

TECHNOLOGY AND POVERTY REDUCTION IN SOUTH ASIA

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The 2008 Human Development Report (HDR) makes a drastic but a significant departure from the previous analysis in the [past](#) reports by examining the relationship between Technology and Poverty reduction. The two channels through which Technology can affect poverty reduction are indirect, i.e. by accelerating growth impulses via productivity gains and direct, i.e. by using technology in better health care, education, water supply, agriculture and good governance. As much has been written about the technology-growth channel the Report rightly focuses on the direct channel.

Within South Asia, it must be conceded that India is an exception as it has become a global leader in software exports, Business process outsourcing, IT enabled services and more recently by becoming centre for research and development in Information and Communication Technology (ICT), Pharmaceutical and equity capital. But its use of ICT for poverty reduction in the country through direct channel has not kept pace with its exports of ICT services to the rest of the world. Pakistan is also expanding its exports of these services albeit at a much modest scale but the domestic economy has not much benefited either from e-commerce or e-governance.

Why is there such a disconnect between impact on domestic economies and outward success? My hypothesis is that the highly talented and entrepreneurial private sector making excellent use of 1.5 million highly skilled and educated young men and women in India and the opportunities offered by the open US market met with success as there was no intervention by the Government. On the other hand, the pace of diffusion and assimilation of ICT on the domestic economy has been circumscribed due to poor intermediation by the institutions in these countries.

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I would focus my remarks this afternoon on three inter-related issues. First, how can the institutional framework be strengthened for generating, acquiring, disseminating and applying technology in South Asia? Second, how can the existing knowledge of ICT be utilized for improving the access of poor to institutions of governance and delivery of services. Finally, what can the Civil Society do to enforce accountability of these institutions?

Section I

Institutions for Technology for the Poor

Universities and Higher Educational Institutions

The [HDR](#) 2008 demonstrates both the low quantity and quality of scientific manpower in South Asia compared to other regions. The constraints facing the production of adequate number of quality science and technology graduates and engineers readily employable are manifold. The most notable among them are the internal governance, autonomy, accountability and resourcing of public institutions. Teachers lobbies in these Universities have made it very difficult to introduce internal governance reforms where recognition of merit, performance and output are given ascendancy over the traditional methods of seniority, length of time in service, security of service and uniform increments in pay scales prescribed for other government servants.

Public Sector Universities can be reformed only if they are exposed to competitive conditions. Private sector and foreign universities of repute should be invited and encouraged to participate in the spread of higher education under a well defined and pre-announced set of parameters. Registration, licensing and accreditation of these institutions should not be any different than the public sector institutions. Government should not discriminate in providing research funding or needs based scholarships to students of these recognized private sector institutions. The general attitude of looking down upon private institutions as money spinning machines has to give way to a more discerning discourse in which high quality institutions in the private sector are encouraged to share in spreading access to higher education particularly in scientific and technological disciplines.

The other issue is the absence of effective industry-academia linkages in which the researchers interact with the industry and respond for finding solutions to the problems faced by them. The research findings of the University teachers and students get seldom translated into commercial applications. The example of IIS and IIIT, Bangalore and NCL Pune are illustrative of the potential the Universities possess in the evolution of innovative clusters. NCL was recipient of public funding for R&D activities linked to the market needs. There is a pressing requirement to review public policy for funding that strengthens academia-industry support structures in form of spin-offs.

Research and Development Organization (RDOs)

Once high quality and adequate number of scientific and engineering professionals have been produced regularly the next step in the value chain is their proper allocation and utilization. Most South Asian countries have established all kinds of RDOs in the fields of agriculture, biotechnology, industry, public health, medicine, buildings and housing, energy, water resources, etc. in public sector. With a few notable exceptions in India, most organizations have not performed up to the expectations placed upon them. The public expenditures on R&D, although quite low, could have been more effectively utilized if the governance and structural reforms were carried out to make these organizations responsive to the national economic priorities. For example, there is no reason as to why the production of foods, feeds and drugs cannot be accelerated beyond their existing output levels, through application of genetically modified (GM) crops and genetically modified organisms (GMOs) developed and disseminated by Agriculture Research Councils..

There is an urgent need to review the organizational and institutional structures of these RDOs and their key performance indicators. At present the powerful Ministries and Departments appear to exert undue influence on these organizations and thus stifle their initiative and capabilities. Each RDO must have an independent Board of Governors consisting of eminent scientists, industry representatives and prominent Civil Society persons. The Board should be vested the powers to set up the Strategy, Business Plan, Performance Indicators, allocate resources and hold the researchers accountable for results. Their salary scales should be disentangled from those for the Civil Servants and related to measurable and verifiable performance.

Private sector supported research or privately sponsored and financed RDOs are almost non-existent in South Asia although they can play a critical and complementary role particularly in selected areas such as foods, pharma and drugs. Indian pharma companies have the highest number of FDA certifications outside the US. But R&D intensity of the Indian pharma industry is still low. The extension of tax holiday, earmarking of R&D funding for private sector RDOs and Venture Capital Funds are some of the instruments that can be successfully applied in India as well as other South Asian countries for stimulating private research.

International collaboration can be extremely beneficial in building the national capacity of RDOs. For example, discovery of ORS has been one of the biggest achievements of the International Centre for Diarrhea Disease Research located in Bangladesh but its spill over to Bangladesh has also been beneficial.

Para-Professional and Vocational, Technical Manpower

South Asia's enrolment rate in Technical and Vocational Education is at the lowest rung of the ladder even behind Sub Saharan Africa and Central Asia. There has been expansion in managerial and professional occupations in recent years in almost all countries in South Asia. But the prestige, status and emoluments given to the University graduates and qualified professionals have created an imbalance between the Professional and Para-professional manpower in South Asia. India, despite a reputation for producing world class professionals, provides vocational and technical skills to only 5 percent of the youth compared to 28 percent in Korea. Government of India estimates that nearly 457 million people in the labour force need to acquire new skills or upgrade their skills. For example, there are more doctors than nurses and medical technicians which make health service delivery in the rural and small towns by public providers difficult. The widespread prevalence of unqualified and even quacks in majority of villages and small towns attest to the seriousness of this problem of imbalance.

The government's own TVET programs can train only a small fraction of potential or aspiring candidates at any time due to serious capacity constraints. The new initiatives taken by the Government in all South Asian countries are therefore likely to have limited impact. Other countries have made intensive use of accredited private technical institutes and facilities, apprenticeship schemes with industry, outsourcing and

subcontracting and joint ventures. The gap between the demand and supply of vocational and technical manpower is not only huge in terms of the stock but is likely to increase as the youthful population of South Asia enters the labor force annually.

Solutions such as Lady Health Workers (LHWs) in Pakistan and Auxillary Nurese Midwives (ANMs) in India have been successful in reaching out and disseminating key health preventive messages for mother and child care, fertility spacing and general awareness about public health. These are low cost solutions that fit in well with the local socio-cultural environment and should therefore be extended and scaled up. Handheld Computers or PDAs available with them can facilitate collection of highly disaggregated but useful data on health conditions that can be used for policy formulation and program interventions.

Specialized Institutions

Once the Universities have produced the S&T researchers and professionals, the RDOs have applied scientific knowledge and techniques to practical problems facing the poor and the TVTOs have imparted skills to millions of para-professionals there is still a need for intermediary Specialized Institutions (SIs). These Institutions falling broadly under the purview of Extension Services exist in Agriculture, Health, Education, Veterinary Services, Industry Departments of the government. Their main function is to diffuse the new knowledge by translating the messages from researchers to the farmers, small entrepreneurs, teacher, health workers. The instruments they use for this purpose are group training, field visits and customized responses to the questions raised by their clients. The efficacy of these SIs in South Asia has yet to be proved and their capabilities have been seriously questioned.

ICT technology is ideally suited for nurturing a new business model in which the dissemination of new knowledge and techniques can be widely spread. These may not have to be exclusively in public sector organizations but can be franchised across the geography provided the franchisees meet acceptable standards of competence and agree to provide the services on the lines developed by the Government agencies. This model may be a better substitute to the existing approach and may turn out to be cost effective also. Radio broad cast, TV lessons, mobile phone text, interactive radio counseling in local languages can provide the functioning tools for this purpose.

Lower availability of professional and managerial education at the tertiary level in most countries of the region (excepting a few world class institutions in India) and a dismal state of skill formation at para-professional level dictate that the industry has to invest its own resources in organizing in-service training for their new entrants. As this general skill formation is a public good, economic theory predicts that there would always been under provision of such training by the private enterprises. The SIs in each sector should therefore be assigned the task for this type of in-service skills training in partnership with private sector and cost sharing arrangements with the industry benefiting from it. Distance Learning and other I.T. based E-learning tools can be utilized profitably for this purpose.

A different type of specialized institutions pertain to regulating electronic transactions, e-commerce, telecommunications, cyber crime, intellectual property rights. These bodies need to be set up where they don't exist, properly resourced, assigned clear mandate and authority for enforcement and provided competent staff.

SECTION II

Using ICT for improving access to institutions

One of the major impediments faced by the poor in south Asia is their lack of access to the institutions of governance – Civil Service, Revenue, Police, Judiciary and suppliers of basic services – education, health, drinking water, procurement of agricultural commodities, etc. Although E-governance has played a pivotal role in many developing countries to overcome both of these problems the record in South Asia is quite patchy.

The HDR 2008 documents a number of successful experiments such as computerization of 17 million land records and simplified access to these records by ordinary farmers in Karnataka. E-Seva project in the Andhra Pradesh (AP) has set up 210 centers which act as one-stop venue for 55 government services. Lokvani programs in the District of Sitapur providing online public services and as a channel for grievance articulation. NADRA in Pakistan has created a computerized national identity

cards backed by a computerized data base. This biometric data base not only serves as a validating and authentication instrument for making of e-passport, birth certificates, etc. but has also helped the law and order agencies and in the verification of the poor for Income Support Scheme.

These examples, though highly impressive, have to be scaled up for the widespread benefits to the citizens of South Asia. As computerization brings transparency and accountability in governance Governments in these countries have to overcome the resistance of those who fear losing their rents in the process. Most pilot experiments have either been prolonged unnecessarily with large cost over-runs, made too complex and cumbersome or deliberately misrepresented to the political leadership by understating the benefits and inflating the costs.

Mobile phones that have penetrated across a high proportion of population even in the rural areas of South Asia can be used as an effective delivery channel for access to organized financial services. The banking regulators have to ease up the rules and facilitate branchless banking for deposits, cash withdrawals, remittances, etc. Financial inclusion can become a reality by intelligent use of mobile banking and microfinance.

As a beginning all Government departments / agencies should be mandated to develop and maintain dynamic and interactive websites. These sites should have the up to date content of all the laws, rules and regulations, manuals, instructions, circulars and orders issued by the department. In addition they must have accurate data bases relevant and pertinent to their activities and operations which can be readily accessed by an ordinary user without going through the Right to Information or Freedom to Information Acts. The websites should also have the built in functionalities whereby all the forms pertaining to the department can be down loaded and uploaded. Frequently Asked Questions (FAQs) should always be on display and inquiries from the citizens can be filed electronically on the website and replied within a prescribed time frame. The use of local languages simultaneously with English should be made mandatory for these websites. A large number of poor people in South Asia rely upon intermediaries (petition writers) who carry out most of these functions on their behalf for payment but are fluent only in the local languages.

The current manual system of creating, maintaining and routing the files has outlived its utility due to enormous expansion of workload. Digital archiving of the old files and new electronic records that have to be created, shared and moved from one office to another with archiving and retrieval capabilities can improve the disposal and interface between the citizens and the Government functionaries. Simply locating an application submitted a few weeks ago from a huge pile of papers or locating a file a few months old prove to be Herculean task today and account for a large part of inefficiency and corruption in Government offices.

The Report has discussed a number of examples from South Asian countries where ICT tools have been used for health care delivery, education and literacy. I won't repeat these pilots here but only to emphasize that these should be replicated and scaled up.

Section III

Accountability of the Government by the Civil Society

One of the most promising developments in South Asia in the last decade is the ascendancy of the Civil Society and the media on the issues of governance and accountability. In Pakistan, the media that was given complete freedom to operate without any restrictions by President Musharraf, played a pivotal role in ultimately relinquishing of his office. Lawyers' movement led the path and persisted for two years forcing the restoration of the Chief Justice of Pakistan. These powerful examples demonstrate that if the media diverts its attention and energies towards true investigative reporting whereby the real world situations in which the poor are denied access to public services or are asked for bribe in return should be fully exposed. The performance of public utility companies engaged in power outages, electricity or gas theft, favoritism in allocation or other inefficiencies or incompetence needs to be regularly but fairly scrutinized and brought to the attention of the public at large. The media particularly electronic media can transmit information and make citizens better informed about functioning of individual government departments / agencies rather than making sweeping and cynical generalizations about the government as a whole. They should

present a balanced view – giving due recognition to those working well and taking those departments to task whose conduct and behavior are not up to the mark.

The Government in Pakistan should also re-examine their Freedom of Information Act (FIA) and rectify its deficiencies and bring it at part at least with the Right to Information Act of India. Other Governments in South Asia should consider legislating similar acts that allow the citizens to acquire information about the working of governments.

Consumer satisfaction surveys carried out at regular intervals by Credible NGOs or think tanks about the public services can also act as useful feedback both of the political leaders and bureaucrats in-charge but their dissemination through TV Channels and radio broad casts can add pressure on them.

Advocacy groups such as NGOs and think tanks should utilize the enormous powers of internet, blogs, Twitter, SMS text messages and other social networks such as Facebooks, Youtube to educate and raise awareness among the citizens about the issues they are interested in. Report cards on the performance of various government departments / agencies should be prepared in an objective evidence based manner and widely disseminated so that fame and shame becomes a deterrent against malfeasance and inaction.

Conclusion

The HDR presents persuasive evidence that Technology can be a driver of poverty reduction in our region but its potential has not even begun to be fully utilized. In my view the main factor impeding the effective utilization and diffusion of technological tools among the poor is the weak performance of the institutions intermediating technology in South Asia—the Universities, RDOs, TVTOs, Sis, etc. Governance and access to basic public services by the poor can be improved if the successful pilots can be replicated and scaled up. Finally, the civil society and the media are in a better position today, thanks to better technology, in holding these institutions accountable and making the citizens aware of their rights and responsibilities.