



# Teledensity, Privatization, and the Andean Community of Nations: The Peruvian Case

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## ABSTRACT

*The Andean Community of Nations' (CAN) country members among other less developed countries (LDCs) are located on the wrong side of the "digital gap" and confront an enormous challenge from the network revolution which is unfolding. To take advantage of this revolution, these countries must attract foreign direct investments (FDIs) to develop the necessary infrastructure in the telecommunication-computer realm and acquire the technological know-how embedded in the FDIs. Privatization plays a preponderant role to attract the FDIs. Teledensity is a relevant parameter regarding the telecommunication infrastructure, an important factor inserted in the productivity equation and therefore in the stimulus for economic growth.*

## INTRODUCTION

The majority population of the earth, about five billion people, live in Less Developed Countries (LDCs) and confront an enormous challenge from the networking revolution that is unfolding. These countries located on the wrong side of the "digital gap" could become victims or beneficiaries of the new changes as a sequel to the technological exigencies stimulated by the change itself (15). The location within the latter is based on the implementation of domestic and supranational policies and programs that allow them to develop the necessary infrastructure in the telecommunication-computing realm to attract the necessary foreign direct investments (FDIs) and technological "know-how" that is embedded. This allows them to establish competitive advantage. The FDIs within Asociacion Latino Americana De Integracion (ALADI) country members for the year 1998 were about \$64.5 billion. Approximately 50% of the FDIs total \$32 billion had converged in Brazil. This is the outcome of new policies and political reforms concerning deregulation, an aperture to foraneus investment, and the privatization of state owned enterprise in the sectors of telecommunications, and electrical power generation and distribution (12).

One of the circumstances causing great impact in the realm of computing is convergence taking place with computing and telecommunications. Firms perceive the capabilities of combining the hegemony of computer based information and telecommunications networks (3) and the rapid evolution of the Internet and Intranet extant play a preponderant role in this new array. It is emphasized that the drivers of the information revolution are cost, computing power, and convergence (2). These parameters are inter-related to computing infrastructure, new communication technology and governmental policies that will make the old telecommunication model, a monopoly, obsolete, and therefore, a new paradigm will evolve that makes this technology accessible to everyone, specially to the inhabitants of LDCs through a new system that promotes and encourages competition within the private sector.

Within this technological revolution, changes among the telecommunication sectors, the economy and society are present. Deregulation and privatization are contributors in this endeavor. Telecommunication has developed from state monopolized, technical obsolescence, low performance firms to the incumbent, privatized high performance state-of-the-art one's. Within this scheme competition is an important factor. The literature concurs regarding the elements that contribute to generate competition: interconnection, equal access, unbundling, and industry structure are, among others, the most important factors to reach the goals (10). Interconnection is the right of the network

operators to insure the users' compatibility between networks. Equal access is the right of the consumers to select the carrier that will be used to delivery the calls to the final destination. Unbundling requires the incumbent to provide basic network elements such as lines, switching, and transport. The structure of the industry, integration, structural separation, market share restrictions conform the other factor (10). Regarding the economy, the flow of information has been present as an integral part of activities related to production, trade, and investments. Therefore, historically a strong correlation does exist among economic and networking development. Also, the latter plays a very important part in the development of modern social and institutional structures. The report concurs with the research literature concerning the development of the telecommunication sector that has evolved very rapidly from a well defined state-sanctioned monopoly in the 1980s to a great majority acceptance of the benefits of liberalization and competition in the 1990s (15).

The literature defines teledensity as the number of main telephone lines for every 100 inhabitants, excluding wireless access. Teledensity is a term also used as a parameter to measure the level of telecommunication infrastructure of any country. A review of the literature shows the existence of a high correlation between teledensity and the Gross Domestic Product (GDP) of the country. Also, a positive correlation between teledensity and economic development, and a negative one between teledensity and population size has been found. Studies performed by the World Bank demonstrated the presence of teledensity as an input factor embedded in the production process. At the same time they emphasized the fact that telecommunications services do not have the same relevance to all sectors of the economy. These services are more prevalent within manufacturing and tourism than the primary sector such as agriculture (6).

## Premise of the Paper

The purpose of this paper is to demonstrate the effect of privatization in the telecommunication sector and its impact on teledensity in country members of the CAN. The Peruvian case within this realm helps to prove the premise.

## BACKGROUND

The decade of the 90s represents crucial changes in the structure of the telecommunication sector in Latin America and the Caribbean. Privatization and liberalization schemes dramatically change the patterns of ownership, the number of service providers, the source of financing, and primarily the regulatory environment. The telecommunications companies all over the world started as private enterprises, but by the 70s few still remained under those ownerships schemes. Within them could be mentioned the United States, Spain and the Philippines. In most of the other countries telecommunication services were provided by monopolistic government-owned entities. This concurs with the research literature stating that the rapid change of the technology, the mismanagement of state-owned enterprise among other factors erode the monopolies and clear the way to a privatization trend all over the world (8).

In Latin America the decade of the 80s was characterized by the lack of hard currency and hard economic times. Therefore, several governments look at privatization as a process to raise money on hard currency and also a way to

acquire new technologies, know-how and/or upgrade and expand the existing networks. The latter has more to do with the presence of an economic opportunity than the political move departing from the socialist-prone system embedded in most of Latin America countries that has generated State-owned, ill run monopolies (5). All over the region the primary role of the government changed from owner of the monopoly to regulator. Venezuela was among the first to start restructuring their telecommunication realm and today the list of countries that have adopted and implemented reforms includes but is not limited to Bolivia, Colombia, Ecuador, and Peru (8).

Privatized telecommunications operators enjoy the status of quasi-monopoly entities in the basic service sector that includes the long-distance segment. After privatization the new enterprise searched for new business opportunities. Almost all Latin American Countries have participated in the World Trade Organization (WTO) Negotiations on Basic Telecommunications and most of them have made commitments to further liberalize their telecommunications service industry to include voice telephone, mobile services, and satellite services among others (8).

In Latin America, regional as well as multilateral integration schemes have a predominant role within integration agreements, the Andean Community of Nations (CAN) among them is composed of Bolivia, Ecuador, Colombia, Peru, and Venezuela. These organizations have the intent to institute the required infrastructure that, in the future, may evolve into a political union (9).

Currently businesses that transact on the Internet have had relevant cost reduction and an increase in revenues. A high correlation does exist between the growth of benefit and the increase of businesses performing such transactions within the network (14). E-commerce has shown a rapid development in Latin America. Brazil reached 4 million users in 1999. This represents 50% of the interconnected population - Mexico with 18%, Argentina 12% and Chile 4% (13). In March 2000, the number of users on the Internet was approximately 304 million. The United States of America and Canada have 45%, Europe 27%, The Asia-Pacific region 23%, and Africa and the Middle East 1.5%. Latin America and the Caribbean hold 8% of the world population, but only 3.5% of Internet users and less than 1% of the global e-commerce. Although in the year 1999, a noticeable increase in Internet host computers was extant. The growth rate has been the highest in the world, and the number of users is 14 fold within the 1995 to 1999 period (11). The literature concurs that computer information systems are a function of various parameters and among them the ones related to communication and diffusion could be identified as follows: cost of telephone service, and the structure and behavior of the market that compose the Internet services (13). Pertaining to the technology realm, a component that will exert large influence is the volatility of the communication sector due to the availability of new technology and changes thereof (7).

The impact of Peru's telecommunications reforms deserves special attention due to the fact that it depicts the trend of privatization of this sector in Latin America. In 1993, the Peruvian government started a major reform in this sector. The program was supported by two bank loans: the Privatization Adjustment Loan and the Privatization Technical Assistance. Both loans were approved in 1993. Two laws enacted in 1993 and 1994 provided the legal avenue for the privatization of Compania Peruana de Telefonos (CPT) and Empresa Nacional de Telefonos (ENTEL), both state-owned entities with the establishment of an independent regulator OSIPTEL. The Peruvian government agreed to grant the new foreign operator, Telephones of Spain, temporary exclusivity of four years for local, long-distance, and international telephony. The foreign company agrees to expand services in rural areas and to minimize tariffs under a price cap regime. Within this new framework the mobile telephone market was partially liberalized right away and now is fully competitive (with three current licensees, which included Bell South of the United States). When the exclusivity period ended in 1998, new operators entered the telephony market, and 172 companies are currently active. Private investment in rural areas is now promoted and partially subsidized by a one percent tax on phone bills (16). (See Table 1, Figure 1).

The governments of the region have accomplished basic strides so the mass population will have access to the Internet. Peru has created The Peruvian Scientific Network, known by its Spanish abbreviation, RCP. The network is composed of 1000 public centers that provide service to 40% of the network. In Argentina, the program [argentina@internet.todos](mailto:argentina@internet.todos) has approxi-

mately 1000 tele-centers located in low income and remote areas. Brazilian commercial banks are offering free access to the Internet, and Costa Rica is one the first country in the world that provides free e-mail to its citizens through state agencies. In the last decade, the telecommunication sector in Latin America has grown enormously. Privatization and the development of new technologies have performed a critical role in this process. During the decade of the 90s, 2/3 of the countries of the region totally or partially privatized the telecommunication domain. Also the arrival of new technologies such as cellular telephones, and cable television has generated substantial changes in the sector. During 1990, 100,000 cellular telephones were in use; 3.5 million during 1995, increasing to 38 million in 1999. The case of Venezuela and Paraguay deserves special attention due to the fact that there are more cell phones than conventional ones (11). In general Latin America still suffer from low teledensity rates, 26 lines per 100 inhabitants (1). The literature concurs that Internet host density is another indicator of network penetration and in conjunction with teledensity will provide a more accurate measurement to determine the presence of computer convergence.

In Latin America only 1/3 of all homes have telephone service. The growth and coverture of the telecommunication sector are functions of the regulatory framework in which they are developed, as well as the influence of the responsible regulatory agency. In many cases, monopolies have been created. During the '80s, seven telephone lines in the region - Argentina 12, Chile 10, served 100 people and repairs took 15 days. The last decade Argentina and Chile users ratio was increased to 22%. Other good indicators of improvement in the sector are the digitalization of the telephone systems, an increase in the number of public telephones, and the improvement of repair time (11). Social factors have to be taken in consideration regarding the infrastructure of telecommunications in Latin America. Twenty-five percent of the region's population lives on an income of \$1 per day (13).

## DISCUSSION

The privatization and deregulation of the communication sector act as an incentive to bring to the LDCs foreign direct investments that not only provide the financing required to develop the industry, but also provide the know-how embedded. It is critical to accentuate the fact that to attract these investments a well-defined legal and political framework must be in place. The only way that these countries located on the wrong side of the 'digital gap'

Figure 1.

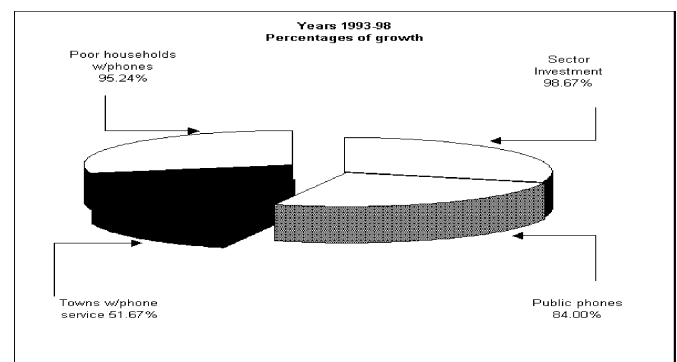


Table 1

	1993	1998	%
SECTOR INVESTMENT (Million \$)	28	2099	98.67%
FIXED LINES/PENETRATION (PER 100)	660000/2.9	1850000/7.6	
MOBILE PHONES LINES/PENETRATION (PER 100)	50000/0.2	600000/2.4	
PUBLIC PHONES	8000	50000	84.00%
TOWNS WITH PHONE SERVICE	1450	3000	51.67%
POOR HOUSEHOLDS WITH PHONE (%)	1	21	95.24%
AVERAGE WAITING TIME FOR CONNECTION	118 months	45 days	
CONNECTION FEE	\$1,500	\$150	90.00%

Source: World Bank Group (WBG) 2001

could be evolved within the technology environment rests on foreign sources of funding. At the same time, the developed countries (DCs) could augment their markets investing their financial resources and technology in Latin America. The Peruvian example depicts the importance of privatization versus a state monopoly in the telecommunication industry. Figure 1 is self-explanatory regarding the higher growth within the most important parameters in the telecommunication industry. Connection fees in 1993 were \$1500-after privatization in 1998, \$150, a savings of 90%. The average waiting time for connection has been reduced from 118 months to 45 days. These statistics indicate that privatization not only increased the amount of investments and the growth of many parameters within the telecommunications realm, but also allows the mass population to have access to the technology. Convergence taking place with computing and telecommunication demonstrates the importance of the development of this sector and the socioeconomic impact on the economic perspective, and to the stimulus of economic growth. In Latin America different treaties, covenants, and multilateral agreements taking place as part of regional integration schemes have as a goal to evolve trading partners into a political union and therefore, generate competitive advantage. Information technology plays an integral role in enabling this to happen. Today the Latin America marketplace is in the most enviable position to define its telecommunication future; globalization, regionalization, privatization, and liberalization have been the driving forces (4).

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