sector has been seen as the root of all ills in development efforts and has been phrased by scholars such as McMichael (1996, p. 293) as 'NGOization'. In comparison, the strengths of the NGO sector are referred to as the 'article of faith', which implies that NGOs possess distinct qualities in delivering needed services to their clients (Tendler, 1982). Further advantages of NGOs over the public sector include the provision of cost-effective delivery of services, an ability to reach 'grass-root' level and the unique characteristics of social commitment (Korten, 1990). Therefore, NGOs are treated as major agencies to advocate alternative development strategies (Douglas, 1987).

The theoretical basis of the development model of NGOs is grounded in the developmental concept of institutional transformation. The theory of institutional transformation maintains that a society develops new capabilities to transform available resources into benefits responsive to the self-defined needs of citizens (ACFOD, 1989). Accordingly, many types of voluntary organizations have emerged globally, with the goal of serving the interest of those who are excluded by traditional development programs. One of the major programs advocated by NGOs worldwide and, more specifically in South

Asia, is financial credit along with their other social agenda.

MFIs are NGOs that provide microfinance programs with the dual role of financial and social advocacy. They provide assistance to groups which generally do not have access to traditional sources of funding and other necessary resources (Lable, 2001). NGOs vary considerably in size, ranging from tiny community-based outfits involving a handful of people at the local level to huge national organisations such as Grameen, ASA and Bangladesh Rural Advancement Committee (BRAC) in Bangladesh and BRI in Indonesia, which employ tens of thousands of employees. Services and activities of these organisations cover a broad range of areas, from poverty reduction, family planning, education, health, employment, human rights, women's and child rights, minority issues, and feminism to ecology, environment, etc. (World Bank 2006). NGOs in Bangladesh acquire funds in various ways to finance their activities. They carry out various projects ranging from receipt of interest income from microfinance and revenues from commercial enterprises (e.g. Grameen Phone project of Grameen Bank¹) to receipt of funds from external sources, including direct donor financing or financing through government contacts and private charitable contributions. There are various types of NGOs that have emerged globally with a diverse range of objectives, ideology and focus. However the unifying theme is that the primary goal of these organisations is to serve the interests of those who are excluded by traditional development programs. NGOs operating MFIs provide services composed of uncollateralised small loans, small savings and micro-insurance services products for livelihood activities of the poor in order to generate employment and income for families. By advocating and implementing microfinance programs, MFIs aim to assist and enable their members to have an improved quality of life.

The major objective of MFIs is to reduce poverty through the provision of credit and provision of a range of other services to their members; namely: a) financial services including loans, savings and insurance; b) non-financial services such as health, education and literacy; and lastly c) business related training and business development services etc. (ADB 1997). Thus, MFIs can serve multiple roles and engage in various development initiatives along with providing financial services to the poor (e.g.

¹ Grameen Bank has invested in several commercial enterprises in Bangladesh. The Grameen Phone project is a joint investment project between Grameen Bank (38%) and Telenor AS (62%) (a Norwegian telecommunication company).

BRAC) or specialise in provision of a single service (e.g. ASA) and focus and minimise their role in other development initiatives. MFIs “carry out small, concrete projects that the community can manage, grow and improve, directly affecting members” (Woodworth, 2000, p.19). However, these microfinance models are not static. MFIs are inclined to be innovative in order to adopt a client focus. They improve and develop existing products with the reflection of the economic, social, technological, and other environments to best fit the clientele (ADB, 2000). This global experience illustrates the ‘dynamism’ of MFIs to change and develop their operational growth beyond providing financial services for the poor (Richardson, Ramirez & Haq, 2000; World Bank, 2002).

The Gap in access to ICT

Information and communication technology can be broadly defined as the means of the creation, storage, management and dissemination of information by electronic means (Gerster & Zimmermann, 2003). The World Bank (2000) definition of ICT denotes that it comprises the information infrastructure, such as wires, transmitters, computers and other IT, which travels through the infrastructure. Conversely, the OECD definition of ICT refers to a sector that combines manufacturing and service industries that capture and transmit information and data in electronic form (OECD 2002). This OECD definition of ICT has redefined the applicability of ICT in social science and supports its multi-dimensionality for the wider horizon (Viitanen, 2003). UNDP (2001) estimated that the ICT industry generated \$7.7 billion in 1999 and created 180,000 jobs in India in 1998. Nevertheless, Anita Kelles² (Viitanen, 2003) argues that this sector has never created direct employment to the poorest. This paper emphasises viewing ICT as a vehicle of communication rather than as a means of processing information, and identifies the impacts of the adoption of ICT in development planning, which ultimately benefits the poor.

The barriers to the access and use of ICTs in developing countries are many and well documented. Among these are the cost of equipment and online access, and the dearth of effective training programs and technical information (Robins, 2002). This gap (in access to ICTs) is called the ‘digital divide’ and may be defined as ‘the gap between individuals, households, business and geographic areas in different socio-economic levels with regard both to their opportunities to access information and

communication technologies and to their use of the Internet for a wide variety of activities’ (OECD, 2000, p.5). According to Molina (2003) and Pigato (2001), a major part of social exclusion and poverty issues are a result of this digital divide. The ‘digital divide’ is best illustrated in countries where the poor, less educated or illiterate, and young (often female) are mostly the excluded. The concept of a ‘digital divide’ also applies to the gap between developed and developing countries, with the average per capita income of OECD countries being 11 times of the South Asian countries (World Bank, 2000a). Table 1 depicts these striking differences between developed and developing countries in terms of access to information and communication technologies in 2011.

The OECD (1999) concluded that the vision of a global knowledge-based economy, characterized by the ‘death of distance’ must be tempered by the reality that half of the world’s populations have never made a telephone call, much less access the Internet. Table 2 illustrates the differences in Internet access by people in different regions from 2005 till 2011.

Moreover, recent research also reveals and supports the increased discrepancy in technological progress (index measure of computers, Internet hosts, fax, mobile and television) across regions and countries (Rodriguez & Wilson, 2000). More specifically, knowledge and digital sources of information are neglecting the less educated and the poor in general, and the inequality in accessing ICTs is much larger than the income inequalities (UNDP, 1999). The same message was articulated in 2000 by the then UN Secretary General, Kofi Annan, “At present, a yawning digital divide still exists in the world. There are more computers in the USA than the rest of the world combined. There are as many telephones in Tokyo as in all of Africa...” (UN, 2000).

The Role of ICTs in Poverty Alleviation and Development

Poverty, in its most basic form can be defined as a deprivation of well-being and this has been the concern of good policy-makers, and more recently of many NGOs. Yet, poverty is not a problem that has eased with time. The ramifications of poverty reach far more widely than the problems associated with a lack of income. Individuals living in poverty “are particularly vulnerable to adverse events outside their control” (Smith 1776) and often lack social rights and social bonds, and are excluded from society overall. Although the lack of food, health care and shelter have been researched, relatively little attention has been paid to the lack of access to ICTs.

Aristotelian philosophy purports that the insolvent life is one without the freedom to choose how to be

² Ms. Anita Kelles- Viitanen was the Secretary General of the Advisory Board for Relations with Developing Countries at the Finnish Ministry of Foreign Affairs.

and what to do (Aristotle, 384-388 BC). Smith (1776) regarded poverty as the lack of 'necessities', where necessities were those things that enabled one to live a non-impooverished life. Hence, poverty is the deprivation of well-being. All forms of deprivation restrict "the capabilities that a person has...the substantive freedom [that] he or she enjoys to lead the kind of life he or she values" (Narayan, Chambers, Shah & Petesch, 2000, p.87). Therefore, poverty is not only the lack of material well-being but also the denial of opportunities for living a reasonable life.

Furthermore, poverty can also mean the deprivation of knowledge and communication and the denial of dignity, confidence and self-respect as well as the respect of others (UNDP, 1997). Exclusion from information flow or access to ICTs tends to aggravate the existing inequalities in material well-being, and the right of the poor to the global pool of knowledge and digital commerce (Pigato, 2001, p.3). In contrast, those who do not suffer from poverty have a range of choices, resulting from better education, work opportunities and, of course, access to ICT.

The poorer segment of any society also shares and transmits information, but mostly in the form of informal and interpersonal communication. Table 3 illustrates the major sources of information and communication for rural and urban India. It reveals the very poor access to the formal and modern sources of information to the poor and the significant disparity between urban and rural areas (Marwah, 2000). The dependency on informal and interpersonal communication due to the basic communication infrastructure and transport links has become a drawback for the poor because this source of information is coupled with limitations for both the household and the small enterprise (Barton, 1997).

Better access to information or ICTs can help the poor to live healthier lives, improve educational standards, employment/business/social opportunities, and make institutions and markets more efficient and responsive (OECD, 2003). Moreover, global knowledge is important to promote economic growth through higher competitiveness and to promote human development and poverty reduction (Rich, 2003). This paper argues that through its direct application, ICT can potentially enhance microfinance as a poverty alleviation mechanism at both the institutional level of MFIs and their client level. This paper also argues that it can be beneficial to the poor indirectly. Allowing the proper development of ICT-based projects by numerous MFIs can boost rapid growth that can enhance income and employment (Talero & Gaudette, 1995; Mansell & When, 1998; World Bank, 1998; Attali, 2000). The following section of the paper is

dedicated to outlining the direct implications of ICTs to address the welfare of the poor.

ICTs and Development- Direct Impact

There are several ways ICTs can directly influence poverty reduction. Pigato (2001) provides three aspects through which ICTs can tackle poverty directly. Firstly, Pigato (2001) notes the 'educational aspect', where poverty is not just a lack of material capacity but also where most of the poor lack human capital. Most people living in South Asia have very little or no education. The important element necessary to escape poverty is to improve human capital in oneself. ICT can play a key role in providing various forms of education and training to the disadvantaged in society. For example, radio and television have been very effective in reaching students in poor rural areas, and the Internet can provide a virtual classroom with interactive knowledge-sharing (Pigato, 2001; Quibria & Tschang, 2001).

A remarkable example of the educational aspect occurs in India. In the small town of Andhra Pradesh, the poor attend literacy training via computer-based learning packages (Viitanen, 2003). This has been provided by two companies (Grameen Bank and Nippon Electric Company [NEC]) working together to develop online educational systems to provide 'Knowledge on Demand' for households. Another significant step taken by Grameen (in collaboration with The Massachusetts Institute of Technology) is to develop a voice-operated system capable of interacting with the user. This allows illiterate people to talk to the computer and learn how to read and write, thus, improving their opportunities in the future. However, although these two examples provide insight into the significant steps that are being taken within the South Asia region to open the window of possibilities of vast ICT based learning opportunities, it must not be forgotten that for this to be effective, a basic educational infrastructure and physical facilities are also required (Asia Society, 2000; Quibria & Tschang, 2001). This is something that most communities lack.

The second way that ICT can directly influence the poverty reduction is through its impact on health. A report from the International Telecommunication Union (ITU) (2012) revealed that the most effective, immediate and visible effect of the Internet is medical information which can be reached by the poorer and remote parts of the world.

The third area on which ICTs can have a significant impact is in productivity and income generation. This directly influences increased income for the poor and helps reduce vulnerability. Through the use of ICTs, micro- and small-scale enterprises can have

better access to market information and input price, and are also capable of forecasting (Crowder, 1997).

Table 1: Access to ICT: Comparative Indicators 2011

Regions	Fixed telephone line per 100 people	Mobile phone subscription per 100 people	Household with a computer (% of population)	Household internet access at home (% of population)
Africa	1.4	53.1	6.4	4.1
Arab States	9.6	96.9	31.0	25.7
Asia & Pacific	13.8	76.7	28.6	24.5
CIS (commonwealth of Independent states)	26.3	146.0	44.7	37.3
Europe	40.9	120.8	75.3	70.9
The Americas	29.2	105.4	55.6	51.1
Regions by economic category				
Developed	43.6	122.3	74.2	70.3
Developing	11.6	77.8	24.8	20.5
World	17.3	85.7	38.4	34.1

Source: (International Telecommunication Union [ITU], 2012).

Table 2: Household Internet access at home (% of population)

Regions	2005	2006	2007	2008	2009	2010	2011
Africa	1	1.2	1.5	1.9	2.7	3.4	4.1
Arab States	9.3	10.9	13	15.3	19.1	22.9	25.7
Asia & Pacific	11.7	13.5	15.7	16.9	18.4	20.4	24.5
CIS	5.3	6.7	16.8	20.8	26.9	33	37.3
Europe	42	46.4	51.7	57.8	62.4	67.8	70.9
The Americas	32.7	34.5	36.8	38.9	42.4	45.5	51.1

Source: (International Telecommunication Union [ITU], 2012).

Table 3: Sources of information and communication for the rural and urban poor in India

Information/Advice	Personal ownership %		Shared/communal %		Not at all %	
	Rural	Urban	Rural	Urban	Rural	Urban
Radio	77.3	58.8	22.7	41.2	0	0
Television	9.3	46.8	84.0	53.2	6.7	0
Telephone	0	0	63.3	82.4	36.7	17.6
Fax machine	0	0	0.7	3.2	99.3	96.8
Newspapers/ Printed source	11.3	21.6	80.0	58.8	8.7	19.6
Computer/Internet	0	0	12.0	9.2	88	90.8
Family/Friends	100	100	0	0	0	0
Community or political Leaders	0	0	100	100	0	0

Source: Marwah (2000)

Market Opportunities: Productivity and Employment Generation

The Internet was introduced into Bangladesh in 1993 and there are now about 100,000 users and 12 Internet Service Providers (ISPs) in this country (Chowdhury, 1999). The initial efforts for developing networking in Bangladesh were pioneered through NGOs and, today, the four largest ISPs are affiliated with NGOs such as Grameen and BRAC (World Bank 1998). Grameen has demonstrated the success of ICT through its microfinance programs. In particular, the success of Grameen in Bangladesh has spurred a number of similar programs in South Asia and even Uganda (Robins, 2002). An estimate of 50,000 village phone vendors in Bangladesh serve the communication needs of local people, and it is estimated that this number will increase to 500,000 by 2006 (Richardson, Ramirez, & Haq, 2000).

As the architect of microfinance, Grameen became the first rural development microfinance facility in providing village phone services with digital wireless telephony. The program has had a significant impact on poverty reduction at the household level, although the initial projection forecast by Grameen Bank was \$2 profit per day or \$700 per year by the phone owner, which was almost three times the then per capita income of Bangladesh - now a typical borrower is earning \$15- \$30 in profit per day. The fascinating thing is that this activity of a Village Phone Vendor is supplemental. The owner can do their existing business along with the phone service. The Village Phone Program has also created employment opportunities in the rural areas of Bangladesh, such as possibilities for sourcing lower-level computer work, data entry, website designing, and call center operation from rural areas (Quibria & Tschang, 2001). After two years of operation, a JU/ZEF (Centre for Development Research- Bonn) field survey interviewed 406 of Grameen's Village Phone Program participants and discovered that 85% of calls were classified as 'Important', 12% as 'Less Important' and 3% as 'could have been avoided' (Chowdhury 2002). Table 4 demonstrates the purpose of phone calls and shows the percentage of all calls made by each economic status group.

Grameen's Village Program benefits the poor significantly. For example, the paddy prices paid by the consumers were 5 – 10% more in the target village than in the control village (World Bank 1998). Table 5 illustrates these benefits in more detail.

ICT can provide a vital role in providing market information to the MFI's clients, through reduced cost and barriers to entry and improved market

efficiency. A Grameen NGO model called Foundation of Occupational Development (FOOD) promotes sales of various crafts produced by clients through 'Indiashop', an online supermarket. Through this service, one of their clients was able to sell a hand embroidered silk sari for \$1000, which is more than she could sell through a shop in Madras. FOOD also initiates programs to employ Internet telemarketers to introduce Indiashop. Unlike FOOD, the M.S. Swaminatha Research Foundation (MSSRF) in the information center in Chennai has a different clientele. This center provides information and data to rural farmers about cost and availability of farming inputs, welfare opportunities, and other aspects of their needs (Bhatnagar, 2000; Quibria & Tschang, 2001).

Another initiative by Activists for Social Alternatives (ASA), a Grameen partner for Village Computing Project, has paired up with Dristee (a for-profit IT company) and currently provides information to the village community through 200 'Kiosks' in northern India. Moreover, many families in rural areas can communicate easily and inexpensively with their relatives overseas by email, audio and videoconferencing through local information centers (Grameen Foundation, 2003; Yunus, 2001a).

ICTs and Development: Indirect Impact

As well as the application of ICTs, the production of ICT goods and services provides a major economic benefit to many Asian countries (Mensell & When, 1998). The indirect impacts of the growth in telecommunications, specifically voice and fax communication for business, has allowed individual, small and micro-scale businesses in developing countries to operate in a more competitive market environment (Duncombe, 1999; Grameen Bank, 1999). Moreover, Kayani & Dymond (1997) discovered that the benefits of ICTs in developing countries are mostly from consumption rather than production. Congruent with this is research which indicates that countries with higher growth in ICT consumption exhibit the highest level of productivity and GDP growth (See Figure 1 for an illustration of the purported relationship between ICT and economic growth). In the South Asia region, countries that have demonstrated this are Thailand, South Korea, India and Taiwan (Mody & Dalman, 1992; Mensell & When, 1998; Duncombe, 1999;).

Another aspect of improvement in ICT's application is organizational change, including the redesigning of organizational structure and culture. Studies by Moussa and Scwhare (1992) and Haan, Guy and Arnold (1996) reveal that IT investment is coupled

with organizational and managerial changes, which are very prominent in developing countries. One particular application of ICTs is the process of

automation or computerization of microfinance. This is due to the fact that MFIs operate very differently from traditional banking systems (Tarafder, 2002).

Table 4: Purpose of phone calls made by the rural poor in Bangladesh

Purpose	Economic status			
	Extremely poor	Moderate poor	All poor	Non poor
Economic:	34 (53.9)	33 (39.8)	67 (45.9)	429 (46.9)
a)Market price of commodities	3 (4.8)	2 (2.4)	5 (3.4)	50 (5.5)
b)Employment opportunities	4 (6.4)	3 (15.7)	17 (11.6)	50 (5.5)
c) Land Transaction	14 (22.2)	11 (13.2)	25 (17.1)	65 (7.1)
d) Business Related	13 (20.5)	5 (6.0)	18 (12.4)	231 (25.3)
e) Remittances	2 (2.5)	2 (1.4)	33 (3.5)	--
Family/ Personal	16 (25.4)	30 (36.1)	46 (31.5)	323 (35.5)
Health Related	11 (17.5)	15 (18.1)	26 (17.8)	94 (10.3)
Others	2 (3.2)	5 (6.0)	7 (4.8)	68
Totals	63 (100.00)	83 (100.00)	146 (100.00)	914 (100.00)

Source: World Bank, (1998)

Table 5: Assessment of selected benefits by the farmers in Bangladesh

Variables	Target Village (N= 50, average)	Control Village (N=50, average)
Prices:		
Paddy (% of consumer prices)	70-75%	
Eggs	Tk.13/Hali (4 eggs)	Tk 12/Hali (4 eggs)
Exchange Rate	Tk. 12.50/ Saudi Ryal	Tk. 11.50/ Saudi Ryal
Cost of information/knowledge	Tk. 17	Tk. 72
Chicken/ducks	Higher	Lower
Chick feeds	Lower	Higher
Supply of Input:		
Diesel	Stable	Fluctuating at times
Fertilizer	Regular	Occasional Problem
Others:		
Poultry mortality rate	Lower	Higher
Law and order situation	Improved	Same
Communication during disasters	Quick, effective	Slow, Less effective
Communication with Relatives home and abroad	Any where, anytime, any day	Any where, But fixed time, fixed day
Transmission of new ideas	Improved	Same
Mobility of People	Less	More
Spoilage of perishable products	Faster/effective	Slower/less effective
Access to health care services		

Source: World Bank, 1998

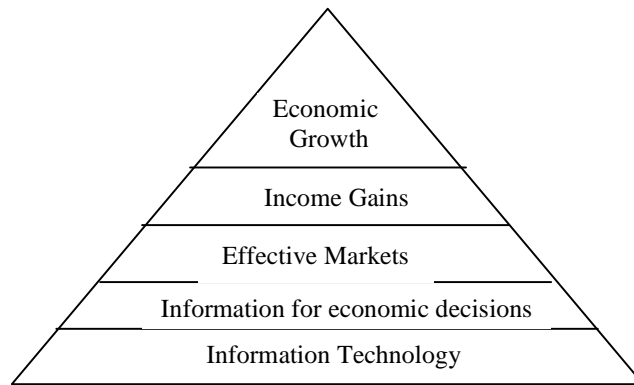


Figure 1: The purported relationship between ICT and economic growth

Source: Eggleston, Jensen & Zeckhauser, 2002

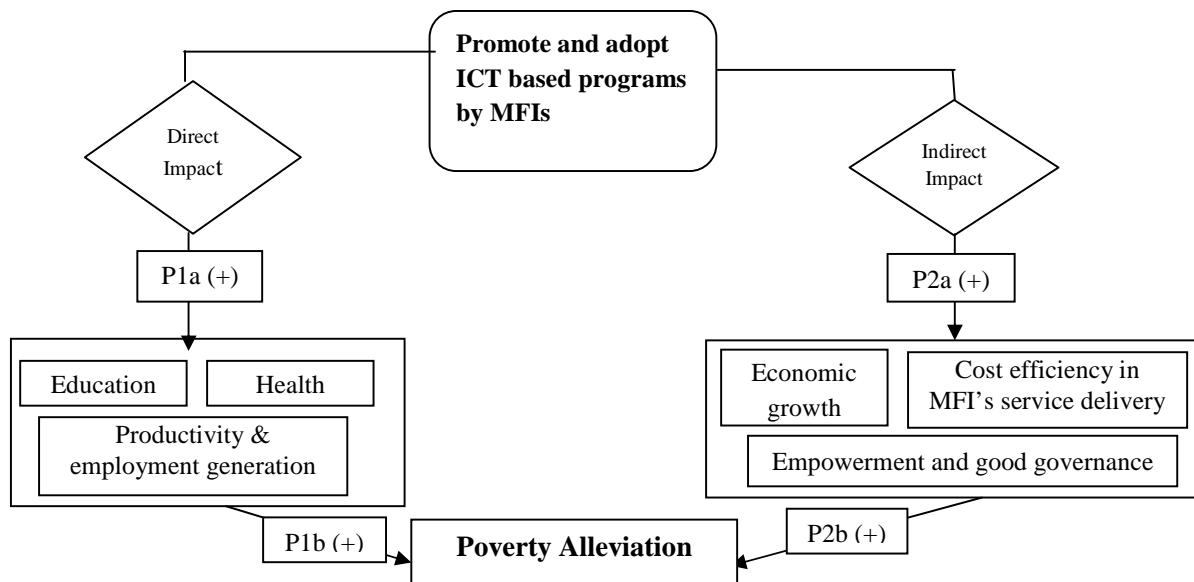


Figure 2: Conceptual model of the relationship between ICT based MFI programs and socio-economic development

Therefore, to ensure accurate transactions and to maintain an effective management information system (MIS), MFIs need an automated computerized system to reduce the operating cost, reach operational sustainability and profitability, increase transparency, and to reduce error and fraud. Grameen Bank has computerized 85% of its branch level accounting and MIS for all branches through setting up an 'Information Management Centre' in Bangladesh. Furthermore, since many branches are connected by mobile phones, most of the zones are already connected with each other and the head office through the Internet. Through Grameen Trust, Grameen Bank has successfully replicated the automated MIS system to several MFIs in India and is currently replicating the automated MIS system in 40 countries worldwide (Latifee, 2003). Further development that is underway is the Grameen model MFI that is operating in southern India, 'Swayam Krishi Shangam'(SKS). The SKS has developed a loan tracking system on hand-held computers and 'smart Cards' (Yunus, 2001b).

The contribution of ICT in microfinance programs is further empowering the poor in Bangladesh, especially women. Specifically, the village phone has greatly improved women's authority in household decision-making (specifically when the phone is under the control of women rather than the husband) (Rahman, 2002). India's example of the use of telecommunication implies that the introduction of ICT in various government and NGO operations helps the poor to improve control over their lives. Now the villagers can apply for birth certificates and a driver's license without traveling long distances. Moreover, securing a job or a bank loan for seeds and fertilizer has become easier and enables people to avoid so-called bureaucratic harassments (Grameen Foundation, 2003; Richardson *et al.*, 2000; Quibria & Tschang, 2001). These large bureaucratic institutional settings in South Asia may not be the best environments within which the benefits of technology can or should be demonstrated (Moussa & Schware, 1992).

Conceptual model

Based on the foregoing literature review on microfinance programs, the impact of wider access to ICTs by disadvantaged people in developing countries could have positive impact on their socio-economic status. The authors propose the following conceptual model which depicts several propositions about outcomes if MFIs are to promote ICT based programs. (see Figure 2). This model depicts the relationship between ICT-based programs of MFIs

and socio-economic development. Furthermore, based on the foregoing review and conceptual model, the following propositions are derived: (a) *Proposition 1a*: MFIs which promote and adopt ICT-based programs will directly impact on the improvement of education, health and generate more employment and productivity. (b) *Proposition 1b*: Development in education, and health and productivity will result in poverty alleviation. (c) *Proposition 2a*: MFIs that promote and adopt ICT-based programs will indirectly influence the economic growth, cost efficient delivery and management of microfinance services and empower the poor and promote good governance. (d) *Proposition 2b*: Economic growth, cost efficient delivery and management of microfinance services and enhanced good governance will positively promote policies towards poverty alleviation.

Few would object to the idea that citizens, in order to participate in and understand their society, need access to ICT. Seen from this perspective ICTs appear especially well suited to the citizen's role. By providing access to primary sources in a way that traditional media cannot, ICTs (information flows) allow citizens to participate to enhance opportunities to engage in social and political dimensions and to participate in political processes that could improve good governance. This potentially enlarges citizen's participation in political life in ways which may be understood in terms of vertical and horizontal axes (Olsson, Sandstrom & Dahlgren, 2003). Vertically, citizens are able to communicate more easily within formal democratic processes and make contact with government and political representatives. Horizontally, ICTs also offer opportunities for interaction among citizens themselves, beyond the formal democratic processes.

CONCLUSION

This paper discusses two major areas in the development arena associated with socio-economic development in South Asia, namely, the role of microfinance in the expansion of ICTs in the region and its effects on development and poverty alleviation. The authors propose a model which asserts that, through the intervention of microfinance, ICTs will impact both directly and indirectly on growth and the way in which the adoption of ICTs can be distributed to the poor.

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