Poverty, Inequality and New Technologies in Latin America

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REALIZING THE POVERTY REDUCING POTENTIAL OF ICT IS NOT AN AUTOMATIC PROCESS

Poverty and inequality represent two enormous challenges for the countries of Latin America. In 2002, about 220 million people (44% of Latin Americans) were poor, and the average incomes of the richest 20% of the population were between 10 (Uruguay) and 44 times (Bolivia) higher than the average incomes of the poorest 20% (ECLAC, 2004). In an age where ICT is bringing about profound changes to societies, it is thus relevant to analyze whether these technologies can contribute to poverty reduction, and what the impact on inequality may be.

ICT can be utilized to support poverty reduction strategies by improving poor people's access to education, health, government and financial services. In a region where about half of non-agricultural employment is in the informal sector, ICT can also help micro and small entrepreneurs by connecting them to markets. It is also clear, however, that ICT on its own cannot leapfrog the old institutional and organizational weaknesses of the Latin American economies: digital technologies can be used as a tool to execute solutions to poverty, but cannot root out poverty on their own. The risk that ICT actually ends up contributing to higher inequality is very much real (Cimoli & Correa, 2003). Insufficient information and communication infrastructure, high access costs, and low levels of education have so far bestowed the benefits of ICT on the better off, urban segments of the population to the detriment of the poor and rural areas.

Micro and Macro-Economic Evidence

An economic model presented in Cecchini and Scott (2003) shows why the rich and the poor use different communication techniques and how the nature of technological change has until now been biased towards the rich, widening the digital divide. Since the value of time is lower for the poor—due to underemployment—and the cost of ICT capital is high, when ICT consists of oral and written communication versus fixed-line telephony, the poor tend to communicate orally. The rich, who face the opposite constraints, choose to communicate via fixed-line telephony, which is relatively capital-intensive. When the Internet, requiring more capital per unit of information communicated than any other existing technique, becomes available, the rich switch from fixed telephony to Internet usage, while the poor continue to communicate orally. Therefore, the model has two implications for a pro-poor ICT policy. First, the relative price of capital for communications purposes should be reduced for the poor. Second, the focus of research and development in ICT has to favor poor-user friendly hardware and software.

The widening of the digital divide within countries is substantiated by macro-economic evidence. Forestier, Grace and Kenny (2002) show that historically telecommunications rollout has benefited the wealthy, with a positive and significant impact on increasing income inequality within countries. The authors' regressions illustrate that countries with high initial teledensity (allowing for income) and countries that have high growth in teledensity (allowing for growth in income) see significantly higher growth in income inequality. The diffusion of the Internet in developing countries is said to be following a similar pattern, suggesting that it is a force for growing income inequality. Without intervention, ICT might be even more strongly "sub-pro-poor" than has been true for the telephone. The Internet, in fact, requires not only more ICT capital but also a higher level of education and skill to operate than the telephone (Forestier et al., 2002).

As Heeks and Kenny (2002) point out, the diverging effects of ICT may be a consequence of the fact that ICT was almost entirely developed within the context of high-income countries. ICT was thought for a capital-rich setting, and embodies significant quantities of technical, human, and institutional capital. Since rich countries already have a large stock of personal computers (PCs) and telephone lines, Internet access represents a small marginal investment compared to the existing fixed stock of ICT capital. They also have more educated, highly-skilled employees to install, operate and maintain ICT. In developing countries, with few PCs, limited telephone networks, and lower levels of human capital, the

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same is not true. Furthermore, ICT embodies within it rich countries' assumptions about "ICT-friendly" institutional strategies at the organizational level and ICT-friendly laws and regulations at the national level. For developing countries, where such institutional arrangements are less likely to exist, ICT warrants a range of investments in institutional reform.

Access to ICT within Latin American Countries

Latin Americans, on average, have lower levels of access to ICT than people living in high-income countries. Similarly, within Latin America, people living in lower-income countries generally have lower levels of access to ICT than those living in higher-income countries. Both phenomena are expression of the international digital divide.

The internal divide means that different socio-economic groups within countries also have different levels of access to ICT. Within Latin American countries, the poor have much worse access to ICT than rich or middle-class citizens. In Chile, in the year 2000, only 32% of the poorest 10% of households had a fixed or mobile phone; computer presence (1.9%) or Internet connection (0.8%) in the poorest households was even more infrequent. On the contrary, among the richest 10% of Chilean households, 60% had a computer and 38% an Internet connection; almost all (95%) had a fixed or mobile phone (SUBTEL, 2002). In Uruguay, on average, 10% of the population has access to a PC. However, only 2% of low-income Uruguayans have a PC at home, compared to 22% of the middle class and 58% of the upper class (Finquelievich, 2002). In Lima, Peru, in the year 2000, in the richest 4% of households, 80% had a PC at home and 54% connection to the Internet, while among the poorest 50% of households almost no one had either (Melo, 2002).

The internal divide is not limited to income, but also extends to education, gender, age, and ethnic inequalities. More educated people have better access to—and make better use of—ICT. Stratification and inequality in regional educational systems, where secondary and tertiary education have tended to become more elitist, extend to levels of access and use of ICT by students (Hopenhayn, 2002). In Chile, for instance, 89% of Internet users have had tertiary education (UNDP, 2001). The percentage of female Web users in Latin America and the Caribbean has been estimated at around 38%, which is far from gender parity, although the gender gap seems to be closing in many countries (Bonder, 2002; UNDP, 2001; SUBTEL, 2002). Older people are also at a disadvantage. In Mexico, in 2002, 36% of people, ages 20-29, used the Internet, against 9% in the age group 40-59. In the 60 and above age group, Internet use was only 4%. In the year 2000, in Costa Rica, Mexico and Panama, the probability of having a computer at home was five times higher for non-indigenous sectors of society than it was for indigenous people (ECLAC, 2003).

Urban areas are much better connected to ICT than rural areas. The case of Peru is illustrative: in Lima, 45% of households have a fixed-line phone at home and 18% own a cellular phone, while only about 0.5% of rural households own a fixed-line telephone or a mobile phone. The divide is no better with respect to PCs and Internet. In Lima, 14% of households have a computer and 2% Internet access at home, while in rural areas of Peru these percentages are about zero (INE Peru, 2003). In Chile, in 2000, only 0.8% of rural households had access to the Internet, compared to 9.4% of urban households (SUBTEL, 2002).

ICT PROJECTS FOR POVERTY REDUCTION IN LATIN AMERICA

Two areas can be identified as priorities for reducing poverty: developing poor people's capacity—mainly by improving their access to education, health, and government services—and increasing their opportunities—by improving their access to markets and the labor force. Although most of the poor in Latin America are isolated from the information revolution, there are examples that provide evidence of possible uses of ICT to support poverty reduction.

Improving Access to Education, Health and Local Government Services

In Brazil, the *Committee for Democracy in Information Technology* (CDI) has provided computer and civics training to young people living in urban slums, or *favelas*, since 1995. CDI emerged from the belief that computer literacy can maximize opportunities in the job market and promote democracy and social equity. Along with training in word processing, spreadsheets, accounting programs, and Web design, CDI teaches civic participation, nonviolence, human rights, environmental awareness, health, and literacy. There is growing anecdotal evidence of CDI's success on several fronts. After a three or four-month course, graduates are said to find well-paid jobs, start micro-businesses, or become certified teachers within the organization. Some CDI graduates who had dropped out of public school have decided to go back and complete their formal education; many others put their computer skills to work in various community activi-

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