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**Telecommunications Transformed:
The Privatization of Telebras**

by
Melissa Barros, B.A.

A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfillment of
the requirements for the degree of

Master of Arts

Communication Program
School of Journalism and Communication

Carleton University
Ottawa, Ontario
January, 1999

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**Telecommunications Transformed:
The Privatization of Telebras**

submitted by Melissa Barros, B.A.
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the degree of Master of Arts

Thesis Supervisor

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Abstract

This thesis proposes to critically explore the issues raised by the privatization of telecommunications systems; in particular, the changes in the nature of the relationship between the state and the private sector that have come as a result of this endeavour are examined. Through the insights and tools offered by three streams within political economy and a case study of the Brazilian experience, it is possible to discern some of the attributes of these changes. At the invitation of the state, private initiative has increasingly adopted functions that had previously resided exclusively with the government. With regards to telecommunications, the state's search for economic efficiency and universal service has made it less convenient for it to continue exercising absolute control. In Brazil the state has exchanged its traditional role as service provider for one of service regulator, wherein it will attempt to foster an environment in which the private sector would be able to maximize efficiency and also provide viable and cost-effective telecommunications service to the general public.

Table of Contents

Acceptance Form	ii
Abstract	iii
Table of Contents	iv
Introduction: The Significance of Telecommunications	1
Chapter 1: Technological and Institutional Revolution in Telecommunications	8
Technological Advances	11
Telecommunications as an Industry	26
Mechanisms and Shifts of Power	31
Chapter 2: Public vs. Private Sector: Historical and Theoretical Evolution	36
Overview of the Historical Evolution of Political Economy	37
Free Market Economy Perspective	43
Economic Centrally Planned State Perspective	46
Mixed Economy Perspective	51
Dependency Theory	54
Models of Reform of State Telecommunications Monopolies	59
Chapter 3: Public vs. Private Sector: Brazilian Political and Economic History	63
Brazil as a Mixed Economy: From the 1930s to the 1990s	65
Telecommunications in Brazil During the Mixed Economy Period	72
Chapter 4: Privatization of the Telebras System: Context, Scope and Model	84
Why the Brazilian Mixed Economy was Forced to Privatize Some Key Sectors	85

Obstacles to Effective Privatization in Brazil	95
Insights into the Regulation of Public Utility Services in Brazil	99
Formulation of a Program to Privatize Telebras	108
The Model Adopted for the Privatization of the Telebras System	111
What the Future Holds in Store	122
Conclusion: Highlights, Trends and Perspectives of Telecom in Brazil	124
Appendices	130
References	146

Introduction

The Significance of Telecommunications at the end of the 20th century

Human communication has experienced an extraordinary breakthrough with the advent of telecommunications. From the invention of the telegraph by the middle of the 19th century to the present time with the introduction of satellite, optic fibre, and technological convergence, telecommunications has helped expand the range of communication capabilities. In fact, this has consolidated the strategic position of telecommunications as a pervasive factor that reaches, connects, and affects people around the globe. Its impact upon society at large has forged telecommunications into one of the most remarkable phenomena given that it has transformed cultural habits, social and economic structures and mechanisms, as well as the balance of power among nations and social groups.

In this context the telecommunications phenomenon can be analyzed from three different perspectives: the technological development, encompassing both hardware and software; the transformation of telecommunications into a whole new economic industry; and the creation of new political mechanisms, as well as a new balance of power at the domestic and international level.

In the aftermath of World War II governments widely recognized that the continued trend towards convergence now in the realms of telecommunications and information technologies would likely become an extremely sensitive and strategic issue, reshaping completely even the management of these decisive sectors. Some scholars would go as far as to claim that society was then entering into a new era dominated by information services. (Bell, 1973; Toffler, 1980; Rogers, 1986) This type of analysis and tendency forecast lent support to government policies that encouraged their take over of the telecommunications sector, especially in its industrial dimension, in order to maintain a grip on this new instrument of power.

More recently, it is possible to discern a new tendency in which governments maintain control over the formulation of policies and their implementation, while transferring to the private sector the operational and managerial tasks concerning the telecommunications industry. This tendency is referred to as the process of privatization. Privatization, defined as the total or partial sale of shares of a state owned enterprise (SOE) to private investors, is often accompanied by liberalization¹ and deregulation². (Petrazzini, 1996)

In the Latin American context, the process of privatization, as well as the processes of liberalization and deregulation, began in earnest in the 1990s. The experiences of Argentina, Mexico, Venezuela, Bolivia, Peru, and most recently Brazil indicate the trend towards this type of strategy in Latin American countries that seeks to modernize inefficient state owned enterprises and extend universal service to areas previously unattended.

Furthermore, “the financial crisis of Latin American states, linked to the debt crisis has combined with the pressure from foreign and national enterprises to allow the liberalization of telecommunications.” (Benitez, 1992: 8)

In conjunction with these pressures, there are others stemming from economic globalization, rapid technological evolution and corporate reorganizations. All of these serve as powerful catalysts for the pursuit of a solution that would alleviate some of the

¹ Liberalization is the lowering of barriers to trade or opening the domestic telecom market to competition.
² Deregulation is the process whereby the state changes its role in the telecom sector and reduces the degree to which it intervenes in related matters.

demands made upon the state both politically and economically. The political and economic structures in place in Latin America make it very hard to maintain efficiency levels that can lead to universal service. In this scenario, the likelihood of the state maintaining its absolute control over telecommunications is not very encouraging.

To date, multinational corporations are the ones filling the space vacated by the state's transfer of some of its key duties to the private sector. They are also the ones that stand to gain the most from this process; these benefits take the form of new markets, new synergies, and economies of scale and scope. This shift in duties bears witness to the transformation of the roles of both the public and the private sectors because of privatization, although both remain critical to the future of the industry.

The purpose of this thesis is to examine this transformation in the context of three dimensions of telecommunications development in recent years, namely: technological advances, industrial prospects, and shifts in power mechanisms. Furthermore, this thesis serves to contextualize the many real factors that make it less convenient for a telecommunications enterprise to continue as a state monopoly.

In terms of technological advances, the last few decades of the 20th century have experienced the convergence and proliferation of telecommunications technologies in what has become commonly known as the information revolution. Not only is this revolution occurring in terms of vast technological innovations and the broadened range of applications they make possible, but also in terms of industry convergence which solidify the presence of many multinational firms in this sector. At the same time, the

technological advances and the expansion of this industry induced significant changes in the mechanisms of power, especially between the government and the private sector, as well as among nations and social groups. The Brazilian case exemplifies these points.³

This thesis explains the main reasons that led governments, not only in Brazil, to engage in privatization endeavours initiated in the 1980s and that were pursued more avidly in the 1990s. Among these reasons are:

- the amplitude and the rapid pace of technological innovation in the telecommunications sector which surpasses the capabilities of governments to raise adequate funds to remain abreast of these advances;
- the lack of necessary flexibility and efficiency by state owned enterprises to operate this strategic sector;
- and the inability of domestic telecommunications firms to accomplish this task unless they associate themselves with larger multinational consortia.

The relevance of undertaking this thesis stems from the significance of telecommunications at the end of the 20th century; the size of the Brazilian privatization relative to international standards; and the lack of sufficient analysis of the Brazilian endeavour. To carry out this task this thesis analyzes the theories and literature that help to explain and contextualize the privatization trend and its application to Brazil. Further to this review is the detailed analysis of the Brazilian experience that offers more depth to the discussion and grounds these theories in a concrete setting. The subsequent chapters

examine the issue and what has been written about it thus far. Moreover, it pieces together the events that led to the sizeable privatization of Brazil's telecommunications system since this has as yet not received much attention in academic circles.

The following chapters provide a comprehensive examination of the topic:

Chapter One discusses the three broad trends outlined earlier and that characterize the telecommunications sector: technological advances, development of telecommunications as an industry in its own right, and the changing mechanisms and shifts of power.

The subsequent chapter reviews the overall literature, as well as three streams within political economy that offer tools for the analysis of this topic. Chapter Two makes a careful assessment of the ideas and approaches within these streams that allow for the determination of specific features; these explain the changes that have taken place and now characterize the roles of the state and the private sector, respectively. The impact of these changing roles upon the economic and political structures has also had an indelible influence upon the future of the telecommunications sector. These streams - free-market, economic centrally planned state economy and mixed economy - provide the tools with which to analyze the Brazilian case.

Furthermore, in the last few years, Aileen Pisciotta (1997) has observed four models of reform. The characterizations of these models help contextualize and situate the events and decisions that have occurred in Brazil in the recent past. Of these, the most

³ Please refer to Appendix 1 in order to obtain relevant economic and geographic background information.

commonly adopted model, and the one implemented by Brazil, is privatization with the gradual introduction of competition. Countries as diverse as the United Kingdom and Mexico have chosen this model for the reform of their telecommunications enterprises.

Chapter Three details Brazilian history in terms of its mixed economy heritage and in terms of the creation, development, and future of Brazil's telecommunications industry. The examination of the mixed economy state that was developed in the 1930s and pursued in earnest in the ensuing years by the military is vital to the understanding of the development of telecommunications in Brazil.

The Fourth Chapter offers a detailed analysis of the privatization of the Telebras System: the reasons that led the Brazilian government to privatize some key sectors of its economy; the obstacles to this privatization process; some insights into the regulation of public utilities in Brazil; the formulation of a program to privatize the Telebras System; the model adopted; and future prospects.

This thesis considers the privatization of telecommunications systems in light of the broad trends taking place within the sector and the changing nature of ownership. Increasingly, governments have selected the path of privatization because of their inability to achieve economic efficiency and universal service without the aid of private initiative. As a consequence, the roles of both the state and the private sector have been transformed. Through the case study of the Brazilian case some of the details that concern this phenomenon are discerned.

Chapter One

Technological and institutional development in telecommunications

In considering the recent transformations in international telecommunications, and those taking place specifically in Brazil, it is necessary to examine three broad trends that now characterize this sector. Technological innovations, industrial developments and transformations in the traditional power arrangements are touted as the three major developments that have transformed telecommunications. These factors, however, cannot be fully understood without first recognizing the importance of international regulatory shifts that have occurred in the past decade. These shifts have played an important role in the formulation of reform policies for the sector and stand at the forefront of the campaign that attempts to address these broad trends.

The history of global telecommunications has involved states regulating their national systems according to their own prerogatives. The instruments of the international regime negotiated into the International Telecommunications Union (ITU) positioned sovereignty as the basic underlying principle, and governments sought to insulate their markets from foreign influence while benefiting from international exchange.

Therefore, until the late 1980s, telecom operators were characterized by monopolistic structures that neither favoured international trade nor encouraged foreign domestic investment to take place in this area, since the regulatory framework served to endorse national monopolies. But since this period, a shift in the balance of influence has taken place. This has meant that organizations, such as the ITU, which were previously opposed to competition as a strategy to improve service distribution in domestic markets, have decided to solicit the participation of private firms in the decision making and

operation of telecom services.

Concomitantly, the entrance of GATT, now the WTO, into the global policy arena has been an important factor in this process. The WTO's growing role, alongside the involvement of regional and multilateral institutions, means that jurisdiction over key aspects of global governance has become a contested market. Although the ITU continues to play an essential role (for instance, in the determination of technical standards), the WTO now addresses the economic issues that pertain to the sector. This is significant because none of the ITU's instruments actively promotes competition and market entry, whereas the WTO does.

A regulatory framework devised under the endorsement of the WTO attempts to address some of the trends taking place in the international telecommunications sector, such as technological innovations, industrial reorganization and globalization of operations. The ratification of the Group of Basic Telecommunications agreement under the World Trade Organization in 1997 has contributed significantly to the regulatory shifts that have taken place since and that attempt to consider the recent trends within telecommunications. The basic premise of this agreement is the internationalization of the markets for telecommunications services, which has prompted the signatory countries to consider these recent trends and to take measures to address them, preferably through the liberalization of domestic markets.

This new regulatory framework, coupled with the shifts in the political positions of international organizations, technological change, industrial developments and

transformations in traditional power arrangements, has instigated profound changes to the sector. These three factors will now be explored more fully in order to discern the nature of their influence in the telecom arena.

Technological Advances

Since the advent of the telegraph in 1837 in the United Kingdom and 1844 in the United States (US), new technologies in the area of telecommunications have advanced interpersonal and business communication so as to overcome previous barriers of time, space, and cost. The technological revolution that began after the introduction of the telegraph witnessed the development of both wire and wireless technologies beginning with copper wire and radio and ending with the latest satellite and optic fibre conduits. These latest innovations enable voice, image, and data to be transmitted and transcend spatial and temporal boundaries.

Although there are other competing explanations of convergence, the dominant one argues that the convergence of technologies, as exemplified by the introduction of computer technology to the area of telecommunications, satellites, and optic fibres, has extended the transmission functions of previous communications technologies. These now encompass greater capacity, scope, universality and accessibility, as well as data processing, storing, reproducing, and manipulating functions. (Babe, 1990)

Because of this four major technological trends can be discerned according to Heather Hudson (1997): capacity, digitization, ubiquity, and convergence. In this sense,

not only is there an increase in the transmission capacity and the speed at which information travels, but the transition from analog to digital communications extends the application of telecommunication from simple data transmission, storage and retrieval to voice and video transmission as well. This convergence of telecommunications with information technologies allows for greater interconnectivity and exchange, since the information is compressed. Examples of these technological innovations include cellular networks, paging and mobile data services and personal communication services, satellite and direct broadcasting communication, as well as the Internet.

To highlight the significance of all these developments it is convenient to present an overview of the stages of technological development along the history of telecommunications, starting with the telegraph and the telephone, and progressing to satellite and optic fibres. Some attention is paid to the introduction and development of certain technologies in Brazil and how these have led to the development of a telecom industry.

Telegraphy was a fundamental component in the development of communications technology and served as the principal system of telecommunications, or communication at a distance, even after new technologies were introduced. Telegraphy transmits messages as a sequence of codified alphabetic letters, numerals, punctuation, and symbols. At the same time it records them at a distant office as telegrams for delivery to addressees.

The forerunner of telegraphy was non-alphabetic signaling already known by

ancient people in China, Egypt, Assyria, and Greece and mentioned by the Greek historian Polybius in 300 BC. (ITU, 1965: 11) Furthermore, optical telegraphs were built in France by 1794; the Admiralty in England used shutter telegraphs by 1795; and Frenchman Claude Chappe between 1793 and 1795 developed the semaphore telegraph. (Clarke, 1992; ITU, 1965)

The electric telegraph is accredited to the Englishmen William Cooke and Charles Wheatston, who received their patent in England in 1837, and the American Samuel Morse, who successfully commercialized telegraphy in the US in 1844. The public had remained unimpressed with the demonstrations of the Cooke and Wheatstone partnership until 1845 when they helped the police catch a fugitive and convinced people that messages could travel faster than people. In North America, Morse was unable to sell the patents for the telegraph to the government, and had to gradually convince private backers to finance the construction of telegraphic infrastructure. (Babe, 1990) This endeavour became the first private telegraphic company. Later on, the Morse code was adopted as the standard system for the transmission of information via the telegraph and employed dots and dashes to represent the alphanumeric symbols. (Clarke, 1992)

The electric telegraph was introduced in Brazil on May 11, 1852 and connected the Imperial Residence with military headquarters in the city of Rio de Janeiro. During the following years the network was expanded, but only in 1958 was this service opened to the public at large. (Burns, 1993)

With the onset of the Paraguayan war, lines were strung up along the southern

states, connecting them with the court. (Burns, 1993) In later years, John Pender who founded several cable companies, established the Brazilian Submarine Telegraph Company (in 1873 with 6 cables, 13,647 kilometers (km) in length and accounted for 5.5 percent of the world's total) between Europe and Brazil. He also founded the Western and Brazilian Telegraph Company (in 1873 with 10 cables, 7,341 in length and accounted for 3.0 percent of the world's total) along the Brazilian coast to Buenos Aires. (Headrick, 1991)

By 1889, the telegraph network covered almost 20,000 kilometres (km) of lines, and in 1866, the first long-distance line connecting Rio de Janeiro to the southernmost state capital, Porto Alegre, was installed (again because of the needs of the military). (*Anuario Estatístico*, 1908-1912; Siqueira, 1988)

What becomes evident from this account of the introduction of the telegraph in Brazil, and characteristic of other historical developments in communications in the country, is the presence and influence of the military. Even though it had only taken direct control of the major functions of the government between 1964 and 1985, the Brazilian military have been highly influential in the designation of technological imports, development, and funding. This pattern of technological development is repeated numerous times in Brazilian history - a fact that has significant implications for the present attempts to revolutionize Brazil's telecommunications sector. (Regli, 1997)

Following from the development of the telegraph is the invention of the telephone in 1876, commonly attributed to Alexander Graham Bell, who claimed the patent in that year. (Clarke, 1992) Depending, however, on what criteria is used to distinguish between

telegraphy and telephony, Thomas Edison could also be considered the inventor.

Nevertheless, even if the elements necessary to build this equipment were already in place years earlier by the works of Edison, it was Bell who was given official recognition by the English courts.

Since the beginning of the 19th century the concept of sound as a vibration and the possibility of transferring these vibrations to solid bodies was well understood. For instance, Michael Faraday demonstrated in 1831, how the vibration of iron or steel could be converted into an electrical pulse. (Clarke, 1992)

In Brazil, the emperor Peter the Second, who officially succeeded his father as Emperor of Brazil in 1841, had received from his tutor a refined education and developed a science and technology oriented mind. During 1874 and 1875, he exchanged letters with Alexander Graham Bell, and in 1876, traveled to Philadelphia, Pennsylvania (US) for the centennial celebration of American Independence. (ITU, 1965) During this opportunity he went to visit Bell's stand in the Technology Exhibition, part of this celebration, in spite of advice from Bell's rival, Elisha Gray, not to bother with the childish toys produced by Bell. (Siqueira, 1988)

Bell obtained priority to explore the use of the telephone and sent a sample of this equipment as a gift to the Emperor of Brazil in 1877. This apparatus was installed in the city of Rio de Janeiro in the same year, connecting the Emperor's residence to his downtown office. (Siqueira, 1988)

During the last decade of the 19th century, and the first two decades of the 20th century, Brazil was endowed with two great personalities in the telecommunications sector. The first was a Jesuit priest called Roberto Landell de Moura. In 1893 he was able

to transmit signals and musical sounds at a distance of eight km in the city of Sao Paulo. He was the actual inventor of the three poles, or the triode tube (an anode, a cathode, and a control grid), even if this invention is officially attributed to the American engineer Lee de Forest. (Clarke, 1992; Fornari, 1984)

In 1901 he traveled to the US and was able to register at the US Patent Office, three of his original inventions. His work was not recognized by the Brazilian authorities (the Emperor was ousted in 1889 and the country became a republic). The achievements of Roberto Landell de Moura were recorded in the book *Landell de Moura, the Incredible Priest* written by Ernani Fornari. (1984)

The second personality was Candido Mariano da Silva Rondon. Rondon became an outstanding army officer and devoted his life to the expansion of the telegraphic lines from Rio de Janeiro and Sao Paulo on the coast to the hinterland of the country close to the Brazil and Bolivia borders. Between 1907 and 1916 he coordinated the construction of 4,502.5 km of telegraphic lines, mostly through the jungle.

The Federal Constitution promulgated in 1891, two years after Brazil had become a republic, established as an exclusive capability of the National Congress the legislation of all matters that concerned the federal service of the Post Office and Telegraph (art. 34, n. 15). Nevertheless, it allowed for the existence of the Post Office and Telegraph Company run by the states of the Brazilian Federation. (*Executive Summary*, 1997)

In 1934 the Federal Constitution was changed once again (art. 5, n. 8) and defined as an exclusive competency of the Union (Federal Government) to explore or to grant a concession of the services of the telegraph and telecommunications. The states were given the competency to add supplementary legislation in the case of radio

communication (art. 15, n. 7; art. 5 paragraph 3). The Constitution of 1937, that dissolved the National Congress and gave to the President dictatorial powers, maintained similar regulations.

A convention was signed in Paris in 1865, coincidentally the same year Candido Mariano da Silva Rondon was born, creating the International Telegraph Union to encourage international co-operation in all forms of telecommunications. (ITU, 1965) The International Telegraph Union held in Madrid in 1932 the International Telegraph Convention and decided to merge the International Telegraph Convention and the International Radiotelegraph Convention. At the same time it established that the International Telecommunications Union (ITU) would succeed the International Telegraph Union when the Madrid Convention would come into effect in 1934. (ITU, 1965) The Convention signed in Madrid was promulgated in Brazil by a Presidential decree on September 23, 1938. This Convention declared that these services would belong exclusively to the state, which could explore them directly or grant their operation as a concession. (Siqueira, 1988)

By the end of the 19th century telephony was already a sophisticated system capable of connecting large numbers of users over relatively short distances. Nevertheless, long distance telephony, especially the transatlantic cable, had to overcome fundamental problems that were not adequately solved until the second quarter of the 20th century. To help overcome noise and interference, telephone technology shifted to the use of binary signals. Practically all voice, picture, instrumentation and other data, can be coded in binary form. The transmission of binary signals was straightforward in the case of teletypewriter and computer output. But, ordinary voice communication via

telephone, the temperature and atmospheric pressure, solar-flare data and many other forms of data are said to be analog or continuously time varying. In contrast, digital (discrete number) data transmission uses binary transmission. The process of converting analog signals into digital ones became known as analog-to-digital (A/D) conversion.

In the city of Rio de Janeiro there were 62,122 telephone terminals that were served by 16 stations in 1934; by 1935 this number had increased to 70,281 terminals and 19 stations. The 22 capitals of the Brazilian states recorded 187,230 telephone terminals with 140,078 subscribers in 1938. (*Anuario Estatístico*, 1937-1938)

The Interamerican Telecommunications Convention was held in Rio de Janeiro in 1945 and Brazil promulgated the decisions made at the Convention by decree in June 1955. The ITU delegation took part in the International Conferences held in Atlantic City in the US. The proceedings of these Conferences were the object of a Presidential Decree dated August 15, 1955. Brazil also was a full participant of the International Convention of Telecommunications carried out in Buenos Aires, Argentina in 1952. Later it adopted its definition of telecommunications. The decisions of this Convention were promulgated in Brazil again by Presidential Decree in August 1957.

When Getulio Vargas returned to power - this time elected by popular ballot - in 1950, the extension of the telegraph lines reached the figure of 71,782,915 km and the wire extension was 150,620 km. The telephone equipment in the whole country was 521,222 with 405,441 subscribers. (*Anuario Estatístico*, 1951) In the period between 1950 and 1951 television was introduced in Brazil with two channels, operated by the group "Diarios Associados"; one channel was in Rio de Janeiro and the other in Sao Paulo. This number had gone up to 9 by 1958. The number of TV sets jumped from

120,000 in 1953 to 1,800,000 in 1960. The radio stations operating in 1959 summed up to 66 in frequency modulation, 615 in medium wave, 49 in short-wave and 115 in tropical wave. (Siqueira, 1988)

More recently, the introduction of optical fibres as a replacement for copper wires meant a qualitative leap forward in signals transmission. Optical fibres are essentially very thin rods or threads of transparent material which convey light that enters at one end and is totally reflected to the other end through its refraction along the inner walls. The diameter of the fibre varies from 5 to 100 microns and usually they are packed into bundles of several thousands each. The bundles may be fabricated as rods or ribbons and sheets, and they can be twisted and bent to conduct light and images around corners. In order to protect the optical surface of each fibre and to bond them together, fibres are coated with a thin layer of another material that must be of a lower index of refraction. Optimum transmission is realized when the radius of the curvature of a light guide is at least twenty times the diameter of an individual fibre. Depending on the fineness of the fibres, image resolutions of one hundred lines per milliliter are frequent.

The extent of this undertaking in Brazil has meant an investment of US\$ 58.93⁴ million in 1995 with an increase to US\$ 1.1 billion in 1999 and an expected US\$ 3.67 billion between 2000 and 2003 for a total of approximately US\$ 5 billion. (*PASTE*, 1997) Furthermore, the amount of optical cables laid in the past years has grown exponentially and now constitutes a significant network. The Telebras System has installed 1,400 km in 1994, 3,800 in 1995, in 1996 the figure was 29,100 km, 46,900 in 1997 and 80,500 (estimate) in 1998. (Embratel, 1998) According to the Brazilian Association of Telecommunications by Subscription (ABTA), the private sector has also been active in

this regard with, 38,000 km of optical cables installed to date. (ABTA, 1998)

Nevertheless, there are a few problems with the investments made by the private sector. They only have the concession to operate and use these cables for broadcasting purposes, and are forbidden to transmit voice and data. The consequence of this restriction is the non-usage of the full capacity generated by these cables; a restriction that could only be overcome by a change in the legislation. Very often these cables have twelve fibres, but only two are in use while the other ten are idle. Moreover, they could operate at full capacity if they were allowed to transmit voice and data. Another consequence of this restriction is the increase in costs due to the idle capacity of these cables. Increases in costs limit the access to this service for many people that could take advantage of its availability if only it could be operated at a lesser cost. In the country there are presently 86 cable TV operators under government concessions, dealing directly with signal distribution of the multi-channel type. (ABTA, 1998)

Radio is in practical and essential terms the radiation and detection of signals propagated through space as electromagnetic waves to convey information. It embraces several branches of telecommunications, such as wireless telegraphy, telephony, and television. Specialized applications include radar and certain application aids.

Electromagnetic radiation encompasses light as well as radio waves. Both are propagated through space in approximately straight lines and at a velocity of three hundred thousand km per second. Electromagnetic frequency is the number of times the wave cycle is repeated in one second. The cycle per second is called a hertz (abbreviated Hz). (Clarke, 1992)

As light, the radio frequency has a spectrum divided into a number of bands from

⁴ Unless otherwise stated, all financial data is submitted in US\$. The conversion is US\$ 1 = R\$ 1.17 real.

very low to super high frequencies. The radio-frequency bandwidth is the range of frequencies covered by the modulated radio-frequency signals. For instance, the band of three to thirty kilohertz is considered very low frequency and the band from three to thirty gigahertz is in the range of super high frequencies. Michael Faraday in the early 1900s, demonstrated that an electric current can produce a local magnetic field and that the energy in this field will return to the circuit when the current is stopped or changed. James Clerk Maxwell in 1864 proved mathematically that any electrical disturbance could produce an effect at a considerable distance from the point at which it occurred and predicted that electromagnetic energy could travel outward from a source as waves moving at the speed of light. (Clarke, 1992)

Based on these findings, Guglielmo Marconi developed wireless telegraphy by succeeding in getting secondary sparks over large distances as far as England and Canada, approximately three thousand two hundred km in distance. The discovery of the diode by John Ambrose Fleming and of the audion tube allowed for the exploitation of radio as a commercial undertaking beginning in the early 20th century. (Clarke, 1992)

The major use of radio is in the telecommunications industry: telephone, telegraph, and television signals are transmitted by micro-wave-radio (above 1000 megahertz) systems, either between land based towers, or via satellite; and short-wave radio is used for overseas circuits. Broadcasting (AM, FM, TV) became a worldwide industry of tremendous scope, as did the mobile radio telephone service to moving vehicles such as automobiles, boats and aircrafts.

At the same time, transistors replaced vacuum tubes. A transistor is an amplifier of current, in contrast to the vacuum tube, which is an amplifier of voltage. In practical

terms the transistor is a sandwich of semiconductor materials with the same impurity in the two outer layers and a different impurity in the center layer providing current carriers of opposite charge to those produced by the outer layers. (Clarke, 1992)

Another stage in the general evolution towards smaller, more compact, and more reliable equipment consisted in the integration of circuits. This was done with increasing sophistication and know-how to the extent that the packing density was increased to one thousand per cubic inch by 1960 and to one hundred thousand per cubic inch by 1965. Circuits formed in a single chip of silicon crystal are called monolithic and are found in virtually every computer. The microchips used to build the “supercomputers” in the early 1990s were composed of twenty million transistors. It is expected that by the beginning of the next century it will be possible to fit about one billion transistors into one microchip.

These last developments induced significant impacts in most of the telecommunications fields. The telephone systems using copper wire are able to transmit 565 bits per second. This velocity is suited to transmit the human voice that represents about fifty percent of the volume of bits going through the telephonic lines. By replacing the copper wire lines with the optical fibre conduits, it is possible to jump from the present four thousand hertz to twenty five trillion hertz. The transmission of data that presently is able to handle 10 million bits per second could easily reach the mark of one hundred and fifty five million bits in the next few years.

Concomitantly, the radio frequency spectrum is undergoing a series of innovations, capable of overcoming its present limitation and allowing the effective use of the billions of frequency hertz, that are available in the microwave bands.

Wireless access began in Brazil, as in most developing countries, with the introduction of radio communications. Radiobras, a wholly owned subsidiary of RCA International of Paris, installed the first short-wave transmitters in Brazil during the late 1920s. Fifteen radio stations were built during the initial period of growth, creating incentives for the emergence of a local radio industry. (Regli, 1997)

Although the Brazilian radio and television services would grow to become the largest in the developing world, other forms of radio access were late in being introduced throughout the country. The first use of wireless access involved satellite and microwave applications in the 1960s and 1970s, with ESMR and cellular following in the 1980s. (Regli, 1997)

Like many countries trying to overcome the problems of geographic dispersion and diversity, Brazil turned to satellite to bridge gaps that would have been uneconomical to bridge by means of traditional wire lines. After the 1964 military coup, the telecommunications infrastructure was quickly modernized because it was seen as an important element for national security. (Fadul and Straubhaar, 1991) The government invested heavily in telephony and microwave/satellite links. After the creation of the Brazilian Telecommunications Company (Embratel), terrestrial links as well as domestic satellites, were developed. But satellites have only had a limited impact on the telecommunications development of the country. Satellites have done more to enhance access for transnational communications than to increase penetration of access services. (Sussman and Lent, 1991)

In Brazil, and throughout the world, INTELSAT was the main initial influence shaping satellite technology. In fact, Brazil was the first country to sign the treaty that

brought INTELSAT into existence. Embratel did not begin leasing INTELSAT transponders for long distance use until 1978, choosing to employ initially point-to-point microwave links in an attempt to reach the outer edges of the country. The US\$210 billion Brasilsat I and II systems launched in 1985 and 1986, respectively, is composed of two Canadian built satellites that allow television to reach virtually every Brazilian. (Oliveira, 1991) Embratel rented the satellites' transponders to various intensive users of telecom services, mainly commercial television and transnational corporations. (Sussman and Lent, 1991)

The same developmental pattern experienced by satellites occurred with cellular telephony. It developed in response to the models already adopted in the US, and has been constructed more to serve the needs of the affluent few than the broader market demand for telecommunications services.

The market itself was divided into two bands, following the duopoly pattern established in countries like the US, in the initial phases of cellular telephony. The A Band was allocated to the local operating companies, and the B Band was immediately assigned to the private sector. In the private service competition, Telebras makes a technical pre-selection, and the local company makes the final decision based on financial criteria. Foreign participation is limited to 49 percent of the shares, although supply and installation of the system can be contracted out. To this end, joint ventures have been established between foreign technology providers and Brazilian service providers, including some of Brazil's largest industrial and financial groups. (Regli, 1995)

These latest developments in the area of telecommunications highlights the trend

towards the increased integration not only of industries but also of technology and services as well. The Integrated Services Digital Networks (ISDN) of the 1980s made available to the users a common system for interactive transmission of data, sound, and image. The emergence of this system stemmed from the desire to create a convergence of all the elements previously mentioned, but it has yet to demonstrate the full range of its promised applications. Thus far, it does meet the current communications demands and needs, but it remains as a transition between the previous telephone system and the fully converged technology. (Winseck, 1998)

This convergence or information super-highway (as it is commonly known) has presently two different streams of development. It is mostly consumer satisfaction oriented allowing the average person to perform through his/her TV set or computer monitor all kinds of services such as shopping, banking and renting films, albeit, it is not prudent to discount the influential role of institutions that have much to gain from this development. These gains may take the form of reduction of costs and maximization of revenues. In technological terms, this stream of convergence depends especially on the equipment. The integration of this technology with the TV set allows the consumer to visualize all manner of transactions, including the utilization of his/her credit card to order goods and services. The development and implementation of this kind of convergence relies decisively on the cultural profile and the good will of the consumers. It will be carried out to the extent that the market is willing to adopt this option to carry out his/her transactions, and thus, create demand for it. (Carroll and Broadhead, 1995)

The second stream, known as the *cerebral* information highway, is oriented towards the acquisition of information, the fluency of human communication, as well as

scientific, educational, commercial and professional undertakings. This stream is already a reality and the Internet constitutes its core. (Carroll and Broadhead, 1995)

The first step in this direction was taken with the creation of large networks interconnecting computers (main frame, workstations, and personal computers) and culminating in the establishment of the Internet on the basis of the NSFNET (National Science Foundation Network) linked to the American government. In 1991 the “High Performance Computing Act” committed the American government to invest during five years the amount of three billion dollars into a quasi-commercial entity. This would be a pioneer in the prototype for the information super-highway. (Carroll and Broadhead, 1995) Modern telecommunications and information technologies are being used by those with access and “know how” to get information where it is needed, when it is needed and in its most useful form.

However, convergence extends beyond the technological realm and encompasses regulatory and institutional arrangements as well. (Winseck, 1998) The scope of telecommunications goes beyond the technological dimension and encompasses industry, as well as the power arrangements they house and that characterize the technological capabilities created.

Telecommunications as an Industry

Technological innovations coupled with changing business and personal practices have at the same time been catalysts in the transformation of the telecommunications industry and have been profoundly influenced by these transformations. It has undergone many changes in terms of services, regulation, and scope in order to address these new

requirements. The new environment that emerged, illustrates the importance attributed to competitiveness and convergence, not only in the technological realm but in industry as well. The phenomenal growth of this industry worldwide witnesses global telephone lines, telecommunications traffic, and revenues increasing at a very fast pace. In the past twenty years information based services from databases to electronic banking to telemarketing have proliferated, as have producers and marketers of telecommunications equipment, computers, and home and industrial electronic equipment.

In the telecommunications industry there are three major groups: the carriers or public network operators, which own and operate the transmission networks; the equipment suppliers or vendors; and the value-added service providers. (Hudson, 1997) These three groups depend at the most basic level upon each other and are placed sometimes within a vertical structure that witnesses one company participating in different groups. For instance, some carriers such as AT&T and Sprint have transcended their traditional carrier positions to extend into value-added services. (Hudson, 1997)

The telecommunications carriers are the most visible players and carry both domestic (traditionally monopoly) and international traffic (which entertains some competition). Telecommunications equipment vendors operate in two different categories: network equipment (transmission and switching such as optical fibre, microwave equipment, satellites, wireless networks, switches, routers, etc.) and terminal equipment, ranging from telephone handsets to facsimile machines to networked computers to satellite earth stations. (Hudson, 1997) The third major group in the telecommunications industry, value-added services, consists of both the networks and services. The telecommunications services these companies provide are quite specialized

and include high-speed data networks for large corporate customers, dial-up packet data networks and Internet access.

The convergence of the different groups within telecommunications highlights the trend towards the concentration of ownership. Economies of scale and scope, technology, corporate restructuring, the push towards diversification and globalization are a few of the elements that encourage already sizeable companies to become even larger.

Although some select companies, within the international arena, operate in all three groups, like AT&T and Sprint, for the time being the vast majority continue to have interests in only one of the groups. (Hudson, 1997) These include primarily, although not exclusively, former state owned telecommunications operators, such as BT (British Telecommunications), Deutsche Telekom, and Telefonica Espana. The economic exploration of telecommunication technologies and their applications are done almost exclusively by the telecom companies, which have not tended to direct themselves towards diversification or flexibility of interests.

Even if this has been the case, other forms of ownership, such as vertical integration and conglomerate ownership, which have characterized other sectors of the economy, may soon characterize the telecom area. Vertical integration is the extent to which successive stages of production and distribution are placed under the control of a single enterprise. For example, one newspaper company could also own the pulp and paper mill that supplies its newsprint, as well as the trucking company responsible for its delivery. Conglomerate ownership, on the other hand, occurs either when an organization owns a multitude of different media properties, or one firm has different and unrelated companies, which could include communications interests. In the case of conglomerate

ownership, as profits accumulate, the owner of one media property might buy another type of firm, diversifying his/her interests.

The recognition by telecom companies that they now face new competition, has led to an increased interest in conglomerate ownership. A heightened version of this is multinational corporate ownership (MNC) that witnesses the expansion of a nationally based company into other countries. It is under these conditions that large companies become even larger and take advantage of the key elements that pushed them towards this end in the first place.

Until the 1970s, the worldwide telecommunications market consisted of national markets that had local companies to fulfill their requirements, regulated monopolies or government department operated networks. Competition for equipment sales took place primarily in developing countries or markets where there was no existing local industry. Yet, in Brazil, the recognition by the government of the strategic nature of telecom technology for industrial development led to the establishment of a Brazilian computer technology industry. The policies adopted emphatically excluded the participation of transnational companies in this industrial area. In one area specifically, these policies achieved success: the supply of the domestic market for mini- and microcomputers. (Fadul and Straubhaar, 1991)

Nevertheless, it is hard to resist the pressures of the market to become increasingly global, and the required need to invest on research and development. The protection of local industry competes with the potential benefits for users if MNCs are able to enter the market, including lower prices, wider choice and better service. The possible disadvantages include the widening of the socio-economic gaps which exist,

with more resources held by a smaller segment of society and less money invested in regions that do not provide the possibility of adequate returns, which would serve as a dissuading factor for privatization. On the industry side, new players will enter, and the telephone corporate giants will attempt to conquer each other's shares of the market. In addition, there is the very real risk that old publicly regulated monopolies will be replaced by private monopolies or by colluding oligopolies.

The goal of the strategic alliances that have been taking place during the past decade is to tap the potential of these various technologies to deliver enormous amounts of information and entertainment and to introduce interactivity. The users are able to select programs and customize information services, shop from home, and interact both with the content they receive and with other users. Companies increasingly recognize this new competition and will take advantage of the opportunities available and diversify themselves by developing new information products and services. Furthermore, they will participate in mergers, acquisitions, and joint ventures, seeking partners with complementary technology and expertise.

Parallel to the acknowledgement of new competitors is the recognition that state monopolies are unable to meet the investment exigency that characterizes every sector of the economy. This increases the need for enterprises to look beyond traditional sources of funding, like international lending agencies, other governments and local federal governments to advance the development of that sector. In the case of state owned enterprises the sources for funding are very limited and have encouraged the state to divest itself of certain functions and share others with the private sector.

Governments are increasingly looking towards private sector participation in

order to continue the development projects that had been slowed because of lack of investment. Most of the state owned enterprises that remain (located mainly in developing and emerging countries) are unable to invest adequate sums to supply the service, not to mention implement the telecom infrastructure. Although there are several problems that can be noted regarding state monopolies these are not characteristic of all of them, and include: the number of telephone terminals installed each year are insufficient to meet demand; the rate of incomplete telephone calls are significantly higher than the internationally accepted standard of six percent; the time taken to install a telephone after it has been purchased is lengthy; the size of these companies' labour force is approximately double what is used by the private American firms; and the price for the acquisition of equipment is considerably higher. (Patury and Neto, 29/07/98) According to some, these costs can be reduced with the entrance of the private sector in this area. This justification for the assertion is primarily due to the fact that private companies do not have a ceiling for investments, unlike those established by the economic area of the government, nor is it limited by certain restrictions imposed by the policies that govern state owned enterprises.

Nowadays, to keep pace with changing consumer needs, political and economic transformations in the global arena, technological developments and the requirements for investment, traditional arrangements have had to be reconsidered and reformulated in order for companies to remain players in this new setting.

Mechanisms and Shifts of Power

In order to keep abreast of all the requirements of an industry that is experiencing

a rapidly changing technological setting, great investments are needed.

Telecommunications reform requires large amounts of capital. These extremely high sums are in the neighbourhood of US\$ 10 billion annually for Brazil alone, a figure that makes it almost prohibitive for most domestic governments, which have other demands on their fiscal budgets, to consider and/or comply with. (Patury and Neto, 29/07/98) Also, even if the capital markets were developed enough to meet the enormous telecommunications capital requirements this could create resource dislocations in other markets, denying capital to other important sectors of the economy. (Melody, 1995)

The high risk involved in introducing these new technologies without having any guarantee that the market will absorb these new products and services made these investments inappropriate for government institutions to shoulder the responsibility. Three tendencies can be observed which effectively illustrate how shifts in power are global in breadth and scope and reinforce the current international scenario.

In this context, the international scenario prescribes that governments progressively share more power with the private sector, which is in a better position and willing to attend the sector's demands more effectively. Furthermore, in this era of globalization, the private sector companies in the telecommunications sector have been actively engaged in mergers, acquisitions and strategic alliances forming powerful entities with the ability to raise vast sums of capital for investment. With this there is a centralization of the decision making process, which along with technological innovations and industry changes, is responsible for the transformations taking place in labour practices. (Benitez, 1992)

The first tendency has to do primarily with the deficiencies in the state

mechanism to withstand funding significant investments in an area that although strategic for development is not the uppermost priority for governments when drawing up their annual fiscal budget. In the case of emerging countries, concerns with health, education and servicing exorbitant debts may weigh heavier when trying to allocate funds to telecoms. These concerns are aggravated by common corruption practices that permeate the political structure and that dislocate funds from necessary projects to ones that fulfil the personal interests of local politicians.

With the number of mergers presently taking place world wide, MNCs are increasing their power in the global arena. This second tendency witnesses companies with global interests amassing revenues from all their ventures and in a process of cross subsidization transfer gains from one of its interests to another. Because they are diversified and have relative facility to obtain capital for investment they also have better access to technology. They are also more willing to take risks regarding market absorption of a new good or service.

The third tendency can be verified in the change of the importance attributed to certain labour practices. Management has increasingly been restructured in attempt to replace a bureaucratic administrative culture with: an entrepreneurial service-oriented management that is qualified; a restructured labour force to provide incentives for output and performance; and a workforce with a range of new skills (Melody, 1995)

Technologically advanced telecommunications systems require highly skilled human resources throughout the organizations from executives to the assembly line. In this scenario workers have to possess skills that enable them to operate, maintain, and/or provide customer support for telecommunications or information products and services.

Furthermore, unqualified segments of society are excluded from the decision making process not only at the centralized management level but also in their day to day operations. The skills necessary to participate at this level are more and more often concentrated in a few segments of the population. The shortage of skilled management and qualified labour in this sector, within the context of developing and emerging countries, creates a gap that only training and education at a massive level could rectify. Since this seems unlikely it will be up to the companies to import this labour force and effectively slow down the speed of reform. (Melody, 1995)

Federal governments too have less real power because of liberalization, privatization and deregulation. But what these reforms do is ensure that technological advances and sector development continue to move forward. The power lost by the government is transferred to MNCs, who are able to acquire their own political strength. (Bagdikian, 1983) They are thus given the opportunity to formulate arrangements directly with governments and local businesses without having to recur to their own governments to make these transactions. This shift in power mechanisms is likely to be the most significant for future global political and economic arrangements.

This last dimension of change, coupled with technological change and new industrial prospects, are strongly affecting the global political and economic arrangements. Indeed, these three factors are transforming the respective role of state and private initiative regarding the operation of telecom systems. To set the foundations for the analysis of these three dimensions and their impact on the co-operation between state and private initiative in this particular sector, it is necessary to resort to the instruments formulated by political economy. The next chapter will present the theories and literature

review regarding these instruments. More specifically, an overview of the historical evolution of political economy will be given. In addition, the three main theoretical streams supporting the distinct political choices and the different models of telecom reform being adopted by many states in the last decade of the 20th century will be explored.

Chapter Two

Public versus Private: Its Historical and Theoretical Evolution

One of the most significant turning points in 20th century history was World War II; and one of the outcomes it produced was a new division of power among the main partners who had fought against the totalitarianism represented by the partnership between Germany, Japan, and Italy. From the political economy theoretical point of view this War gave rise to three main streams of thought which have since dominated the world scenario, namely, the free market economy, the economic centrally planned state, and the mixed economy.

These perspectives offer not only a way to view the world but also a way with which to examine the events that led Brazil to privatize the Telebras System. However, in order to reach a better understanding of their significance for the last half of the 20th century it is imperative to recall some of their roots, especially the origins of social sciences, and more specifically the origin of their fundamental ideas and objectives. Thus, prior to approaching the three main streams mentioned above it is relevant to present a brief overview of their historical evolution from ancient sources following their path from the beginning through their development in modern times.

Overview of the Historical Evolution of Political Economy

It is commonly recognized that in a larger sense the origins of social science go back to the ancient Greeks and Romans and their rationalistic inquiries into the nature of individuals, society, state and morality. These concepts formulated by Greek and Roman civilizations were recovered through the texts of the great classical philosophers during the Renaissance and the Enlightenment that took place in the 17th and 18th centuries.

By the end of the 18th century, two main revolutions shaped modern times and set

the foundations for the social sciences in the 19th century: the French Revolution and the Industrial Revolution. The fundamental ideas, themes and problems of the social sciences in the 19th century were responses to the problem of order that was created in people's minds by the weakening of the old order of European society and that stemmed from the twin blows of these two revolutions.

Three ideological positions came out concerning these events. The liberals in general welcomed the two revolutions, seeing their forces as an opportunity for freedom and welfare never before known to mankind. The liberal view of society was overwhelmingly democratic, capitalist, industrial, and of course individualistic. (Mosco, 1996)

The conservative position disliked both democracy and industrialism preferring the kind of tradition, authority, and civility that had been, in their minds, displaced by the two revolutions. (Mosco, 1996) Finally the radicals accepted democracy but only in terms of its extension to all areas of society and annihilation of any form of authority that did not spring directly from the people as a whole. For the most part, the radicals accepted the phenomenon of industrialism, especially technology, but were antagonistic towards capitalism. (Mosco, 1996)

These ideological consequences of the two revolutions proved extremely important to the social sciences for it would be difficult to identify a social scientist in this century that was not somewhat caught up in these ideological currents.

It is also important to identify three powerful tendencies of thought that influenced all the social sciences: positivism, which was not merely an appeal to science, but almost a reverence for it; humanitarianism; and the philosophy of evolution. Auguste

Comte heralded positivism and his *Cours de Philosophie Positive*, published in six volumes between 1830 and 1842, sought to demonstrate irrefutably not merely the possibility but the inevitability of a science of people, one for which Comte coined the term sociology. This science would do for a person as a social being, exactly what biology had already done for humans as a biological animal. (McCloskey, 1985)

Humanitarianism advocated that the ultimate purpose of social science should be the welfare of society, and the improvement of its moral and social condition. The welfare could not be limited any more to the family and the village, but should be extended to society at large. The relief of the destitute, improvement of slums, and amelioration of the plight of afflicted minorities, were the targets of humanitarianism at work.

Evolution was the third important intellectual current. It affected everyone belonging to the social sciences, each of which was as much concerned with the development of things as with their structures. The impact of Charles Darwin's *Origin of the Species* published in 1859 was great, and further enhanced the appeal of the evolutionary view of things. Nevertheless, it is important to recognize that ideas of social evolution had deeper origins. The evolutionary works of such scientists as Comte, Herbert Spencer, and Marx had been completed, or well begun, before the publication of Darwin's work.

Among the disciplines that formed the social sciences, two contrary tendencies were underway. The first was the drive toward unification, toward a single, master social science, whatever it might be called. The second tendency was towards specialization of the individual social sciences. It should be recognized that the second tendency of

specialization and differentiation won the battle.

It was economics that started as a single and separate science, in ideal at least, among the social sciences. To understand this evolution of economics it helps to go back to mercantilism, which dominated the 17th century. According to the mercantilist doctrine, a strong nation was supposed to have a large population to provide a plentiful supply of labour, market and soldiers. Human wants and/or needs were to be minimized, especially for imported luxury goods, since they drained off precious foreign exchange. Thrift, saving, and even parsimony were regarded as virtues, for only by these means could capital be created and accumulated. In effect, mercantilism provided a favourable climate for the early development of capitalism, with its promises of profit. (Mosco, 1996) This theory gave support to colonialism and therefore promoted governmental regulation of a nation's economy, for the purpose of increasing state power at the expense of rival national powers. Colonial possessions should serve as markets for exports and as suppliers of raw materials to the mother country. Manufacturing was forbidden in colonies and all commerce between a colony and its mother country was held to be a monopoly of the mother country.

The physiocrats, who flourished in France around the second half of the 18th century, reacted to the mercantilist tenets and launched the policy of *laissez-faire* which received strong support in classical economics as it developed in Great Britain under the influence of Adam Smith. (Johannsson, 1960)

In his first great work in political economy, *An Inquiry into the Nature and Causes of the Wealth of Nations*, Adam Smith analyzed, in a historical perspective the succession of changes in the material basis of production, each bringing its requisite

alterations in the superstructure of laws and civil institutions. (Babe, 1994) Despite this common ground with the Marxian scheme of production, there is a substantial difference between Smith and Marx's explanations. For the latter the engine of evolution is ultimately the struggle between classes; for the former the primal moving agency is human nature driven by the desire for self-improvement and guided or misguided by the faculties of reason.

Adam Smith also gives a detailed description of how the "invisible hand" actually operates within the commercial final stage of society. In order to solve the conflicts of interest between labourers, landlords and manufacturers the *Wealth of Nations* appeals to a protective mechanism, namely *competition*, by which the passionate desire of the individual for bettering his/her condition is turned into a socially beneficial arrangement. Through this mechanism the "invisible hand" regulates the economy, bringing down the price of commodities to the levels which correspond to the cost of production. Moreover, by inducing labour and capital to more profitable occupations and/or areas, the competitive mechanism constantly restores prices to these "natural" levels despite short run aberrations. Wages, rents, and profits are forced to adjust to this same discipline of self-interest and competition. (Schotter, 1985)

During the 19th century John Stuart Mill was responsible for bringing these ideas into popular economic usage in his *Principles of Political Economy*. It is in this book that he sets forth the arguments for and against government activity in economic affairs. The pervading theory in the 19th century was that the individual, pursuing his/her own desired ends, would thereby achieve the best results for the society of which he/she was a part. The function of the state was to maintain order and security and to avoid interference

with the initiative of individuals in pursuit of his/her own desired goals. (Mosco, 1996)

By the end of the 19th century Alfred Marshall published his *Principles of Economics*, introducing a number of new concepts such as, elasticity of demand, consumer surplus, quasi-rent and the representative firm. By the beginning of the 20th century he had studied industrial organization in his book *Industry and Trade* (1919) and a few years later he came out with *Money, Credit, and Commerce* (1923), in which he introduced the element of time, as a factor in economic analysis and reconciled the classical cost-of-production principle with the marginal-utility principle formulated by William Jevons and the Austrian School. (Mosco, 1996)

With Marshall economics became not only a single and autonomous social science but also an empirical one, separate from political economy. It concentrated its analysis only on economic variables, under the assumption of *ceteris paribus* for all the other non-economic factors. (Babe, 1995)

Based on this overview of the historical evolution of political economy and its relation to economics as a science, it is possible to approach in this broader context the three main streams that dominated the last half of the 20th century. Noted scholars in the study of political economy and political economy of communications such as Robert Giplin (1991), Robert Babe (1995) and Vincent Mosco (1996) identify different streams within political economy, including the three detailed in the ensuing pages. Although they may have given different names to them and placed different emphases on their importance, these were the three that were the most appropriate tools for the subsequent analysis of the Brazilian case. For instance, Giplin discusses a nationalist perspective, which is labeled mixed economy in this thesis; these two perspectives are not entirely

identical, but the similarities are sufficient to warrant the comparison. Nevertheless, these three streams are more than just prescriptions for how the state should be organized. In fact, they are also means through which it is possible to understand the processes of communication and privatization.

Free Market Economy Perspective

Every economic system must be concerned with at least two basic problems: what shall be produced, i.e., how scarce means should be allocated to the production process; and the best way to apportion what is produced among the different partners, and even the individuals in society. (Petrazzini, 1996) Both in the political economy envisaged by the classic economists of the 19th century and the neo-classical economics initiated by Alfred Marshall in the beginning of the 20th century, this is accomplished by the free market through the price and competition mechanisms. In such a market the theoretically free choices of individual buyers and sellers determine how the resources of society (labour, goods, capital) shall be employed. These choices manifest themselves in bids and offers that in their totality determine the price at which a commodity will sell.

Theoretically, when the demand for a commodity is great, prices will rise, making it profitable for producers to increase the supply; as supply approximates demand, prices will tend to fall until producers divert productive resources to other uses. In this way the closest possible coincidence is achieved between what is wanted and what is produced. Moreover, in the distribution of the wealth thereby produced, the system is asserted to assure a reward in proportion to merit. The assumption is that in the free competitive economy in which no one is barred by status from engaging in economic activity, the

income received from such activities is a fair measure of its value to society.

From Adam Smith to its contemporary proponents, free market thinkers have shared a common set of assumptions and beliefs about the nature of human beings, society and economic activities. Economic liberalism, nowadays, may, in fact, be defined as a doctrine and set of principles for organizing and managing a market economy in order to achieve maximum efficiency, economic growth and individual welfare. (Giplin, 1991)

Since its classical formulation free market theories have assumed many forms. In the post World War II period two of these forms were prominent, namely neo-classical and Keynesian. (Mosco, 1996) What these forms have in common is the commitment to the market and price mechanism as the most effective means for organizing domestic and international economic relations. They are also based on several fundamental assumptions.

They believe “that a market arises spontaneously in order to satisfy human needs and that, once it is in operation, it functions in accordance with its own internal logic.” (Giplin, 1991: 5) The nature of human beings is primarily economic and they are the ones who create markets and other economic institutions in an effort to improve their welfare and to increase economic efficiency and growth. As a consequence, these markets lack any central direction. Individuals are the ones who will benefit from this because they are able to experience an increased range of goods and services available to them as consumers. An unintended benefit of this type of economic activity is the enhancement of the power and security of the state, although the consumer remains the primary beneficiary. (Schotter, 1985)

This theory also argues that an individual will seek to acquire an objective until market equilibrium is reached, i.e., until the costs associated with achieving the objective are equal to the benefits. Free market economics attempts to explain economic behaviour on the basis of these individualistic and rationalistic assumptions.

The market exists in terms of its assumption that all individuals possess the same information and that based upon this information each individual will select the most beneficial course of action. In a truly competitive market supply and demand rather than the exercise of power and coercion, determine the terms of exchange. The law of demand holds that people will buy more of a good if the relative price falls, and less if it rises; people will buy more of a normal good if their income levels rise, and less if it falls. On the supply side of the economy, liberal economics assumes that individuals pursue their interests in a world of scarcity and resource constraints. A decision involves an opportunity cost: to get something one must be willing to give up something else. (Schotter, 1985)

Another assumption of free market theory is that a market economy will inevitably return to a point of equilibrium and inherent stability, at least over the long term. This concept of equilibrium is crucial for the operation of markets and the laws (supply and demand) that govern them. If a market reaches a state of disequilibrium due to some external factor, the operation of the price mechanism will eventually return it to a new state of equilibrium. Prices and quantities will balance each other. A change in supply or demand will prompt a corresponding change in the price of the good. There is a convergence of interests, which underlies the market system and the competition between consumers and producers.

Finally, there is the belief in progress. The increase in wealth for each individual will take place in an upward, gradual and continuous manner. Although political or other events can disrupt this growth path, the economy will nonetheless return to a normal growth pattern. (Giplin, 1991)

What emerges is an attempt to separate economics and politics from one another, this assumes that each of these aspects operates according to different rules and rationale. Nevertheless, the free exchange that is promoted by free market economics does not often distribute wealth generated by the market system evenly.

Therefore, even though it is a powerful analytical tool, free market theory has some limitations. Economics artificially separates the economy from other aspects of society and accepts as a given, the existing distribution of power and possessions. In addition, as a theory it tends to disregard the equality of the outcome of economic activities and assumes that exchange is always free and occurs in a competitive market between equals. This assertion disregards the social hierarchies and interests that impact social values. (Giplin, 1991)

Economic Centrally Planned State Perspective

The economic centrally planned state was initially derived from Marxist economics based on Karl Marx's main premise that people are productive beings and all economic value comes from human labour. (Mosco, 1996) Marx's theory stems mainly from the analysis of mid-19th century England. (Giplin, 1991) It was a system of private enterprise and competition that arose in the 16th century from the development of sea routes, international trade and colonialism. Its rise had been facilitated by changes in the

forces of production (the division of labour and the concentration of workshops), the adoption of mechanization and technical progress. The wealth of the societies that brought this economy to play had been acquired through an enormous accumulation of commodities according to Marx. This was made possible only because the capitalists have appropriated the means of production including the labour power of the worker. The value of labour power was determined by the amount of labour necessary for its reproduction, that is to say, the amount needed for the worker to subsist and have more children in order to replenish the work force. (Babe, 1995)

However, the labour power employed in the course of a day produced more than the value of the sustenance required by the worker and his/her family. The capitalist appropriated the difference between the two values and this corresponds to the surplus value realized by the capitalist in the market. Marx was not concerned with whether in the capitalist system there were sources of surplus value other than the exploitation of human labour. (Babe, 1995)

With technological advances the outlay for machinery grows faster than the outlay for labour and as the labour and surplus value from which profit is derived comes only from labour, the capitalist rate of profit on his outlay tends to decline. Throughout this analysis, Marx argues that increasing contradictions, recurrent crises and instability plague the development of capitalism. This instability tends to increase by the formation of a reserve army of workers, both factory workers and peasants, whose pauperization keeps increasing periodically. Capitalism can only develop by simultaneously exhausting the two sources from which all wealth springs: the earth and the worker.

In the *Communist Manifesto* (1848) and in *Das Kapital*, Karl Marx received a

significant contribution from his associate Friedrich Engels. Engels was the one to outline what the socialist society would be, namely a society in which the notion of value would no longer have anything to do with the distribution of the goods produced. This was because all labour becomes at once and directly social labour, and the amount of social labour that every good should require, no longer needs to be ascertained by the mechanisms of the markets. (Mosco, 1996) Production plans would co-ordinate the economy. The division of labour and the separation of town and country would disappear with the suppression of the capitalist character of modern industry. Thanks to planning, industry would be located throughout the country in the collective interest, and thus the opposition between town and country would disappear to the profit of both industry and agriculture.

Engels forecast the liberation of humans from the condition of servitude in which the capitalist mode of production holds him/her. He also forecast the eventual suppression of the state and the disappearance of religion by natural death. He refused to base socialism in absolute values; he admitted only relative values, linked to historical, economic and social conditions. Socialism cannot possibly be based on ethical principles: each epoch can only successfully carry out that of which it is capable.

In the future communist society, as envisioned by Marx and Engels, there would be no money and no profit motive. No wages would be necessary to stimulate effort. Economics, a science of exchange relationships of value, would wither away or be replaced by a higher management.

Vladimir Ilich Ulyanov, or Lenin, shared these somewhat utopian expectations. (Giplin, 1991) But in Russia, the Bolshevik Revolution of October 1917 was

accompanied by economic breakdown. The Bolsheviks moved to establish thorough state control over industry and trade, nationalized all economic property including land, declared all private enterprise illegal, and demanded that the peasants deliver all farm surpluses to state procurement organs. Money lost all value. All economic units, except the peasant producers, were subjected to orders from the government's supreme council of national economy. This was the origin of the economic centrally planned state. (Giplin, 1991)

In 1921 Lenin introduced the New Economic Policy by which small-scale manufacturing, private trade and free sale of peasant surpluses became legal once again, while the state retained ownership and control of large-scale industry, foreign trade, banking, transport, communication and all the commanding sectors of the economy. (Riasanovsky, 1993)

Under Joseph Stalin, after Lenin's death in 1924, two schools of thought developed, one advocated "genetic" and the other "teleological" planning. The former composed of the more moderate and cautious planners, believed that plans should be based upon existing trends in the economy and reasonable projections thereof. The latter, considered that drastic measures were necessary to speed up the industrialization of the country, and this teleological school produced extremely ambitious drafts of the first Five Year Plan. The radicals conceived the plan as taking priority over all previous economic decisions, so as to enable a sharp break with the past.

The first Five Year Plan (1928-1932) called for huge investments in heavy industry and required a rearrangement of the whole planning system. At the apex of this new system stood the leaders of the communist party who decided the policy objectives,

in economics, as in other matters, and who made choices as to the means of achieving those objectives. The government's role was to carry out the decisions of the party.

(Riasanovsky, 1993)

The task of the government was to translate the politically determined objectives into a consistent set of planned targets. Coherence between production and supply must be sought at all times, both between investment plans and the current production of capital goods. Foreign trade was also taken into account, either as a drain on available resources (exports), or as a source of needed goods (imports). The task was of special complexity in the short term (period of a year), since the plan needed to be translated in the form of millions of consistent instructions to thousands of enterprises to produce, deliver, transport and process millions of commodities of a great many shapes, sizes and types.

Agricultural planning had a peculiarly difficult history. With priority given to industrialization, agriculture, especially during the regime of Joseph Stalin, was essentially treated as a source of cheap food and raw material for the cities. This policy was only changed in the 1960s, when farm prices and incomes were increased and arbitrary intervention was diminished with resultant gains in output. (Riasanovsky, 1993)

The experience in economic central planning carried out in the Soviet Union was adapted to all the other communist ruled states of East Europe, China and Cuba. It should be noted that the two theories presented above are mostly theoretical abstractions. Centralized planning works smoothly and efficiently as a theory, and in the same vein it should be recognized that a perfectly competitive market required by the free market theory does not exist in the real world.

Mixed Economy Perspective

Until World War II there were no serious attempts at economic planning outside the Soviet Union. During the Depression of the 1930s, many governments were forced to intervene vigorously in economic affairs in order to protect domestic producers against competition from abroad. This was also done to raise the levels of government spending, both to relieve the depressive population (Keynesian economics) and to support the production of armaments for the war effort.

At the end of the War there was a shift to the left in the politics of different Western European countries, and with this shift there was a turn to more positive forms of government intervention. This shift could be observed especially in England, Scandinavia (particularly Sweden), France, and also Belgium, Ireland, Netherlands and later West Germany. The key factors leading to a more substantial state intervention in the economy were not based mainly on a theoretical doctrine but were the result of the dissatisfaction with the performance of the national economy as compared with the economies of other countries. (Giplin, 1991) The plans drafted in the developed countries postulated target rates of growth that were high by historical standards (about four or five percent annually). They required that a choice be made in allocating rates of increase to the various kinds of expenditures on available goods and services (private and public consumption, social investment, directly productive investment, stocks and exports). An important area of choice concerns the respective rates of growth of private consumption by individuals and what has come to be called collective consumption: education, health, urban facilities and provision for culture.

Another planning objective set by this planning process was the correction of

imbalances in regional development. But one of the most important functions of economic planning was to achieve consistency among different economic objectives, as some desirable goals and targets were likely to conflict with others.

One of the chief merits of national planning was that it encouraged discussion of the targets to be chosen. For the European countries one important issue since the 1970s has been the impact on the economies of the European Union.

Since targets in these countries did not constitute orders for producers and consumers to do, or not to do, particular things, the plan had to take into account what private firms said they intended to do, or could do, during the period of the plan. Detailed discussions of plan targets and ways of achieving them, were frequently entrusted to tripartite committees, for each sector of activity. Some countries set many committees; France, for instance, had at one time, twenty such committees.

Efforts to incorporate into the plan all that can be known about the intentions of the private and public sectors, need to be supplemented by more general economic analyses. In some cases the economic planning leaned heavily upon the method of economic balances, trying to match the quantities of economic resources that will be available during the planned period, with the quantities demanded by the plan. Other methods of planning included mathematical modelling and cost-benefit analyses. In their planning all the non-communist countries leave a large margin of initiative to individual producers and consumers, or they rely upon market mechanisms rather than direct controls.

It was in the field of regional development policy that governments intervened most actively to influence the decisions of the private sector of the economy. Present day

plans for regional development attempt to concentrate on a few selected “growth points,” where it is thought that favourable geographic characteristics, or the presence of raw materials exist.

After the end of World War II economic planning became an accepted practice among the governments of developing countries. The development plan attempts to promote economic development in three main ways: by increasing the overall rate of investment; by carrying out special types of investment designed to break production bottlenecks in important sectors of the economy; and by trying to improve the co-ordination between different parts of the economy. In order to improve this co-ordination, it was necessary to reinforce reliable economic information to indicate the future course of the government’s economic intentions and activities. This was done so that the people concerned, both in the public and private sectors, may take appropriate actions of their own, to bring their plans in line with the government’s plan.

Actually, behind these economic planning efforts by non-communist countries were some theoretical assumptions aiming at combining the advantages of free market economies and centrally planned economies, taking into account that these two theories were likely to experience shortcomings in the real world.

These theoretical assumptions came to be known as mixed economy, where the government plan has the instruments to orient the direction and the pace of economic growth while at the same time allow the market forces to play their role in allocating resources efficiently. Three areas were the main targets for state intervention and planning. The incapacity of the free market economy to establish some kind of social justice and a more equal distribution of wealth among different segments of society, led

states to adopt the mixed economy assumptions. That is to say, they intervened to try to provide all the population with the basic necessities of life, especially in the fields of education, health, housing and social insurance. These fields were later denominated as social infrastructure and enlarged to encompass also sewage and sanitation, water supply and some environmental concerns. At the same time, the state continued to enforce the personal liberty rights and the initiative capacity of individuals. (Baer and Vilela, 1994)

The second area of planning and intervention was regional development, trying to reduce the economic imbalance among different regions of the country. The third area, emphasized especially by developing and emerging countries, concerns the economic infrastructure (transportation, energy, communication and telecommunications) and the basic industries that were essential to overcome important bottlenecks curbing the growth of development. It was understood that a deficient economic infrastructure, the lack of some basic industries (steel, petrochemicals, electronics, etc.) and the costs of domestic productions were very high and non-competitive. Therefore, it was very difficult to attract private investment. All these areas were taken over by the public sector very often by public enterprises because they represented investment opportunities with a long period of return and therefore not attractive to the private entrepreneurs. (Edwards and Baer, 1993)

Dependency Theory

The dependency theory that emerged in Latin America can be considered in terms of an amplification of the theoretical assumptions adopted by the proponents of the mixed economy perspective. The latter focused on the shortcomings of the free market at the

national level and tried to overcome these barriers to development and social justice through a more active intervention of the state as planner and public entrepreneur.

Dependency theorists pointed out that economics is just a branch of political economy, and that the development process of developing and emerging countries should take into account not only the market forces, but also the relevance of non-economic factors. These encompass the system of land tenure, the profile of entrepreneurial groups, the degree of organization of the labour force, the social conditions and the capacity of the country to conduct its own technological development.

In addition, dependency theorists drew attention to the significance of the structure of power at the international level. (Hills, 1992) They held this structure responsible for a progressive degradation of the terms of trade between the primary products and the value-added (industrialized) products and services in international trade. To overcome this, the governments of developing and emerging countries took over some key economic activities, especially mineral exploration (oil and iron), steel and the full extent of the construction and operation of infrastructure.

Added to this was the idea that liberalization and privatization are mechanisms to undermine pluralism and grouped opposition, by the introduction of competition and individual incentives leading to a diminished power to oppose the state rather than actual state power. (Hills, 1992)

When faced with fierce competition from other less developed countries (LDCs), developing countries have had to increasingly divest themselves of their protectionist policies and redirect international investment towards technologies, knowledge and capital that developed countries and their multinationals are able to offer, and that, LDCs

need.

Dependency theory attempts to explain this phenomenon and goes further, to determine what the role of the state should be vis-à-vis the role of international capital. The first wave of dependency theorists proposed that the state role be autonomous with respect to the weak national enterprises and financial institutions but continue to be completely dependent on multinational capital. The second wave of dependency theorists accepted that the state could take initiatives to use multinational capital in its own interests but under certain conditions. Later dependency theorists emphasized that the role of the state is to move the nation to an intermediate semi-peripheral position within the world economy. (Mody and Tsui, 1995) Peter Evans advocates a triple alliance of state, national capital, and foreign capital as the best solution to adjust the developing countries to the present international setting. (1991)

According to James A. Caporaso, dependency theory offers an explanation for dependent development (rather than classic dependency) by focusing on both domestic and external factors and their interactions, and on the interests and behavior of the nation states, corporate entities and social classes. Dependency theorists attempt not only to explain reality but also to use theoretical ideas to change reality, and to promote development in LDCs. Finally, according to Caporaso, dependency theory rejects the mainstream assumption that all societies should follow the same developmental path. (1991)

In Brazil, international linkages superseded local ones. This dates back to its historic link to Portugal, which influenced its future relationship to the world. The close connection between Brazil the colony, and Europe the colonizer, was reflected in the

ways in which the penetration of the telegraph and the telephone were organized. That legacy still exists today, with international connections far easier to make than local ones. This is, in part, because the present telecommunications structure rewards investments in international linkages more than investments in markets that could become broadly competitive. Finally, there is Brazil's heritage as a country of some indigenous technological innovations and a market of interest to multinational companies. (Regli, 1997)

The importance of taking dependency theory into account is that it is able to highlight the unequal balance of power between development and international capitalist interests. The dependency on technology and the deficiencies of social and economic infrastructures, as well as basic industries, is real, and has influenced significantly how the state has defined and exercised its role in developing and emerging countries.

Telecommunications was not an exception to this pattern. But, to better understand the engagement of the state in the telecommunications field, it is relevant to consider the four forms of this involvement.

The first is signal and/or frequency ownership, since this is commonly considered a public good, that gives impetus to reserve this good as a state monopoly. The second is policy on how those signals/frequencies could and should be used by different segments of society. The third one is control over the implementation of these policies. Finally, there is the operational side of the telecommunications system itself.

In the post World War II period the tendency was for the state to assume these four responsibilities not only in the centrally planned economies, but also in the countries which adopted and implemented the mixed economy. States devoted to the free market,

generally assumed responsibility for the first three functions, allowing private interests to operate the telecommunications system.

The contextual reality analyzed in Chapter Two highlighted three important factors in the telecommunications field, including technological changes, industry expansion and convergence, and shifts of power, especially in the case of co-operation between state and the private sector.

The speed and amplitude of technological advances in telecommunications requires heavy investments as the progress is marked by frequent breakthroughs. These investments involve risk because these new technologies become feasible only to the extent that society recognizes their value, and generates the corresponding demand.

In the course of these past three decades the state progressively recognized its incapacity to tap the necessary financial resources to match the investments needed to continue improving the technological performance of the sector, while responding to the increasing demand for services. Even the private sector was unable to sustain the flow of investment required by these challenges, and was forced to resort to mergers and the formation of conglomerates to reduce risk. The mergers also sought to diversify activities so that the firms could face the fierce competition triggered by the convergence of different technologies more efficiently. These conglomerates became more and more multinational, making it difficult for governments to maintain control over the operation of telecom systems.

Both the incapacity of the states to meet the needs of the sectors, and the increasingly multinational character of the conglomerates that operate these telecom systems, has increasingly forced the breakdown of the state telecom monopoly and led to

the search for new models of cooperation between state and private interests in this particular field. A growing number of national states started looking for models of reform so as to overcome the cumbersome weight of managing a telecom monopoly.

Models of Reform of State Telecommunications Monopolies

The natural monopoly model for telecommunications emerged from the idea that it was wasteful and inefficient to have more than one company providing the same infrastructure and services. (Petrazzini, 1996) Regarding signals and frequency ownership, as well as the formulation of policy, and the control over its implementation, most states maintain a public monopoly, even nowadays, on the grounds that telecommunications is a strategic sector that cannot be entirely left to private initiative. The models of reform therefore deal mostly with the operational side of the telecommunications systems and are primarily intended to break the monopoly, governmental or private, of these operations in order to achieve efficiency.

In the public monopoly model, telecommunications was placed under a government entity that meant there was no profit incentive; indeed, what profits were generated, were used to subsidize other sectors that were not doing well financially, or went to the national treasury. Relatively high rates and limited accessibility perpetuated the view that telecommunications was a luxury, rather than a convenience or even a necessity.

Gradually competition has been introduced in many countries, replacing this public monopoly system altogether, or transforming how they are traditionally arranged. The introduction of competition, either completely, or in measured ways, has emerged as

the solution in many countries to ensure the continued development of the sector, as well as the country itself. In this sense, regulatory reform, privatization and liberalization emerge as the most common ways of changing the traditional set-up for telecommunications.

Although the specific approach to privatization and liberalization varies among countries, Aileen Pisciotta is able to identify four common models that are arising. These four models of telecom reform are:

- private sector participation without privatization or liberalization,
- liberalization without privatization,
- privatization with phased in competition,
- and finally, privatization with full competition.

(Pisciotta, 1997: 340-345)

Under the first model, an administration may turn to alternative methods for attracting private sector investment and expertise, without privatizing and without introducing competition. These alternatives range from the concession of franchises or management contracts that are intended to improve current operations, profitability and the introduction of new technology without jeopardizing public ownership.

In the second model, “administrations may attempt to introduce liberalization into the marketplace without actually privatizing the national carrier.” (Pisciotta, 1997: 343) Under this approach, the intention is to attract foreign investment, expertise, and technology without undergoing privatization. Privatization tends to have serious implications for the political system, including labour opposition, and opposition from military and defense interests who fear loss of jobs and loss of security over a strategic

facility. Another reason why this model may be chosen over outright privatization, is that many national constitutions do not allow foreign ownership.

The third model observed by Pisciotta, moderates the impact of the privatization of a national carrier by providing for a specified period for the exclusive operation of the basic telephone services. Initially, only limited competition is allowed in some non-basic telephone services, such as paging service. The motivation behind this model may be twofold. Either the maximization of the value of the sale of the national carrier is hoped for or the country that adopts it believes that “a private monopoly operating under strict regulatory scrutiny for a period of years is the best way to achieve universal service through infrastructure build-out.” (Pisciotta, 1997: 341)

The last model allows for the privatization of a national carrier in combination with the liberalization and deregulation of the sector. At the same time as privatization, the government implements a policy of full and open competition. All restrictions on entry into all segments of the market are removed. Moreover, a true deregulatory approach implements competition without the establishment of a regulatory authority. The government does however maintain some control. In New Zealand’s case, a Commerce Commission and the courts, police anti-competitive conduct through the enforcement of various trading laws. The lack of a regulatory authority appears to some to be a disadvantage, particularly in making it more difficult for the carriers to come to agreement on interconnection rules.

The combination of privatization and liberalization has led to lower prices and accelerated infrastructure investment, although some carriers may suffer a small operating margin for a period of time. But the fairness and success of competition

depends significantly on the ability of the authorities to control market abuses by dominant carriers, either through antitrust enforcement and/or regulatory control of interconnection and pricing policies.

The choice of which model is to be adopted may be influenced by a plethora of factors which have to do with the country's economic and political tradition, as well as with cultural conditions. In order to demonstrate the application of the previously discussed perspectives within political economy and these four models of reform it will be useful to undertake a case study, namely the Brazilian reform of its telecom system.

Chapter Three

Public versus Private Sector in Brazilian Political and Economic History

To understand the relations and the co-operation between the state and the private sector in the Brazilian economy one must take into account that, from the 1500s until the beginning of the 19th century, Brazil was an exporter of raw materials, such as 'Brazilian' wood and gold, or agro-industrial products like sugar. At the same time, as a Portuguese colony it imported all of the manufactured goods and services to respond to local demand. This trade exchange system operated in compliance with the colonial mode imposed by Portugal and exercised until the beginning of the 19th century.

With independence in 1822, this economic structure did not alter significantly except for a change of the products exported; rubber, cotton and coffee became the main export staples during this century. Moreover, in spite of Brazil's independence, Great Britain replaced Portugal as the new 'colonial' power, at least with regards to trade and economic relations. For very short periods, the country tried to pursue rudimentary industrialization strategies, especially during World War I, when it could not import manufactured goods from the industrialized countries.

For a better grasp of the relationship between the Brazilian government and private interests in the telecommunications sector, it is imperative to analyze some of the steps taken by this country in its move to a mixed economy from 1930 onwards. The selection of this date for the starting point of the analysis of Brazil as a mixed economy, stems from the fact that this is the period when the state makes a concrete effort to stimulate the development of a national infrastructure in crucial areas, that were inadequately developed by domestic and foreign private participation and capital. In addition, how the telecommunications sector was developed accordingly as a state monopoly should be addressed. Against this background, the present privatization

process can be more adequately examined. The first two aspects just mentioned, that is to say, the statization of key sectors of the Brazilian economy in general, and telecommunications in particular, will be described in this chapter. The recent privatization of the Brazilian telecom system will be dealt with in the subsequent chapter.

Brazil as a Mixed Economy: From the 1930s to the 1990s

After Brazil's independence from Portugal, the Brazilian military maintained a low profile in politics under suspicion of connivance with the former colonizer. During the war, Paraguay fought against the Triple Alliance (Argentina, Brazil and Uruguay), the Brazilian military was strongly influenced by the strongly politicized Argentine military. Furthermore, a prominent Brazilian army field officer (Getulio Vargas) had espoused the positivism developed by August Comte, and especially his ideological emphasis on order and progress. The military dreamed of turning the country into a powerful nation and believed that to attain this objective, it was necessary to get rid of the obsolete agrarian structure inherited from colonial times in order to build a modern industrial society. And this society would have to have an efficient infrastructure in terms of transportation, energy and communications.

This endeavour was partially accomplished during the two mandates of Getulio Vargas (1930 to 1945 and 1950 to 1953), and reinforced by the Target Plan of President Juscelino Kubitschek (1956 to 1960).

Brazil was severely affected by the 1929 financial crash and the subsequent depression and government of Getulio Vargas, which took over in November 1930, applied a kind of Keynesian economic policy to sustain the coffee price in the market.

(Petrazzini, 1996) This was done in order not to ruin the coffee growers who were the main pillars supporting the economy of the nation.

When the immediate crisis was over, Vargas took solid steps to move Brazil towards a mixed economy, one that would be shielded somewhat from international economic fluctuations. He began by establishing a National Council to co-ordinate oil policy, and laid the foundations for a steel industry. During his first term in power, Vargas created the Vale do Rio Doce Company, responsible for the economic exploitation of the rich reserves of iron ore of the state of Minas Gerais. The Vargas government also launched the Vale do Sao Francisco Hydroelectric Power Plant, as part of a larger undertaking to develop the Sao Francisco Valley according to the model of the Tennessee Valley Authority. Needless to say, all these initiatives were managed and operated by the state. (Skidmore, 1967)

When Getulio Vargas returned to power in 1950, this time democratically elected by the people, he tried to complete his project to transform the oil industry into a state monopoly.

It is important to notice that after 1950 the Brazilian government adopted two different, but convergent policies: the statization of the key sectors of the economy, including the economic infrastructure and import substitution industrialization (ISI). It should be mentioned that in the period before Vargas the Brazilian economy was dominated by foreign firms and they were the ones who invested in infrastructure such as railroads, urban transportation, power generation and distribution, telephone systems, etc. These firms needed this infrastructure to operate since the state was slow, if not altogether reluctant, to step in and make the necessary investments. (Edwards and Baer,

1993)

During this early period the state's direct involvement consisted primarily of fostering favourable conditions for private investment. Often, it guaranteed rates of return for foreign companies that invested in railroads and it maintained low taxes for foreign firms that invested in primary export sectors. (Trubek, 1971) Regulation was minimal and usually favoured the foreign firms that participated in the public utilities sector.

Throughout this period Brazil maintained a free trade regime in which most import tariffs existed only to raise revenues and were not protective in nature. (Edwards and Baer, 1993)

From the 1950s onwards the import substitution policy gained a greater significance with controls in areas like exchange, direct foreign trade, tariffs charged by public utilities, etc. Later in this decade there was the take-over of public utilities by governments, including railroads, power generation and distribution, telecommunications, etc., as a result of the perception that these strategic sectors should be in the hands of the state. (Schneider, 1991) The public utility tariff controls did not allow for adequate rates of return for their foreign investments to meet the needs of rapidly industrializing and urbanizing areas. The marked lack of interest of foreign companies as a consequence of deteriorating rates of return facilitated the statization of all these public utilities. The new state firms in these sectors received the necessary subsidies to modernize and expand power generation and distribution, telecommunications, etc.

In 1953, under Vargas' government, the National Bank for Economic Development (BNDE) was created, and was later expanded to encompass the social

dimension and became known as BNDES. (Schneider, 1991) This institution, along the past five decades, was the most important player in shaping the Brazilian economy. It influenced the direction of investment resources both in the private and public sector, either through financing operations or through shareholder participation.

During this period the Brazilian state also became heavily involved in the financial sector with the creation of government rents for regional development banks such as Northeast Bank of Brazil (BNB) and Amazon Bank Inc. (BASA). Progressively, almost every state in the Brazilian federation created its own commercial bank. In 1985 the federal and commercial banks accounted for forty percent of bank deposits and forty four percent of commercial loans of the fifty largest banks in the country, while the BNDES and other government developmental banks provided seventy percent of all loans destined for investment purpose. (Baer and Vilela, 1994)

Since the late 1930s, but more forcefully during the 1950s, the government expanded its investments in a number of basic industries, especially in the steel, metallurgical and petrochemical sectors creating for them new state owned firms. The motivation was primarily due to the fact that neither domestic nor foreign private firms were willing to pour large investments into projects whose gestation period was relatively long. This motivation was also part of a nationalistic drive to develop the infrastructure of the country.

Significant changes occurred to the role of foreign capital in Brazil's economy during the ISI period. The government realized that neither the domestic private sector nor the public sector had the capabilities to create branches in new import substituting sectors. Hence the implementation of a policy protection program of which tax

exemptions and the permission to import machinery without foreign exchange cover were a few of the inducements used to attract foreign investment. (Edward and Baer, 1993)

During the Juscelino Kubitschek administration the Brazilian economic policy allowed for special privileges for foreign capital to invest in Brazil primarily in the sectors related to durable goods, with an emphasis placed on the automotive industry. The Target Plan formulated by the BNDE and endorsed by the Kubitschek government was completely implemented, expanding the state control over the transportation and hydroelectric energy sectors, as well as in the sectors dealing with basic industries. (Schneider, 1991)

The private domestic sector in that period also benefited from protection; it received, amongst other favors, subsidized loans from BNDE. In many sectors there was an emphasis on increasing vertical integration and thus multinationals were encouraged to make or buy components within the country. Domestic firms had a ready market to sell their equipment to and in the process acquired new technological capacities. During the ISI process the state worked in conjunction with the domestic private sector and private foreign firms. They not only complemented one another but served to strengthen each other too. (Edwards and Baer, 1993)

In the early 1960s the large presence of the state in the Brazilian economy, through the past decade, was considered necessary for achieving rapid economic development. This new role of government became institutionalized even if the state enterprise sector was viewed as complementary to the private domestic and multinational sector. Each ownership specializes in specific areas of the economy where it had the greatest comparative advantage. (Baer and Vilela, 1994)

In this context the economic and entrepreneurial interests of Vargas and Kubitschek coincided with the military's vision on the need to upgrade the infrastructure. Along the 1960s, steps were taken to carry out this purpose in the field of transportation, energy and telecommunications under government initiatives and control.

In 1985 a survey published by the 1986 edition of *Visao* the section "Quem é quem na Economia Brasileira" ("Who is Who in the Brazilian Economy") demonstrated that from the 8,094 largest incorporated firms, the state enterprises controlled forty eight percent of the combined assets, 26.1 percent of sales and 18.9 percent of employment. According to this publication's 1991 article entitled "Melhores and Maiores" ("The Biggest and Best"), in 1990 state firms held the following percentage of total sales among the 20 largest firms by sectors:

- Public utilities 100%
 - Steel 67%
 - Chemicals and Petrochemicals 67%
 - Mining 60%
 - Transport Services 35%
 - Gasoline Distribution 32%
 - Fertilizers 26%
 - Transportation Equipment 21%
- (Baer and Vilela, 1994: 3)

Nevertheless, in the 1970s and 1980s debt and inflation crises contributed significantly to the decline in the flexibility and efficiency of public sector firms. Over the course of almost two decades many became a liability to the government. In Brazil revenues for the public sector as a proportion of GDP averaged about 16 percent in the first half of the 1980s, while expenditures averaged approximately 18 percent. During the 1970s Brazilian policy makers were forced to choose between slowing economic growth to adjust to new international prices or borrowing to finance the continued expansion of

their economies because of oil shocks. Brazil chose the latter option and public enterprises were used to attract foreign resources. (Edwards and Baer, 1993)

Brazilian public enterprises began borrowing from commercial banks rather than taking advantage of the credit lines established by the multilateral development banks, which had provided it with capital in the previous decade. The economic crisis that plagued the industrialized countries pushed interest rates upwards forcing many Latin American countries, including Brazil, to search for ways of meeting their rapidly growing debt servicing needs. Public enterprises were held as the solution to attract additional external financing. Banking on the good reputation of these state enterprises in the international financial markets, central governments coerced them to borrow more money than was needed for their investment plans. By the 1980s many state firms had huge foreign debts and the servicing of this debt placed them in a precarious financial situation. (Edwards and Baer, 1993)

These public enterprises were also used by central governments to curb the rising costs of inflation. Toward this end, prices of steel, electricity, water, telephone and transportation services were not allowed to accompany the rise in the price level. The increase in their price was usually set well below the inflation rate. In Brazil's case "the real prices of iron and steel products (a sector dominated by state enterprises) declined by 50 percent between 1979 and 1984; of electricity tariffs, by 40 percent; and telephone tariffs, by 60 percent." (Edwards and Baer, 1993) The end result of maintaining the price level low was the destruction of the financial position of these enterprises.

The use of public enterprises as an instrument of macroeconomic policy was devastating for these firms, especially for their financial health. In fact, the Brazilian

government encouraged these companies to capture foreign financial resources in order to overcome the balance of payment deficits, mainly created by the considerable rise in oil prices in the international markets. Favouring lower income groups and productive sectors of the economy through this strict tariff control also used them as a means to attain certain distribution goals. This situation became unsustainable by 1990 when the drive for privatization became imperative.

Telecommunications in Brazil during the Mixed Economy Period

Prior to 1962 when the government took in hand the development of the telegraph and telecommunications infrastructure, foreign capital was quite active in this sector. (Fadul and Straubhaar, 1991) But even after 1962, foreign capital continued to play a dominant role, like in the case of the Companhia Telefonica Brasileira (CTB), which was controlled by Canadian capital. The CTB serviced around 70 percent of the 1.5 million telephones in the country in 1968 and carried about 80 percent of the telephone traffic. Added to this was CTB's position as the main supplier of equipment for that network. For the most part, the telephone services were concentrated in the centre-east region of the country where more than 60 percent of the terminals were located. (Regli, 1997)

The intranational telephone services were precarious at best, based solely upon some low frequency microwave links, interconnecting Rio de Janeiro, Sao Paulo, Campinas, Belo Horizonte and Brasilia, and upon some few short wave radio circuits. A few foreign companies had also explored communications that employed telephone and telegraph technologies. For instance, Western Telegraph and Telephone, along with Cable & Wireless of Great Britain, dominated the market for telegraph services until the

late 1940s, when the government began to increase its control over the sector through direct regulation. Concessions were given to four international carriers, all of which expired between 1970 and 1973 and were not renewed by the government. (Regli, 1997)

At the local level some telephone services were established in the manner in which the rest of the system would be later established.

In the state of Goias, for example, the first local telephone services were established in 1938 under the jurisdiction and ownership of the state government. According to the official history of Telegoias the state government had organized its holdings into the “Departamento Estadual de Comunicacao,” or DECO, by 1960. Over the next decade, the department underwent a number of changes, both in name and in its purpose, leading to the creation of the Telebras system. (Regli, 1997: 227)

In Brazil the lack of centralized control and private ownership of the telecom networks did not lead to increased service penetration, at least when compared to the rest of the world.

In 1957 Brazil’s telephone density was a third of the world’s average (1.3 per 100 inhabitants versus 3.7). In 1960, Brazil had one million telephones for a population of 70 million, with two thirds of the equipment and traffic concentrated in the southern states of Rio de Janeiro and Sao Paulo, the industrial centre of Brazil. (Regli, 1997: 227 and 228)

This underdevelopment of the telecommunications structure was a reflection of the pervasive economic difficulties experienced by Brazil. After a booming decade of growth in the 1950s, during the Vargas era, people began to experience increased dissatisfaction with the economic performance of the democratic regime and the authority of the government began to disintegrate. (Burns, 1993) The military coup of 1964 ushered in an era dominated by a military agenda, a fact reflected in the next era of Brazilian telecommunications development. The issues of creating an infrastructure,

providing access to the media, and creating and controlling national identity were uppermost on the government's agenda. (Fadul and Straubhaar, 1991)

During the 1960s, the government's authority over certain economic and social aspects was once again reasserted and would last through the 1970s. The assertion of central control included the reorganization of the country's information and telecommunications network and the creation of a single, government owned telecommunications operator, Telebras.

The first step toward the establishment of a central authority for telecommunications operations and development was made in 1962, through the implementation of Brazil's Telecommunications Code. (Fadul and Straubhaar, 1991) The passage of this Code granted the state a monopoly in the operation and regulation of telecom activities, previously in the hands of the union, states and municipalities.

This Code also enabled:

- the creation of the National Telecommunications System to ensure the integration of telecom services;
- the placement, under Union jurisdiction, of telegraph services, radio communications and interstate telephony;
- the institutionalization of Contel (National Telecommunications Council) and Dentel (National Telecommunications Department), the latter being Contel's executive secretariat;
- the concession giving to Contel the power to approve telephone network specifications, and establish criteria for fixing national tariffs;
- the concession to the Union the competency to directly explore the integrating

branches of the National Telecommunications System;

- the authorization to the Executive Power to constitute a public enterprise to industrially explore the integrating branches of the National Telecommunications System (this company would later become Embratel);
- and finally, the institutionalization of the FNT (National Telecommunications Fund), made up of resources derived from the application of a superimposed tariff of up to 30 percent on the public telecom service tariffs, towards the financing of Embratel's activities. (*Executive Summary*, 1997)

The instruments created by the 1962 Code gradually began to have an impact upon the Brazilian telecom sector. Contel, the National Telecommunications Council, began to exercise its mission to direct and implement sector policies, in addition to making plans and coordinating the expansion of the services. Embratel, institutionalized in September 1965, with the help of the FNT, launched the process of interconnecting all the state capitals and main cities in the country, which it subsequently accomplished. The goal of Embratel was to integrate the vast territory of Brazil through telecommunications and linking the country to the rest of the world. Between 1969 and 1973, Embratel assumed the exploration of international services, as previous concessions expired for the foreign companies which had operated them. (Oliveira, 1991)

The initial objectives of the company reflected the military's intention to assert its authority. Embratel was responsible for the national and international post of the operations and the development of linkages with the farthest reaches of the country.

Still in 1962, due to the uncertain nature of telephone services in Rio de Janeiro, the federal government decreed an intervention in CTB, and in 1966 the purchase of its

shares by Embratel was finalized. Then in 1963, Contel approved the criteria to direct the establishment of tariffs for telecom services (that were not adhered to). In 1966, the method to establish financial participation, for those wishing to acquire telephone lines, was regulated in practice. Self-financing became an important instrument of support for the expansion of telephone services in Brazil.

The question about reallocating the power to authorize concessions, however, would only effectively be resolved in February 1967 by legislation that effectively concentrated this power in the Union. This decree was soon after consolidated by the Constitution of 1967 and maintained to this day. The 1988 Constitution, nevertheless, went further; it determined that the public telecommunications services could only be explored by the Union, directly or through concession to state controlled companies.

Also in February 1967, through legislation, the Ministry of Communications was created, to which Contel, Dentel, and Embratel were all linked. The Ministry took over the responsibilities of Contel as part of a broader government organization that marked the entrenchment of the government and the opening of a period of political cohesion and terror. As part of a Ministry of Communications rationalization effort, the Brazilian government acquired the largest foreign telephone concessionaire, the CTB, and began to take direct control of most of the telephone companies in the country. (*Executive Summary*, 1997)

The measures established by the Code led to a significant improvement of interstate and international services, although the same cannot be said of local services. Therefore, in 1971, the government began to entertain the idea for the creation of a public entity responsible for planning and coordinating telecommunications in the national

interest. In addition, this entity would obtain financial resources necessary for the implementation of telecom systems and services. It would also control the application of these resources, according to the stock participation in the companies in charge of the operation of these systems and services. This gave rise to the idea of creating Telebras by a decree taking effect in July 1972. (Fadul and Straubhaar, 1991)

This law not only authorized the creation of Telebras, which occurred in September of that same year, but also placed the resources of the FNT at its disposal. Furthermore, it authorized the transformation of Embratel into a subsidiary of Telebras and connected Telebras to the Ministry of Communications.

Soon after its creation, Telebras began the process of acquiring and absorbing the companies that had previously provided telephone services in Brazil, with the intention of consolidating them into firms of state jurisdiction. At this time, more than 1200 independent companies existed in Brazil, albeit the majority was of small stature, and Telebras promptly reduced that number to 37. (Regli, 1997) Through legislation in 1974, Telebras became the official concession entity responsible for the exploration of public telecommunications services in the entire national territory.

The government owned 80 percent of the enterprise and subsidiary firms were established to serve the commercial and government interests of a given state. The federal structure of Brazil ensured that state authorities were able to maintain the managerial control of the state enterprises. Telebras' monopoly on the purchase of telecommunications equipment extended its jurisdiction only to the development of infrastructure of the state companies, effectively undermining any attempt by remaining companies to continue in the exploration of telecommunications services. (Regli, 1997)

Its mandate to develop a national telecommunications research and development strategy led Telebras to establish the Centre for Research and Development Father Landell de Moura (CPqD) in 1976. CPqD was responsible for the development of technology and the training of Telebras personnel to ensure the quality of telecommunications network and accounted for 90% of Brazil's telecommunications research. (Regli, 1997; "Governo Transforma," 26/06/98)

From this point forward the government focused on the implementation of a centralized investment growth strategy. The plan was to increase by 200 percent the number of telephones in use by the end of the 1970s. This meant a rise in spending on telecommunications investments, which went from US\$ 500 million in 1973 to more than US\$ 1.5 billion in 1976.

The strategy of import substitution was implemented and CPqD became the basis for partnerships between multinational and local firms to supply the infrastructure for telecommunications development. The Ministry of Communications reserved a portion of the market for the production of different kinds of technology for local companies, while the remaining portion could be manufactured locally by the multinationals. Nevertheless, in order to produce the equipment for the Brazilian market, multinationals were forced to lease from the CPqD the technological specifications. In concrete terms, this helped raise resources for the operation of the Centres and in the end, multinationals had to establish branches in Brazil in order to produce equipment according to these new specifications. These companies were also required to nationalize their operations if they wanted to participate in the domestic telecommunications sector, which often meant that they had to associate themselves with Brazilian financial groups. (Regli, 1997)

The purpose of centralizing power and standardizing systems was twofold. On the one hand, it helped introduce new technologies, like digital as a replacement for analog, by leapfrogging other intermediate telecom developments through a switching system developed by the Centre. This made the Brazilian infrastructure one of the countries with the highest rates of penetration of digital technology, in comparison to most other developing countries, even if the absolute penetration of services was lower. On the other hand, the continued growth of telecommunications expected by this process did not materialize. In fact, it led to the disintegration of the financial and technological composition of the Telebras system. (Regli, 1997)

At the core of this problem was the heavy reliance upon the development of telecommunications networks that depended almost exclusively on the national economic prosperity. A series of economic problems, including oil crises and inflation, undermined the macroeconomic stability of the Brazilian economy. Investment levels in telecom infrastructure were not sustained because of structural and institutional deficiencies in the public sector.

From today's vantage point, it is possible to observe that in the last two decades the telecommunications network grew at a faster rate than the population and the economy. For example, between 1976 and 1996, while the Brazilian population grew by almost 50 percent, and the GDP grew almost 80 percent, the number of telephone terminals belonging to the Telebras System increased by more than 400 percent. This has made Brazil one of the countries with the largest telephone network in the world. This network, which integrates the entire country and serves more than 20 thousand places in

all of the national territory, remained unable to meet the demand for service.⁵ (*Executive Summary*, 1997)

During these same 20 years, telephone traffic increased at a significantly higher proportion: more than 900 percent in local service and more than 1700 percent for long distance, illustrating that the demand for services grew more than its capacity to serve them. (*Executive Summary*, 1997) In addition, telephone traffic measures only the demand for services generated by the part of the population and firms that already have access to the system. Indeed, it does not include the demand for new lines, that is to say, it does not reflect the number of people and organizations that still have not been able to receive individual telephone service.

The demand for access to the basic telephone services has not been adequately calculated, be it because of the lack of research, or because it has never been looked at. Whichever may be the case there is no reliable source from which to base projections. (Cavalcanti, 1994) It is estimated that potential users vary between 18 and 25 million, depending on the method used and considering the substitution of self-financing as a condition for access to the service, for an installation fee, of reduced value. Of this total, a little more than 14.5 million users are served annually. (*Executive Summary*, 1997)

On the other hand, more than 80 percent of the terminals found in residences are concentrated in upper and middle class families. This indicates that the less favoured classes do not dispose of individualized services, nor do they have access to adequate collective service, since public telephones are insufficient and poorly distributed geographically. (*Executive Summary*, 1997)

Reliable statistics about the availability of basic services offered to businesses do

⁵ Please refer to Appendix 2 and 3 for 1996 figures.

not exist. Over the past few years, the large corporations built private networks to address their needs through leases from Telebras. On the other hand, residential users, also subject to the same service, encounter small and medium sized companies.

Additionally, almost all the terminals in existence are located in urban areas; less than two percent of rural properties have telephone service. This situation is the result of the inability of the firms under the control of the state held stock to maintain the level of investment over the long run. This causes the level of growth to fluctuate and be insufficient to equal itself to the growth of demand, and more insufficient still to offer services to the repressed demand. (*Executive Summary*, 1997)

One reason offered to justify this deficiency is tariffs, which had received inadequate attention. Even prior to the constitution of Telebras, when the power to determine them was held at the municipal level, tariffs were established according to criteria completely disassociated from the real costs of corresponding services. This happened despite the fact that Contel had established rules concerning this. This led the concessionaires of the time to not act on necessary investments for the expansion of the network and the improvement of services. Later, with the Telebras System in place, tariffs were determined by the Federal Government, as the economic authority, with its interest centred on the reduction of the inflationary process, and not as a concessionaire power, a condition which would take care of its compatibility with costs.

Even the mechanism for cross subsidies, which intended to have the more profitable services and the more developed regions contributing to the servicing of the peripheries and the expansion inwards of services of a social nature, ended up disfigured. Its application was limited to telephone service (both long distance and local) and the

populations of the peripheries and the less advantaged are exactly those segments deprived of telephone service.

Another important reason is the advent of restrictions imposed on state firms, notably starting in 1988, which ended up equipping these companies for public administration. Instead of forcing these state companies to fulfil their mission, conditions in the Constitution were implemented through control mechanisms, that were not only ineffective, but also exaggerated the limitation upon the operational flexibility that was crucial to the performance of the firm, particularly as a competitive entity. These restrictions encompass the requirement of sanctioned processes that are extremely bureaucratized and formalist for the contracting of goods and services and that have as an inevitable consequence the rise in costs and deadlines. It also includes the creation of a human resources with salary limitations and the requirement of public competitions for admission and internal progression. This is in addition to the impossibility to constitute subsidiaries or stock participation in other companies without previous legislative authorization and aside from the requirement to submit its budget for investments for approval by the National Congress. Furthermore, the rise in operational costs resulted from the establishment of a myriad of service controls, from excessive formalism, and from the different internal and external organs for monitoring. (*Executive Summary*, 1997)

These two reasons offered to justify the lack of investment are not the only ones. Another one, of equal importance, is the resignation and settling which has come as the result of monopoly ownership and the lack of competition. This view argues that the need to conquer and maintain clients, in a competitive environment, works as a powerful

catalyst for the search of innovative solutions to improve services, reduce costs, and improve overall quality. The state telecom firms never had this stimulus.

This scenario shows that profound changes to the telecom sector were crucial. But this change had to generate the right conditions so that the new scenario would be better than the present one.

All these hurdles curbing the development of Telebras and many other state monopolies led the Brazilian leadership to consider the eventuality of its privatization. In the case of telecommunications the adoption of this alternative was more appealing because this sector constituted a more promising area for expansion and a higher economic rate of return. The reasons to launch the privatization process of the whole telecom system and the model chosen to carry out this undertaking, as well as the result of its implementation, will be presented in the next chapter.

Chapter Four

Privatization of the Telebras System: Context, Scope and Model

The privatization of the Brazilian Telecommunications Company, Telebras, has been recognized as one of the largest privatization undertakings according to international standards in the last two decades. For instance, when compared to the privatizations that took place in the United Kingdom with the sale of 51% of British Telecom in 1984 and 20% of Mexico's TELMEX in 1990, for a little over US\$ 5 billion and almost US\$ 2 billion respectively, the sheer size of Brazil's endeavour valued at US\$ 18.852 billion is not an event to be overlooked.⁶ (Regli, 1997) Nevertheless, this event needs to be considered in the whole context of the Brazilian privatization process, after almost four decades of statization of the key sectors of the economy.

This chapter addresses the causes that led to this outcome, the hurdles faced by the decision makers in order to change the previous orientation toward statization, as well as the political decisions that shaped the implementation of the privatization of Telebras. Also examined, are the details pertaining to this endeavour, particularly the rules established for this privatization, the results, and what is forecast for the immediate future of Telebras.

Why the Brazilian Mixed Economy Was Forced to Privatize Some Key Sectors

The problems of the Brazilian mixed economy started, as mentioned previously, with the oil crisis of the 1970s and the ensuing debt crisis during the 1980s. In order to face this challenge, Brazil launched a large-scale substitution program in heavy industries (capital goods and steel) and accelerated the investments in economic infrastructure projects in order to save on imported energy sources (oil) and to reduce the costs and

⁶ For a partial list of the privatizations that have taken place in the telecommunications sector (1983-1997), please refer to Appendix 4.

increase the diversification of its exports.

The financing of this program relied mainly upon foreign borrowing, taking advantage of the cheap rates prevailing in the international financial markets, due to the flood of petro dollars held by financial institutions. In this period, public enterprise investments, as a proportion of total capital formation, rose from 10.3 % in 1973 to about 30 percent in 1976-1977. The rationale presented by the Brazilian authorities was that once the new capacity created by this investment was in place, the decline of imports and growth of exports would enable the country to fully service and amortize its debt. These expectations, however, were spoiled by the second oil shock in 1979, and the high interest rates set by the US government in order to finance its own debts. The consequences of the failure of these expectations were economic stagnation and an inflationary explosion that dominated the 1980s.

In spite of this deteriorating situation, the Brazilian government continued to use public enterprises as instruments of macroeconomic policies, especially to control the rising rates of inflation as mentioned in the previous chapter. At the same time, these enterprises were forced to borrow on the international market more than they needed, in order to help the government cope with an adverse balance of payments. This situation led many public enterprises to economic and financial indebtedness, as well as a declining rate of growth. This ended the triple alliance and the complementary relationship between the state, private domestic capital, and foreign capital that had become the main motor behind Brazil's impressive growth, and led to a movement in favour of privatization.

By the late 1970s Brazil began its first attempt to control the expansion of its state

enterprises by creating two mechanisms destined for their control: the National Program of De-bureaucratization and the Special Secretariat for the Control of State Enterprises (SEST). (Cavalcanti, 1994) In the first half of the 1980s, some effort was made to privatize state firms. The Commission for De-Statization, established in 1981, identified 140 privatizeable state firms, of which 20 were sold between 1981-1984, bringing in a total of US \$190 million. Only small or medium sized firms were sold at the time since large state companies were not thought to be privatizeable. (Baer and Vilela, 1994)

The reasons found for the lack of an effective privatization movement in the 1980s are: 1) the government had no political commitment as it was more interested in controlling the expansion of the state than in changing its role; 2) the first half of the decade was a period of deep recession making it almost impossible to find buyers; 3) Brazilian firms were the only ones allowed to buy state firms; 4) a large-scale privatization process would need to liberalize government controls (especially price controls), which at the time was unacceptable to the government. (Baer and Vilela, 1994)

In the second half of the 1980s, the Jose Sarney administration said it would engage in privatization, but did not push for a massive program. This effort might have been politically motivated but, being the first civilian government in 21 years, it was very sensitive to pressure groups. The latter included employees of state enterprises, earning salaries that were substantially higher than market averages; private firms that sold goods and services from public enterprises at subsidized prices; and politicians who made use of public enterprises for their own purposes. In the period from 1985 to 1989, 18 firms were privatized, bringing the government receipts of US\$ 533 million. (Baer and Vilela, 1994)

Fernando Collor de Mello and his administration introduced a large-scale privatization

project in 1990. The government planned to privatize large state firms and made the privatization process an integral part of a program to modernize the Brazilian economy.

As the government began to make its program public, the Constitutional clause that prohibited the sale of strategic state companies was brought forth as an attempt to block Collor's plans. The Collor administration did open the telecommunications market to limited competition in paging, cellular, cable television, infrastructure provision and private data networks. This was accomplished as of the presidential decree entitled "The Regulation of Limited Services" in July 1991. But it was impossible to go further in liberalization of the telecommunications because the Constitution prohibited it. (Baer and Vilela, 1994)

Although it encountered difficulties in the strategic sectors, the Collor administration had privatized 17 companies by October 1992, bringing the total government revenues to almost US\$ 4 billion. Another 24 companies were on the privatization list for 1992-1994 and were expected to bring in another US\$ 14 billion. (Baer and Vilela, 1994) The Brazilian government was preparing for the possibility of giving concessions to private firms in various types of public services, such as energy generation and distribution, and was also seeking a constitutional amendment. (Baer and Vilela, 1994)

The 1988 Constitution makes explicit the exclusive competency of the state in this sector. Article 21 Paragraph XI states that:

The union directly or through authorization or concession to an enterprise under state share holding control, the telephone, the telegraphic, and data transmission services and other public telecommunications services by private law entities through the public network of communication. (*1988 Constitution*, 1997: 33)

And in paragraph XII, it says that companies can “explore directly or through authorization, concession or permission, broadcasting services, sound and image services and other telecommunications services.” (*1988 Constitution*, 1997: 33)

But President Collor was unable to finish his term and was forced to withdraw in October 1992 because of serious corruption scandals involving his government. The interim president, Itamar Franco, took up the crusade for constitutional reform but did not advance it in any way, likely due to political pressure, persistent boycotts of most of the proposed reforms, and protest by congressional leaders. This period placed great strain on the already difficult relationship between the government and senior executives at Telebras, who were facing consistent political pressure to increase infrastructure investment even when the political process was unable to offer the company the money required to complete those investments. (Regli, 1997)

The National De-Statization Program (“Programa Nacional de Desestatizacao” - PND), that had been established in 1991 to help modernize the Brazilian government, gained renewed strength with the *Real* Plan. This Plan introduced by a government finance minister, Fernando Henrique Cardoso, paved the way for his successful presidential campaign in 1994. His victory in the first round was considered by many commentators an opportunity for the further liberalization of the telecommunications market; his support for the privatization program introduced by his predecessor would definitely transform the telecommunications sector. Evidence of this renewed commitment to privatization can be seen by the fact that during the Program’s seven years of existence, close to 53 percent of all revenues were collected in the last three years, under President Cardoso’s leadership. (*Three Years of Real Plan*, 1997)

The first phase of the PND stressed the privatization of steel, petrochemical, fertilizer, and mining companies. A total of 46 firms were shifted to the private sector, of which 20 were sold after July 1994. In its second phase, the PND focused on transferring infrastructure operations to private owners and on granting public service concessions. (*Three Years of Real Plan*, 1997)

The Brazilian government had several hopes for the privatization endeavour; one of these was that it would increase the country's economic efficiency. This objective should be further detailed as it is at the root of Brazil's motivation to privatize. The efficiency that is sought deals primarily with the maximization of revenues, while reducing costs, which has the potential to translate into better quality and more diversified services. Public companies have lacked this incentive since the activities they perform are done with little regard to cost, deadlines and whether the projects target the appropriate groups.

Among the approximately 200 public companies under the direct responsibility of the Brazilian government, many have no strategic role and could be privatized without hesitation, such as fertilizer and steel producers and supermarket chains. Others were exercising strategic functions. A third group could have its strategic role questioned. Most of these companies, especially those in the second and third group, could rely on a well-trained staff characterized by their high-ranking professionalism.

In spite of this, those advocating the privatization of companies within these three groups advanced three serious arguments. At the forefront stands the lack of managerial and administrative flexibility and efficiency due to the rigid government regulations, placing them in a "straight jacket" of sorts. The endeavour to suppress corruption in the

public service led the bureaucratic procedures and regulations to become extremely tight to the point of hampering the decision making process. As a consequence of this inflexibility, these companies, even the lucrative ones, sometimes had a hard time acquiring needed capital, as the state could no longer provide for it because of its chronic and increasingly high budgetary deficits. These new investments were essential to keep up the pace with the technological advances and to establish interesting and advantageous partnerships at the national and international levels.

The second argument refers to the habitual tendency within the government to use the public companies as instruments for the implementation and enforcement of macroeconomic policies. This practice diverted these public companies from concentrating on their natural objectives, targets and strategies. The third argument highlights the fact that these companies were subject to partisan political influences either distorting the selection criteria concerning the provision of services or channeling special benefits to specific groups according to private interests.

Aside from these three arguments that are relevant to all state controlled companies, another argument was raised in the case of public companies running into recurrent sizable deficits, particularly those operating in strategic sectors. The privatization of these companies could help the government reduce the state's fiscal deficit. The money obtained from the sale of Telebras is intended to go exclusively to the reduction of debt, which would mean of savings of US\$ 19 billion for the following years. (Patu, 30/07/98) Even if that was not the case in Telebras, a profitable and promising enterprise, the company was subject to the limitations and restrictions highlighted in the previously mentioned arguments.

In order to ensure that the operation of the Brazilian telecom system would overcome some of its existing limitations the privatization process was conceived and oriented towards fostering competition among the new private companies responsible for the same service as the previous concessionaires.

In all likelihood, the impetus for the conception of the privatization endeavour at that particular point in time was given by international political and economic pressures put forth by a host of different sources. Large corporations, both domestic and foreign, international lending agencies and the World Trade Organization (WTO) were amongst those entities that looked upon the liberalization of telecom markets as a positive endeavour and fronted this campaign. In fact, the international trade policy community, and many private firms and governments, were in the midst of negotiating an international agreement in support of the liberalization of telecom markets under the endorsement of the WTO. (Drake and Noam, 1997) There is a definitively positive cover that surrounds this push towards the opening of markets to competition, although in the end this may not be the most appropriate endeavour for all countries that are feeling the many pressures.

Indeed, it should be recognized, given the present the socio-economic structure within which privatization took place in Brazil, that the opening of the Brazilian market may worsen rather than improve some long-standing problems. These may vary from skewed income distribution to industrial concentration, as well as from lack of national research and development to unemployment.

One of the main objectives of the privatization of Telebras was to obtain an increase in productivity, and consequently a reduction in costs and prices of

telecommunications services. This reduction could broaden the span of access to these services by local populations, and could even upgrade their quality of life. In the medium run, through economies of scale, the costs and prices for telecommunications services could be further reduced. On the other side, it is worthwhile noting that this search for efficiency might also lead to pressure on the labour market and a consequent reduction of demand for labour.

The Brazilian economy has also been characterized by the oligopolistic structure of its principal sectors. To the extent that public enterprises are sold to some of the major groups in the country and foreign firms, there will certainly be an increase in the economic power and income that these groups will control. This may work to the detriment of a more equitable distribution of income. If one company is to buy different areas of the same sector and if competitors are to buy out the state company or large banks then that group's market power will be increased considerably. Although it is still too early to come up with a definite answer about the distribution aspect of privatization, it seems that the trend to date is an increase in market concentration. Even the income received by pension fund groups benefits only a minor proportion of Brazil's working class.

In Brazil two worlds live side by side. One is the industrialized world composed by the rich and the upper-middle classes, which account for 15 percent of the total population of 168 million. The other is the Third World within Brazil, made up of 119 million underprivileged people. (Oliveira, 1991) Will privatization benefit this last world?

With regards to employment it is clear that public firms have more employees

than private ones. Privatization will likely result in a diminished labour absorption in industry. Given the large amount of unemployment and underemployment that has characterized the Brazilian economy for many years, the privatization trend will increase pressures on Brazil's society to find more effective ways to deal with the problem. It is increasingly obvious, both in Brazil and in many other developing countries, that neither agriculture nor industry will be able to deal with the labour absorption situation. In fact, it is also clear that the service sector is responsible for 60 to 70 percent of employment in advanced industrial economies. The challenge is thus to find a development path that will enable a country like Brazil to effectively accommodate its working population in the service sector. Privatization, and the resulting apparent "increased efficiency" in labour employment in industry, will only increase the pressure on the state and society to find a solution.

"As the Brazilian state sheds its industrial enterprises, market discipline will presumably force the private sector to increase efficiency, incorporate new technology, and refrain from monopolistic abuses." (Baer and Vilela, 1994: 15) In a privatized Brazilian economy the role of the state and the private sector will be different, but it will be no less critical to the course of economic events than it has been in the past. In the Brazilian case the state remains a strong entity, even after it has transferred to the private sector some of the operational functions it used to exercise. The private sector in turn increases its role in the economy at the invitation of the state in an effort to strengthen the market. Both groups have actively participated in economic activities in the past and although this will occur in different capacities now, they will continue to influence the course of these events.

Obstacles to Effective Privatization in Brazil

In order to push the privatization effort forward in the 1990s, the government has had to face many hurdles to make the privatization process effective, namely constitutional, cultural (primarily labour) and regulatory. Different methods were adopted to overcome these hurdles, although they were all approached the same way: offensively and expeditiously.

In 1995, the Brazilian government began to take the difficult steps toward privatization and liberalization. The first step towards reform took place in February 1995, just after the new administration was sworn into office. They sent a proposal to the National Congress to amend the existing Constitution in order to end the state's monopoly over telecommunications and the still prevalent differentiation between national and foreign companies. In June 1995, the Lower House of the Brazilian Congress voted 357 to 136 to approve a constitutional revision to open the telecommunications market.

The Constitutional Amendment n. 6, dated August 1995, abrogated article 171 of the 1988 Constitution. This article distinguished between a "Brazilian Company" (comprised entirely by domestic capital) and a "Brazilian Company integrated by international capital" which controls the majority of shares. This majority enables the company to legally vote and exercise effectively its decision power in order to manage its activities. The Constitution conferred special privileges to this kind of company, discriminating against companies that do not fulfill this qualification. This abrogation allowed foreign companies to have a more effective participation in the privatization of

Brazilian companies under state control.

Also in August of that same year the Constitutional Amendment n. 8 was approved. Previously, these established that only companies under the state control were able to be concessionaires of the telephone and telegraph services, transmission of data and the remainder of the public services within the telecommunications sector. The Amendment now states that it is the competence of Union to “explore, directly or through authorization, concession, or permission, the services of telecommunications, according to the form of the law, which will regulate the organization of the services, the creation of a regulatory body, and other institutional aspects.” (*1988 Constitution*, 1997: 33)

Furthermore, it is the competence of the Union “to explore, directly or through authorization, concession or permission the services of sound broadcasting, as well as sound and images.” (*1988 Constitution*, 1997: 33)

From this point forward, many other laws were passed regarding the opening of markets for telecom services, including mobile cellular service, satellite, data communication, and value-added services. After the Constitutional Amendment the next steps were:

- a strong and continuous effort to overcome antagonisms and opposition from the labour union, labour party, concerned citizens, etc.
- the establishment of a multi-year investment plan to expand and at the same time recuperate the telecommunications system and the postal system;
- a specific law, or *Minimum Law*, was passed in order to open to the private market the services of cellular telephony (B Band), as well as the services via satellite, limited services, trunking, paging and co-operative networks;

- a *General Telecommunications Law*, defining the general terms and guidelines for the new institutional model, creating an independent regulatory body (Anatel);
- the installation of Anatel;
- and the privatization of Telebras.

The second step was overcoming the opposition put forth by politicians, interest groups and concerned citizens. These have some economic connotations but are primarily grounded in cultural concerns. The cultural heritage, which preceded this privatization movement, was one strongly linked to government intervention in matters that are important for the development of the nation on behalf of the Brazilian population. Privatizations also engender political and social resistance due to a perceived loss of national identity from the sale to foreigners of significant national assets. National security can also become an additional issue, and is a concern raised primarily by the military. (Pisciotta, 1997)

In most cases, privatizations also face significant resistance from labour unions and employees who fear loss of jobs. This fear is grounded in the examples of other privatized telecoms that have witnessed the reduction in their number of workers. For instance, British Telecom had a Seven-Year Plan to cut its “245,000 workers by 55 percent by 1997. The Telecom Corporation of New Zealand made massive layoffs. Privatization was accompanied by a hiring freeze in Chile. In Argentina, early voluntary retirement reduced 10 percent of the 45,000 employees.” (Mody and Tsui, 1995: 192) Also, studies conducted by consulting firms indicate that the possibility of job cuts is almost a certainty. (Trevisan, 25/07/98)

Brazil is no exception to the antagonism put forward by the workers and

managers of other countries. It witnessed violent demonstrations and strong judicial action against this process. The labour union for all workers in the telecommunications industry, based on conclusions drawn from American economic consulting firms, estimates that the Telebras System will have to cut 54 percent of the workers to remain at the same productivity level as American telecommunications firms. (*Jornal do Usuario*, 04/05/98) According to these consulting firms, at the very least 30 percent of the employees of the privatized companies will be let go. The National Workers' Union fears that the number of layoffs as a direct result of privatization could reach 30 thousand. (Esposito, 09/05/98) Many judicial complaints were filed daily in an effort to at the very least stall the privatization process. Many of these centred upon the unconstitutional nature of the entire process. (*Folha de Sao Paulo*, 30/07/98)

In several countries, such labour concerns have been met successfully through generous retraining and/or retirement programs. (Pisciotta, 1997) In Brazil this did not take place and has left most employees extremely concerned about the future of their positions. (*Jornal do Usuario*, 04/05/98)

One measure the government did follow, as it has during the National De-Statization Program, is the guarantee to current and retired employees of the right to participate in the privatization of the firm. Furthermore, future operators have to adhere and ratify the current benefit plans it has. The employees could purchase 2,18 percent of the preferential shares that would result from the division of the twelve original holdings at US\$ 59.18 for each block of 1000 shares. This includes a discount of fifty percent applied to the average price quoted during the 90 days preceding the publication of the

privatization. The government also offered to finance the purchases.⁷ (“Governo Garante,” 1998)

Beyond this, the privatization process continues to be highly complex given the state’s involvement in the economy. Its changing role creates vacuums in certain areas that have been quickly filled by the private sector. Nevertheless, it is likely that despite its new role as regulator it will continue to participate in certain areas that the new telecom operators would prefer to have control over. One such area is tariffs in which the government has traditionally enforced strictly regulated rates that do not necessarily correspond to real costs of the services they cover. In fact, one of the responsibilities the state has assigned to Anatel is the implementation of tariff policies. It is entrusted to control, monitor and revise tariffs for the services offered in a public regime, being able to fix them according to the provisions made in the Law n. 9.427, as well as effect adjustments. (Coopers and Lybrand, 1997)

The issue of control, however, will come increasingly to the fore as the Brazilian government privatizes public utilities. These are considered for the most part natural monopolies and are regulated in most countries. One of the major issues for Brazil’s policymakers will be, therefore, the type of regulation to be developed and the manner in which it will be carried out.

Insights into the Regulation of Public Utility Services in Brazil

Regulation is not new in Brazil. In fact, regulation of privately foreign-owned public utilities began in the 1930s. But the manner in which it was applied discouraged investments and modernization. Eventually, this led to nationalization as a means to

⁷ Data of how many former and current employees participated in this offer was not available.

develop the country. Regulation was also responsible for the decline of many public enterprises, as regulatory powers were used as instruments of macroeconomic policies. In this context, the opportunity for economic and political abuses is much greater and results in the weakening of microeconomic policies. (Edwards and Baer, 1993)

The corporatist state created by Getulio Vargas in the 1930s implied considerable regulation and control. In many cases, however, the control and regulation of specific sectors were left in the hands of institutes, which came to be dominated by the very groups they were supposed to control. Over the decades since that time, it became obvious in Brazil's mixed economy that access to government institutions for special favours, like special credits, by the private sector was not evenly distributed. In fact, large oligopolistic groups have traditionally had special access to state subsidized schemes. (Baer and Vilela, 1994) Whether the newly privatized Telebras System will be able to steer clear from or be reinforced by this traditional practice is hard to determine, but some preventive steps have already been taken in the form of the *Minimum Law, General Telecommunications Law* and Anatel, the independent regulatory body responsible for this sector.

Nevertheless, before outlining the political path towards the changes made in terms of policy and regulatory framework, it must be recognized that the institutionalization of trade in services as a subject of negotiation over the past decade has been a central factor in altering national policy making processes. In the past, telecommunications policy was labelled under the domain of ministries, national carriers, other powerful interest groups, and sometimes independent regulators like the FCC. Because of the close connection between national carriers and ministries, government

policies, not surprisingly, tended to foster monopoly entities and slow down competition. Nevertheless, even independent agencies, like the FCC, succumb to strong influence from the companies they were to regulate.

The Group on Basic Telecommunications service that negotiated the WTO agreement requires that carriers and ministries be separate, and that transparent and fair procedures be employed in dealing with foreign requests for access and authorization. Brazil has agreed to create a new domestic regulatory framework, subject to international monitoring, consultation and dispute resolution - one that is will operate at “arms’ length” from the Ministry of Communications. But, this was fulfilled in stages.

The sanction and publication of the Law 9.295 (best known as the *Minimum Law*) on July 19, 1996 had the purpose of creating a minimal regulatory framework. It addressed the exploitation of four kinds of services: mobile cellular services; limited services; services for transportation of telecommunication signals by satellite; and value-added services.

The next legislative step was the *General Telecommunications Law* (LGT) formulated in December 1996, which clearly states as its objective that: the Public Power should adopt measures that promote competition and service diversity, increasing the number of services offered and enabling quality standards be met in accordance with the needs of users. The legislation determines too that the telecom services be organized based upon the principle of free competition between the concessionaires. The effects of imperfect competition should be corrected, and the infraction of an economic nature, repressed.⁸

⁸ Please refer to Appendix 5 for a representation of the fundamental steps for reform in the telecommunications sector.

Moreover, a way will have to be found to regulate the traditionally strong elite and the large multinationals, which may again expand within the Brazilian market, and to minimize the influence of populist politicians over regulation or the influence of the regulated over the regulator.

Nevertheless, in the new telecommunications scenario in Brazil no specific provision is made to address this concern. As it stands, when a decision is made by the regulator it will be published in the Official Diary of the Union (the medium through which all official federal government decisions are announced) but there is no official forum or process through which the general public can voice their concerns, although occasional public hearings can take place. (*Folha de Sao Paulo*, 26/04/98) The structure of the new regulatory body foresees the need to deal with the public as consumers not as citizens. The provisions they have cater adequately to consumers through the Consumer Protection Agency, the Ombudsman office, and the Library where all materials published by this agency will be made available for public consultation. (Coopers and Lybrand, 1997) What this means for people's ability to voice their concerns is of great concern; not only will politicians have a hard time influencing regulations, so will the public in whose interest the state is supposed to act.

Brazil has opted for creating a regulatory agency to oversee not only the transition from monopoly to competition, but also the concerns mentioned above. The creation of the National Telecommunications Agency (Anatel) in November 1997 has effectively transferred to the Agency many of the traditional duties performed by the executive branch of the government, the Ministry of Communications. In the area of telecommunications it has helped to cement the government's commitment to

privatization and it ensures that a regulatory framework is in place so as to ease the transition. In Brazil, the Ministry of Communications fulfilled two roles in the government structure that had been in place: first, it was the regulatory body for telecommunications and postal services and it supervised and controlled the activities of the private sector in both these areas. As a regulatory body, it was up to the Ministry of

Communications to establish national communication policies; to regulate, implement and supervise telecom services; to control and administer the radio frequency spectrum; and to regulate and monitor postal services. (Coopers and Lybrand, 1997)

With the implementation of a separate regulatory entity for telecommunications, some of these duties have been transferred to Anatel, although it remains closely linked to the Ministry of Communications. But, because it is a special agency, it will maintain an independent administration, hierarchical subordination will be absent and it will have a fixed mandate and stability for its directors, as well as financial autonomy. Law n. 9.472 secures these conditions. The Council Directory is the highest position, heading the administrative functions of the agency, but will be accompanied by consulting, judicial, library, and ombudsman entities, aside from the special units responsible for different tasks. (Coopers and Lybrand, 1997)

In order to understand the responsibilities and structure of Anatel it is helpful to compare its characteristics with those of another regulatory body for telecommunications. In Canada a single independent public authority was created by a Broadcasting Act in 1967-1968, one that would effectively separate the regulatory functions from the public broadcaster and consequently from political and industrial interference. The Canadian Radio-Television Commission, later expanded to incorporate telecommunications, was

given the responsibility of addressing license concerns and of regulating the broadcasting industry. Although most of its efforts lie with the broadcasting side, it does offer a space in the form of public hearings for the general public, lobbyists, and other interested parties to voice their opinions. (Romanow and Soderlund, 1994)

Parallels can be drawn between the creation of the CRTC and Anatel and the tasks they are required to perform. Whereas the CRTC also has responsibilities for broadcasting and telecoms, Anatel has been appointed to oversee exclusively the sector of telecommunications.

In Anatel's case the reasoning behind its creation was to have an entity able to adopt the necessary measures to address the public's interests and to develop Brazilian telecommunications in an independent, impartial, legal, impersonal, and public manner. Its key functions are to:

- elaborate norms about the telecommunications services in the public and private domains;
- oversee concession contracts and monitor the services in the public sector;
- control and follow the tariffs for services conducted in the public sector;
- administer the radio frequency spectrum and the use of orbits;
- elaborate norms and standards to be met by the telecom service providers regarding the equipment they use;
- control and prevent infractions against the economic order, except those part of the Administrative Council for Economic Defense (CADE).

(Coopers and Lybrand, 1997)

One of Anatel's key functions is to combat the market concentration in the

telecommunications sector and monitor the fulfillment of the obligations outlined in the concession contracts. To do this the Agency may request information and documents from the telecom firms and enforce punishments that range from a warning to the loss of concession.

The funding for the Agency will be comprised of the Telecommunications Fiscal Fund (FISTEL), whose administration will be exclusively conducted by the Agency. Fistel will derive its funding mainly from the Federal Budget, special credits, transfers, authorizations, fines, supervisory taxes and donations. (*General Telecommunications Law, Law n. 9.472, 1997*) These funds for the regulatory agency must be applied to the any costs incurred in the effort to universalize telecommunications services.

Due largely to the relatively current implementation of Anatel it is hard to determine how financial resources were allocated for its operation. Nevertheless, it is useful to detail the budgets of other regulatory bodies and what their expenditures are in order to anticipate what can be expected for Anatel. In the United Kingdom, the regulatory agency OfTel generated revenues of 9.76 million BPs from licensing taxes alone and spent 9.5 million of its 10.1 million BPs budget for 1995-1996.⁹ Fifty-two percent of this 9.5 million went to the payment of its 562 employees. In the case of the Canadian Radio-Television and Telecommunications Commission, 52 percent of its budget is derived from telecommunications revenues and 48 percent from radio and television. Seventy-eight percent of its expenses go to the payment of its staff of 425 employees, which works primarily with radio and TV. (Coopers and Lybrand, 1997)

Nonetheless, regardless of the comparisons made and the similar nature of funding these agencies receive, the main organ for the regulation of service quality by the

newly privatized Telebras firms is as yet unable to exercise its functions: Anatel should have 340 inspectors but only counts upon 130 lent by the Ministry of Communications. When this situation will be rectified is difficult to discern, although it is currently holding competitions to staff these positions.

Anatel, like Oftel and the CRTC, is able to count on the collaboration of other federal government institutions for the fulfillment of its tasks. In combating infractions of an economic nature and market concentration. For example, the agency can count on the support of CADE, an organ connected to the Ministry of Justice. To monitor the quality and expansion of services offered by the Telebras System after its privatization, Anatel will hire consulting firms to ensure the execution of the standards established as the current number of inspectors is insufficient. The agency will also commission studies of public opinion in order to measure user satisfaction and better orient inspection that will be concentrated in the services with the highest levels of complaint. In addition, trimester standards will be established which refer to the plans of Universalization and Quality implemented in December 1997 that contains obligations imposed upon the buyers of Telebras.

One of the key functions that this new regulator has is the authority to set the requirements for universal access. The centralized nature of the system needs to be overcome so that local needs are met within a framework that is broadly acceptable to all market participants, namely the technological and telecommunications sectors. For instance, wireless technology provides an opportunity to bridge gaps that appear insurmountable. (Regli, 1997) But it is only through the co-operation of all these sectors that this opportunity can come to pass. Thus it is up to Anatel to reconcile the interests of

⁹ The conversion rate is 0,6406 pounds = US\$ 1.

all market participants in order to implement new technologies that could help Brazil achieve universal service.

Amongst the attributes of Anatel are the analyses of mergers and firm incorporations, always in conjunction with CADE. The Telebras concessions will be forced to submit trimester reports to Anatel with data about the execution of the goals agreed upon. The Agency predicts that Telebras users' complaints will increase after privatization of the SOE, since one of the arguments made by the government in favour of privatization was the promise of an improvement of services that were under public administration.

As an instrument to defend the customers during the competition phase, Anatel has an important responsibility. If a customer does not receive his/her telephone within the prescribed deadline or if there are any discrepancies in the billing, Anatel would act immediately and fine the operator, and in extreme cases revoke the concession. In addition, the assumption is that with free market competition, the consumer will have the choice of switching operators when not satisfied. Previously, the operators were protected by the state monopoly and this choice was unavailable. ("Telebras," June 1998)

After all, the Agency's mandate states that it should promote the development of telecommunication in the country in order to build a modern telecommunications infrastructure. This infrastructure would be able to provide adequate and up-to-date services at the right prices, covering the whole national territory.

The actual formulation of the program to privatize the Telebras System that would lead to vast advances in terms of access and quality of services was effected through the radical transformation of the enterprise and the gradual intention to gradually introduce

competition.

Formulation of a Program to Privatize Telebras

Beginning with the approval by the National Congress of the Constitutional Amendment n. 8, which opened the telecommunications market in Brazil, the government of Fernando Henrique Cardoso promoted a complete revolution in the sector to be executed through Anatel. On July 29th, 1998 when the government auctioned the shares it held in the Telebras System, Brazil exchanged a monopoly regime for a private system that intends to introduce competition and guarantee access to telephone services to the entire population. Immediately, competition will consist of one other provider for each of the newly formed regional companies in fixed and cellular telephony. By 2001 other providers will be able to sign contracts that will authorize them to offer services in these markets. The number of fixed telephones that are required to be installed through federal decree by 2001 is 33 million, almost double what was installed by Telebras under monopoly regime. (*General Plan*, 1998)

After the constitutional amendments in August 1995 many other changes took place in the sector and followed several steps. The first step was the launching of REST1 and REST2 (Structural Reform for the Telecommunications Sector) in September 1995, as well as PASTE (Program for the Recuperation and Amplification of the Telecommunications System and Postal System) in November of the same year. Their aim was to construct an institutional framework that stimulated national and foreign capital investment in the sector. At the same time, through contracts, it forced these investors to meet the goals of universal supply of telephone lines and the improvement of

customer service. At present, 11 fixed telephones exist for every 100 inhabitants, while in countries like the US, Canada and Sweden the average varies between 60 and 70 telephones for every 100 people, respectively.

With the privatization of Telebras, the new providers are required by the terms of the concession to triple the offer of fixed telephones in Brazil by 2007. This would mean that 50 million telephone terminals will be in service in less than 10 years of privatization. In comparison, during the entire period of state monopoly, Telebras installed approximately 17,5 million telephones, 2.1 million of which were installed in 1997.

Public telephone terminals should increase from 498 thousand to 713,2 thousand by 2000 and 981,3 thousand in 2001. (Figueredo and Trevisan, 30/07/98) In addition, the distance between the terminals will have to decrease. Starting on December 31, 1999, there should be one terminal every 800 meters. Two years after, the distance should be further reduced to 500 meters and by December 31, 2003 the distance should be of 300 meters. The costs for the extension of the telephone service will be incurred entirely by the new owners of Telebras, except for those locations with more than 1000 inhabitants (until December 31, 2001), in which case, Anatel can suggest locations that require additional terminals. (Figueredo and Trevisan, 30/07/98)

Nevertheless, it is not enough to have telephones available if the population is not able to afford the tariffs for use of the service. To ensure that this does not occur, the firms that will operate in the telecom market will not only have to reduce the length of time for the installation of the telephone¹⁰ and the distance between public terminals, but

¹⁰ In five years a person who buys a telephone line could wait a week at the most, while currently in Sao Paulo the wait can last up to three years since there are 7.2 million people in line awaiting telephone

will also have to reduce tariff costs gradually and improve customer service. (*Folha de Sao Paulo*, 25/07/98; *Folha de Sao Paulo*, 30/07/98) The cost of calls is supposed to drop by 4,9 percent for local calls, 29,6 percent for intrastate calls, 51,6 percent for interstate calls, and 70,9 percent for long distance calls by 2007.

For comparison purposes, the price for a telephone installation in the US varies between US\$ 55 and US\$ 200 and is done within seven days. The local cost per call is US\$ 0.10 per minute, US\$ 0.10 to US\$ 0.25 per minute for interstate calls, and US\$ 0.50 to US\$ 0.60 per minute for an international call (to Brazil). In Argentina the cost for the installation of the telephone line varies from US\$ 150 to US\$ 250 and is installed within three days. The cost of making a local call is US\$ 0.05 per minute, \$1.28 for first minute and US\$ 0.96 for every subsequent minute in the case of international calls. (*Folha de Sao Paulo*, 25/07/98)

In the elaboration of a restructuration program and the privatization of the Telebras System, the Ministry of Communications not only established requirements for the expansion of services, but also requirements for the improvement of the quality of these services. Since a larger number of people will be using telephone services and for longer periods of time, the traffic of telephone calls will witness a substantial increase. In order to attend to this demand, the operators will have to invest heavily in technology, equipment and qualified labour. The integral completion of these goals is guaranteed to the Brazilian population by the concession contracts given out by Anatel and already signed with the new operators.

These regulatory considerations are one of the steps necessary in the pursuit of

service. Also, the cost will increase from US\$ 42.74 to US\$ 68.38. (*Folha de Sao Paulo*, 25/07/98) Please see Appendix 6 for graphical representation of the waiting list for fixed terminals.

privatization. Another, concerns specifically the model to be chosen for this endeavour. For a better appreciation of this program an analysis of the model adopted by Brazil in order to carry out the privatization of the Telebras System is needed.

The Model Adopted for the Privatization of the Telebras System

The privatization of a national carrier can take many forms, as detailed in a previous chapter by Aileen Pisciotta, and Brazil opted for privatization with phased in competition.

In this instance, the privatization of the national carrier is followed by a sustained period of limited competition in different areas of telecommunications, like basic telephone service, long distance and cellular service. Countries that pursue the model of gradually introducing competition usually want to either maximize the value of the sale of the national carrier or believe that a private operating monopoly under strict regulatory scrutiny for a period of years is the best way to achieve universal service through infrastructure build-out. (Pisciotta, 1997)

The privatization model adopted for the Telebras System, conceived over the last three years by the American financial and management consulting firm McKinsey, was likely done in order to comply with the standards established by the WTO. Brazil was one of the 69 countries that ratified the WTO agreement of basic telecommunications services in 1997, which endorses wholeheartedly the liberalization of telecom markets. Upon this approval many governments, including Brazil, committed to further their existing domestic liberalization programs, albeit on a phased-in basis. (Drake and Noam, 1997) Even though this broad commitment to reform exists, different countries have

formulated variations of the model for the introduction of competition. In comparison with other Latin American and European countries, Brazil has adopted a model that mirrors them and simultaneously differs from them as well.

The concession period for any company that purchased a Telebras firm is of 20 years, with the introduction of limited competition starting in 1999. Also, major restructuring has taken place and the sale involves all government assets in the company. The government auctioned the control over its shares of the telephone companies imposing no restriction upon international participation. The significance of such a move is that if a single person of another nationality wanted to pay US\$ 2.99 billion for one of the telephone companies, like the fixed line for the Telesp network, then he/she could be the sole owner.

In Europe, for instance, the models adopted by Portugal, Spain and Italy are somewhat different. They sold their companies in stages and broke the controlling stock into smaller blocks of shares. The Portuguese government (that concluded the sale of Portugal Telecom in 1997) fixed a ceiling of five percent of the shares per buyer. The largest shareholder of Italia Telecom is Banca d'Italia who has 2,29 percent of the company. In Spain, the main block of shareholders is comprised by three Spanish banks that together hold 15 percent of the capital of the company. Brazil is potentially opening the market to a single owner in each one of the regional areas.

At the auction the Brazilian government sold 51,79 percent of the common shares of Telebras, that allowed for the right to vote and defined who controlled the company (they represent 19,26 percent of the holding's capital). The rationale offered by the Minister of Communications, Luiz Carlos Mendonca de Barros, was that the sale of

smaller blocks of shares devalues the overall worth and that the country is not in a position to forgo the extra revenue.

In other Latin American countries the models adopted by some governments in the privatization of their telecoms adopted different approaches. Mexico privatized Telmex in 1990, at the same time that Argentina privatized Entel and the Chilean government sold the Compania de Telecomunicaciones de Chile. The first two adopted variations of a privatization model with gradual competition while the latter chose full liberalization.

Mexico reserved the market for six years for long distance calls for the consortium that bought Telmex, but imposed two conditions not favoured by the Brazilian government: it required that the telecom company remain under Mexican control and it also forbade the TV networks from participating in the deal. In contrast, the Brazilian government did not impose restrictions to the communications groups in the purchase of Embratel, the company that controls the Brasilsat satellites that transmit radio and TV signals. The broadcasters can become shareholders but will not have the right to vote on Embratel issues that involve the private interests of the broadcasters.

In the Argentinean case, the government privatized Entel by dividing the area it encompassed into two. The north part of the country was sold to the consortium led by Italia Telecom and France Telecom. The south went to the consortium headed by Telefonica Espana. The capital city, Buenos Aires, was divided in half between the two consortia. Not only do they not compete amongst themselves, but the two consortia are partners in Telinter, that has the monopoly over the long distance calls and A Band of the cellular service, Movistar. That is to say, the Argentinean government substituted an

existing state monopoly for a private one: it reserved seven years for the long distance market and promised three more years without competition to both consortia if they fulfilled the requirements outlined in their concessionaire contract - which in fact took place. The private monopoly has been effectively extended until the year 2000.

Chile took the opposite route and is held as one of the most competitive markets in the world, with twelve companies offering long distance service. According to a study conducted by the Fleming Graphus Bank, the average cost of an interstate call in Brazil is US\$ 0.12, whereas in Chile it is US\$ 0.09 per minute. But this is not all that significant a difference and does not commend the model of complete liberalization. Six companies have a license to offer local telephone service, but the former state company, Compania de Telecomunicaciones de Chile (presently controlled by Telefonica Espana) dominates 91 percent of the market. (Lobato, 25/07/98)

The Chilean model differs from the Brazilian one in one crucial instance: it stimulated the aggressive competition to reduce the prices in the large centres, but left it up to the State to ensure the poorer regions are serviced. The Chilean government created a fund to subsidize the installation of telephones in rural areas. The Brazilian government opted for an intermediary path: there will be a duopoly in the local and international telephone service until the end of 2002, when full competition will begin. On the other hand, it fixed annual rates for the increase of lines and for the installation of public telephones in the poorer areas (Lobato, 25/07/98)

Parallel to the formulation of a model of reform was the development of a restructuration of the sector that influenced the model and the rules for competition. This restructuration followed the US model of deregulation that saw the dissolution of the

AT&T monopoly and the creation of regional companies. (Benitez, 1992) Privatizations in general have also included significant market reorganizations in order to provide a smoother transition. Anatel and the Brazilian Development Bank (BNDES) carried out this restructuring process along with the privatization process itself.

The Telebras System was, at the time of its privatization, the largest state company with an equity estimated at US\$ 94 billion. It was restructured to transfer to three regional companies the 27 regional state companies.¹¹ As well, Embratel, the long distance, telex and data carrier formed another company, as did the analog and digital cellular telephone service bands. (*Gazeta Mercantil*, 27/10/97)

The federal government set the minimum price of the company at US\$ 11.51 billion for its participation in the holding company, Telebras: 50.04 percent of the common stock and 3.34 percent of the preferred stock, besides the B Band, a parallel digital cellular telephone service to be operated by private companies. These calculations also include the A Band for cellular telephone service, which was restructured in eight areas, bringing the new companies to a total of twelve after the division.

The minimum price for the sale of Telebras was based upon evaluations made by international consulting firms, hired by BNDES, that made use of internationally accepted methods and criteria applied to the transfer of control over the firms, that is discounted cash flow. To this sum the government added 20 percent of *agio*, the extra value a seller asks for or the buyer is willing to pay in addition to the nominal value of any asset.

The first telecom companies to be privatized were those belonging to the regional provision of B Band digital cellular telephone service sold in 1997. The areas for

concession were divided into ten regions and although one has yet to be sold (North of the country) the other sales were highly profitable. Most of the consortia were comprised of mixed capital (foreign and domestic) and paved the way for the regulation of the larger block sale to be held the following year.¹² (Anatel, 27/05/98)

Of the 12 Telebras companies that were privatized in 1998 the main one is Telesp, which covers the state of Sao Paulo. The number of people that live in that concession area is approximately 34 million and the liquid assets of the company are valued at US\$ 6.7 billion. The second regional firm, named “Tele Centre/South,” is made up by the states of the south and central-west regions and northern states of Rondonia and Acre, and have the combined value of US\$ 4.1 billion. The third one involves Minas Gerais, Rio de Janeiro, Espirito Santo, all of the states of the Northeast region and those remaining of the North region. It is called “Tele North/Northeast/East” and is worth US\$ 7.95 billion.

Embratel, the Telebras subsidiary responsible for long distance calls along with 40 other types of data transmission services, is the fourth company sold. Valued at \$ 5,5 billion it generated US\$ 2.2 billion in revenues in 1997 and had US\$ 434.2 million in net profit. (*Folha de Sao Paulo*, 25/07/98)

This restructuring has helped to operationalize the privatization of the telecommunications sector, along with other factors such as the Constitutional Amendment and the creation of an agency responsible exclusively for regulating the Telebras System during its competition phase.

Anatel was also responsible for developing, coordinating and monitoring the rules

¹¹ Please see Appendix 7 for graphic representation of the regional divisions.

¹² Please see Appendix 8 for a complete list of the results for the sale of the B Band mobile cellular

for competition on July 29, 1998. The rules of competition that guided the participation in the auction of the Telebras System were quite structured for the participation of its own SOEs; the pension funds linked to public administration; and cellular operators in the recently privatized B Band.

The auction, elaborated on the US model whereby the state administers competition, was divided into three large blocks: the first of fixed telephony and the other two of cellular telephony grouped by region. No one company was allowed to have 20 percent or more of the voting capital in more than one company in the same block. The government decided that it had to establish limits to partnerships, otherwise six companies could have bought the entire Telebras System since each one alone would only have 16,67 percent of the shares for sale. Furthermore, a firm cannot integrate two consortia that compete in the auction for the same company. Those interested could, for example, compete as minority interests of other consortia in the same block. (*Folha de Sao Paulo*, 26/07/98)

These rules established by Anatel also extended into the creation of a system that would disclose company information to any consortia interested in participating in the Telebras sale. Although these companies had to pay for this privilege many signed up but did not participate in the actual sale.

This information disclosure was done in an attempt to show the market that the privatization of Telebras was a sound source for investment. The investors were able to access this data in “data rooms” that were open for visits by those interested. Whoever visited these rooms was required to maintain the disclosed figures secret. (*Correio Braziliense*, 16/05/98) In all there were twelve data rooms established, one for each of the

service.

firms being privatized, with an average of ten consortia participating in these information banks. The participation in the data rooms was comprised mainly of European firms, from Italy, France, Portugal. Nevertheless, some domestic consortia, such as Globopar, Simonsen, Splice, and Bozano also participated, as did some American firms like MCI, Sprint, Bell South, and Air Touch. (*Correio Braziliense*, 17/05/98)

To further solidify this image of a financially and politically stable country and a good source for investment, the government freed any restriction on the participation of international capital in the privatization process. The government decided not to impose any limitations upon the foreign firms that wanted to purchase any of the assets for sale. The breadth of the participation of foreign capital had been a key doubt in the privatization process. The slow action by the government was motivated by judicial doubt in the interpretation of the Telecommunications Law, sanctioned in 1996. The legal text that gave the judicial basis for the concessions of the B Band of cellular telephony states that the national capital was guaranteed 51 percent capital participation until 1999. The government's interpretation, however, is that this clause does not require that the control of cellular telephony remain in Brazilian hands. In this manner, the rules for the A Band will be different than those for the B Band. (*Correio Braziliense*, 16/05/98)

This end to foreign capital limitations came about because the government wanted to attract the maximum number of international investors for the sale of the SOE. The government feared that any limitations to the entrance of foreign capital could push away potential investors that were not interested in forming partnerships with Brazilian companies. In practical terms this meant that foreign companies did not have to associate themselves with domestic groups.

Another non-exigency was the presence of a telecom operator in the consortia that would compete in the privatization of Telebras. Without this obligation, other productive sectors were able to participate. This also gives more of an impetus for the imperative that dominates most privately owned companies. No longer is there concern for the integrity and particularities of telecommunications, rather the bottom line rationale of maximizing efficiency take precedence.

The image of Brazil as a financially and politically stable country in the international arena was a great concern for the government. The many allowances made in terms of lifting all restrictions to foreign participation are indicative of this concern. Due in large part to recent crises that have taken place in other emerging economies such as Asia and the Soviet Union, international investors required greater incentives to participate in the Telebras privatization. (*Correio Braziliense*, 19/07/98) The government did not hesitate to allay these fears and accommodate the needs and preferences of the international potential buyers.

The status of the domestic economy at the time of privatization and how the investors assess market prospects go a long way to determining whether or not the interest in the auction will be significant. (Petrazzini, 1995) In Brazil the market economy was strong with the reduction of inflation to controllable levels (four percent annually)¹³ and the perseverance of the “real” currency in terms of its value. It was President Cardoso, as finance minister who invented this currency four years ago. (*The Economist*, 12/09/98) In terms of potential markets, Brazil is touted as one of the most attractive and potentially lucrative markets. So in that respect it would appear that Brazil’s privatization of Telebras had the right ingredients to attract heavyweight foreign investment.

With the auction of the Telebras System on July 29, 1998, the Brazilian government held the biggest privatization in block done to date - the sale of the 12 companies of the Telebras System for US\$ 18.852 billion. The agio (in practice the extra value paid by the winners on top of the minimum price established by the government) was of 64.99 percent.¹⁴

The foreign groups, especially the Spanish and Portuguese, dominated the dispute with their consortium's purchase of Telesp (fixed), and Portugal Telecom's purchase of Telesp (cellular), the two choice companies in the Telebras System. Of the 12 companies privatized, consortia comprised of foreign capital bought four. In 6 others there was a combination of foreign and domestic capital. Only two companies were bought exclusively with domestic capital: Telecentrewest (cellular) by the Splice consortium and Telenortheast (fixed) by another consortium. The foreign consortia invested US\$ 6.9 billion, more than double what was paid by the companies bought by domestic capital. The combination companies (those comprised of foreign and domestic capital) invested US\$ 8.68 billion. (*Folha de Sao Paulo*, 30/07/98) The companies that won the bids for the firms belonging to the state monopoly will have 20 years of concession if they fulfill certain requirements by December 31, 1999.

Nevertheless, the majority of users will not experience immediately the benefits promised by competition between Telebras and other companies - one of the key arguments used in favour of privatization. The state monopoly will be substituted by a private monopoly in most of the country.¹⁵ The only immediate competitors are going to be the "mirror" companies. In the present model of privatization, the power held by the

¹³ This is the lowest annual rate since the 1950s, and it has come down in recent months.

¹⁴ Please see Appendix 9 for the complete results of the privatisation.

privatized telecoms will be reduced by competitors called mirror firms, which will gain authorization to act in the same concessionaire area.¹⁵ This means that there will also be a mirror firm for Embratel, another for Telesp, etc.

These new companies will have significantly less power than the current state companies and they will have a stake in less valuable areas. Furthermore, contrary to the existing telecoms, they will not be required to fulfill the telephone universalization requirement. The only obligation of these mirrors is to guarantee, at the very least, the servicing of cities with more than 200 thousand inhabitants (95 in the whole country) - which includes the capital cities of each state and the Federal District. These cities represent a very small portion of the country's area, but closer to 50 percent of the country's population.

The consequence of this is that in 2007, the competitors of the privatized Telebras System will only have 15 percent of all the residential terminals (or 20 percent of the call made from homes). In the case of the privatized telecoms, they will be responsible for the remainder. In the non-residential market, the telecoms would be operating 75 percent of the terminals and making 65 percent of the calls made outside the homes. The other companies would do the rest.

According to Anatel, the restricted competition will be compensated by the concession contract imposed by the purchasers of Telebras, which demands a reduction in tariffs and fix standards for quality and the expansion of services. The judicial proceeding for the mirrors will be concluded in December 1998 and they will be authorized to begin functioning and offering service starting in 1999. Anatel predicts that

¹⁵ Refer to Appendices 10-13 for an outline of the introduction of competition.

¹⁶ Please see Appendix 14 for the phases of the legal process to introduce the mirror companies.

the mirrors will be allowed to use the WLL system (Wireless Local Loop), that enables a company to offer local telephone service without wires, cables or posts. The companies that bought Telebras will have to wait for a period of two years to use WLL.¹⁷ The reservation of this technology for the mirrors is necessary, according to Anatel, because they are not going to be acquiring any of the state's infrastructures as did the firms that bought the state company. (Godinho, 25/07/98)

Despite internal disputes over what should be done with the money received from the sale of Telebras, it will be primarily destined for the reduction of the federal debt. The remainder of the money will be used to invest in public services. The decision for focusing on the debt reduction has much to do with the Asian and Russian crises, that has made foreign investors increasingly suspicious of emerging economies. By doing this, in spite of the fact that so far the results have not demonstrated that privatizations reduce debt, it will give foreign investors a more stable image of the country. The use of the funds received from this privatization will result in savings of \$23,3 billion for the next president (Cardoso has been re-elected). Concomitantly, it could also have resulted in the settling of land for 582 thousand landless people in Brazil. (Patu, 25/07/98)

What the Future Holds in Store

For the Brazilian government some targets were established for the near future. For the fixed telephony it aims to reach 21.7 million accesses in 1998; 24.7 in 1999; 40.0 million in the year 2003. Concerning the mobile cellular service the target amounts to 8.2 million accesses in 1998; 9.6 in 1999 and 17.2 in 2003. Regarding cable TV it aims at 5.5 million accesses in 1998; 7.0 in 1999 and 16.5 in 2003.

¹⁷ Please refer to Appendix 15.

To reach these targets it has decided to keep its main strategy: privatization to induce competition in order to attain telecommunications service universalization and quality. The instruments to foster these strategies are the launch of mirror companies, ensure that the contracts granting concession and the terms of authorizations and permissions, as well as the regulations and inspections, are able to enforce the plans of universal service and quality targets.

A fundamental concern on all these matters is technological development, especially those more adequate and adjusted to the Brazilian context. In this sense the role and performance of Anatel not only in implementing efficiently the privatization program but also adjusting it constantly to new developments is crucial. Even if the Brazilian model tried to take into account the lessons of the experiences going on around the world and to adapt them to the Brazilian economic, social, cultural and political context, the new system is not fully safe to face all challenges that lay ahead. Therefore it is paramount to set a permanent and robust evaluation system to be able to reorient directions, whenever needed.

Conclusion

Highlights, Trends and Perspectives of Telecommunications in Brazil

Telecommunications - especially after its technological development, its consolidation as an industry in its own right, and its creation of new balances of power at the domestic and international levels - became one of the most prominent technologies by the end of this century. Its impact upon society, people's day-to-day lives, and the many cultures around the world is both pervasive and mutually influencing.

There is practically no element of modern society that remains untouched by the technologies of telecommunications. It also enables disadvantaged societies to leapfrog technological steps and participate in the same arena as other more advanced countries and thus bridge the gaps in their development. Because telecommunications by its very nature is mutually influencing, users and their needs also impact it. The rate at which it develops and which applications it will be used for are determined by decision-makers on behalf of the people they represent.

Telecommunications has also managed to accelerate the whole process of change, given its capacity to reduce the dimensions of time, space and cost. These properties can best be seen in the rate at which the world is becoming economically integrated to the extent that events in one country are immediately felt across the globe. Globalization is a phenomenon that intensified after World War II and changed the pace of human interrelations around the world.

The new demand for telecommunication technologies is growing at an exponential rate and investments required in this field are not only considerable, but also worthwhile due to the potentially high rates of return. In order to meet these new challenges companies and governments have been forced to let go of their traditional policies, strategies and relationships.

Firms have had to increasingly engage in joint ventures and mergers in order to take advantage of particularly promising opportunities. This has intensified the trend towards the concentration of ownership and new types of partnerships in order for firms to survive. The national arena no longer provides a large enough market for these companies and they have therefore expanded their interests across national borders to participate in other markets.

This phenomenon has triggered a revision of the traditional standings of states on these matters, not only in terms of who they will allow to participate in their markets but also in terms of what their role is going to be vis-a-vis this trend. This has occurred in developed, as well as in developing and emerging countries. Even if maintaining as a fundamental principle the retention of the signals and frequencies as well as the formulation of policies and the control of the system as a state prerogative, a growing number of governments are transferring to the private sector the actual operation of their telecommunications enterprises.

During the past decade it has been possible to discern a clear trend towards the transfer of the operation and delivery of telecom services to the private sector. A private company has the financial and technological capability to remain flexible in the face of continuous changes and is thus probably better suited for this kind of task. Nevertheless, in this scenario the state should not neglect to take the appropriate measures to avoid the risk of fostering a private monopoly or oligopoly that tends to not benefit consumers. It is essential that a real competition process be in place to enforce the virtues of the market and ensure that the benefits are distributed more equitably. It is likely that a strong market will bring about efficiency, quality of the services, reasonable prices and the access to

basic services for the population at large. Nonetheless, these conditions are not easily met and they constitute the core of the whole telecommunications privatization process.

The objective of this thesis was to analyze the reasons why it has become less convenient for a telecommunications enterprise to remain as a state monopoly in light of all the changes that have taken place in the sector. The technological innovations that have taken place in this field, the transformation of telecommunications into a renovated industry and the shifts that have occurred in the mechanisms of power are some of the real factors that have made this the case. An attempt to explain why governments increasingly turn to privatization as a solution to address real deficiencies in the strategic sector of telecommunications was done, including presenting the background information relevant to this process.

In order to accomplish this, the theoretical foundations of political economy and the pertinent literature offered a basic tool to examine the privatization trend taking place within the telecommunications sector world-wide. The Brazilian case study was particularly relevant because it grounded in real events the ideas and explanations put forth by the theory and literature. The three streams of political economy - free-market state, economically centrally planned state, and mixed economy - helped to situate the Brazilian context.

Aware of the positive and negative effects of free-market economies and economic centrally planned states, mixed economy emerges as an attempt to promote national development through state participation in some central sectors. In a free market economy all individuals are viewed as equal, but the wealth generated is not equitably distributed because not every individual is on an even playing field. In an economic

centrally planned state the government steps in and tries to distribute the wealth equally, but experience has shown that this does not necessarily mean individuals are adequately provided for nor is there any credit given based on merit. The underlying premise of a mixed economy is that the participation of the state in key sectors of the economy will lead to national development. Private capital is not absent in this scenario and operates alongside the state in certain capacities. Mixed ownership of the means of production is, in fact, characteristic of all contemporary economic systems, although private enterprise is still heavily circumscribed in former and remaining communist countries.

Brazil had a long history as a mixed economy, which helped cement its position as a strong state. Despite this, it realizes that it is less convenient for it to continue to pursue the developmental path that had once served it so well if it wants to achieve economic efficiency. The need to strengthen its market has proved a strong incentive to adopt measures that would enable it to remain a player in the international arena. Hence the recent trend in Brazil, as well as in other countries, that witnesses the transfer of traditional state functions to the private sector.

The analysis of this trend reveals many underlying issues: the impact of military concerns, the adequacy of the import substitution industrialization approach, the changing role of the state, the transformation of the private sector and the continued participation of foreign capital, and what these factors have meant for the development of the telecommunications sector and the country.

In order to explore these issues, the reasons put forward by the Brazilian government to privatize were analyzed; the hurdles faced by this undertaking were examined; some insights on the Brazilian experience concerning regulation of public

utilities were taken into account; the main steps of the Brazilian program to privatize the Telebras system were detailed; the model adopted to privatize the Telebras System was described; and the programs for the future devised by the Brazilian Telecommunications Agency (Anatel) were also presented.

Brazilian decision-makers tried to take into account similar international experiences, as well as the economic, social, cultural and political context of the country. They took all the measures and created all the instruments they considered relevant to guarantee competition and the universalization of the system. Certainly everything will not go as planned and unforeseen and unexpected events can happen. Given the complexity and the size of this undertaking, not to mention the risks, it seems worthwhile to follow up on this experience and examine the impact it will likely have on future telecom privatization initiatives.

By its very nature, this topic lends itself to continuous investigation and the conclusions drawn in this thesis, including the need of the Brazilian state to privatize its telecom sector, may need to be readjusted according to new discoveries. Without a doubt the interest in the Brazilian case will increase since the privatization of Telebras is a significant fact in the history and experience of telecommunications. It will be interesting to observe how this recent process will affect the future of telecommunications in Brazil and perhaps even in other national contexts.

Appendices

Economic and Geographic Data (1996)

Population	168.8 million inhabitants
Territorial Extension	8,547,393 Km ²
GDP	778.8 billion dollars
GDP per capita	US\$ 4,957
Number of households	39.8 million
Urban	32.3 million
Rural	7.5 million

Source: Anatel

Appendix 2

Source: ITU / Anatel

Appendix 3

Source: Anatel

Appendix 4**Partial List of Privatizations in the Telecommunications Sector (1983 to 1997)**

Country	Company	% sold	Date	US\$ million
Argentina	Telefonica Argentina	69	1990	482
Argentina	Telecom Argentina	60	1990	462
Bolivia	ENTEL	50	1995	610
Canada	Teleglobe	100	1987	369
Chile	ENTEL	100	1988	N/A
Greece	OTE	6	1996	377
Hungary	MATAV	67	1995	1750
Japan	NTT	13	1986	13850
Republic of Korea	Korea Telecom	2	1993	200
Malaysia	Telekom Malaysia Berhad	24	1990	2350
Mexico	TELMEX	20	1990	1757
New Zealand	Telecom Corporation of New Zeland Ltd.	100	1990	2500
Peru	Telefonica del Peru	100	1996	1350
Puerto Rico	Telefonica Larga Distancia de Puerto Rico	80	1992	142
Singapore	Singapore Telecom	11	1993	2500
UK	Cable & Wireless	49	1981	452
UK	BT	51	1984	5187
Venezuela	CANTV	40	1991	1900

Source: Brian J.W. Regli (1997) *Wireless: Strategically Liberalizing the Telecommunications Market*. (Mahwah, New Jersey: Lawrence Erlbaum Associates), p. 53.

FUNDAMENTAL STEPS FOR THE REFORM OF THE TELECOMMUNICATIONS SECTOR

Source: Anatel

EVOLUTION OF THE WAITING LIST FOR FIXED TERMINALS

million

- Redistribution and growth of income
- Evolution of telecommunications necessities
- Significant fall in the price of installation

Source: Anatel

DIVISION OF THE COUNTRY BY REGIONAL EXPLORATION

- Continuity
- Compatibility with the regions designed for the exploration of Mobile Cellular Service
- Strategic compatibility with the social politics of the government
- Integration of the different geopolitical regions of the country
- Large scale and potential for significant growth
- Balance in the size of the markets and total richness

Region IV : Brazil
(Embratel)

Appendix 7

Source: Anatel

Appendix 8

Results of the Sale of the B Band in Mobile Cellular Service

- *Area 1* : Metropolitan region of Sao Paulo granted to BCP consortium at the price US\$ 2.3 billion (minimum price was US\$ 512.8 million). BCP's capital, based in Sao Paulo, has the following composition: Santabel (43.99%), Verbler (44%), OESP (6%), Splice (6%), Bell South (0.01%);
- *Area 2* : Interior of the State of Sao Paulo granted to Tess consortium at the price of R\$ 1.1 billion (minimum price was US\$ 512.8). The Swedish company Telia Overseas (49%), Primav (39%), Erline Cellular (12%) comprise the consortium of new owners;
- *Area 3* : States of Rio de Janeiro and Espirito Santo granted to Algar Consortium at the price of US\$ 1.29 billion (minimum price was US\$ 427.4 million). Lightel, Grupo Algar, Korea Mobile Telecom International, and Construtora Queiroz Galvao made up the winning consortium;
- *Area 4* : State of Minas Gerais granted to Vicunha consortium at the price of US\$ 440.4 million (minimum price was US\$ 341.9 million). Italia Telecom/Stet International (43.15%), Vicunha (36.95%), Globopar/Bradesco (19.9%) was the winner for this area;
- *Area 5* : States of Parana and Santa Catarina granted to Global Telecon consortium at a price of US\$ 661.5 (minimum price was US\$ 282 million). The winner was the Global Telecom consortium: Global Telecom/Suzano (30%), Inepar (21%), Motorola (14%), DDI (30%), and Nissho Iwai (5%);
- *Area 6* : State of Rio Grande do Sul granted to Telet consortium at a price of US\$ 285.9 million (minimum price was US\$ 282 million). Telet Consortium has: Citibank, Bell Canada International (20%), Telesystem International Wireless Brazil (20%), International Equity Investment (9%), La Fonte, Opportunity and the Pension Funds - Previ (6%), Sistel (6.6%), Petros (6.6%), Funcep (6.6%), Valia (3.85%), Instituto Aeris (3.85%), Telos (3.85%), Facheaf (1.5%) - as well as Operate Participations (3.85%), and Forpart (3.85%);
- *Area 7* : States of Goias, Tocantins, Mato Grosso do Sul, Mato Grosso, Rondonia, Acre e Distrito Federal granted to Americel consortium at a price of US\$ 289.3 million (minimum price was US\$ 230.8). The name of the winning consortium is Americel and is comprised by Bell Canada International (20%) and Telesystem;
- *Area 8* : States of Amapa, Roraima, Para, Amazonas e Maranhao (the auction was canceled for this area for lack of interested parties);
- *Area 9* : States of Bahia and Sergipe granted to the Vicunha consortium at the price of US\$ 213.7 million (minimum price was US\$ 196.6). Italia Telecom/Stet (43.15%), Vicunha (36.95%), UGB/Globo/Bradesco (19.90%) are the companies that comprise the winning consortium for this area;
- *Area 10* : States of Piaui, Ceara, Rio Grande do Norte, Paraiba, Pernambuco, Alagoas granted to BSE consortium at the price US\$ 474.8 (minimum price was US\$ 196.6). The participants in this consortium are Bombshel (43.99%), Verbier (44%), OESP (6%), Splice (6%), and BellSouth (0.01%).

Source: Anatel

Appendix 9**Results of the Privatization**

PRIVATIZATION OF THE TELEBRAS SYSTEM				
SALE TOTAL		US\$18,852 BILLION		AGIO 64,99%
Firm	Minimum Price (in US \$ million)	Price Offered (in US \$ million)	Consortium	Agio (%)
Telesp (fixed)	3,009	4,943	Telefonica Espana/Portugal Telecom, Iberdrola, Banco Bilbao y Viscaya	64.28
Tele Center/South (fixed)	1,581	1,769	Telecom Italia	11.09
Tele North/East (fixed)	2,906	2,935	Andrade Gutierrez/Inepar, Sul America Seguros, Funcef, Antonio Dias Leite, and Allianca da Bahia	1.00
Embratel (fixed)	1,538	2,265	MCI	47.22
Telesp Cellular (A Band)	940	3,067	Portugal Telecom	226.16
Telemig Cellular (A Band)	197	646	Telesystem, Fundos de Pensao, and Opportunity	228.70
Tele Southeast Cellular (A Band)	487	1,162	Telefonica Espana, Iberdrola, Itochu, and NTT	138.80
Tele Cellular South (A Band)	196	598	Globo, Bradesco, and Telecom Italia	204.84
Tele Center-west Cellular (A Band)	196	376	Grupo Beidi (Splice)	91.30
Tele Northeast Cellular (A Band)	192	564	Globo, Bradesco, and Telecom Italia	193.83
Tele North Cellular	77	161	Fundos, Opportunity, and Telesystem	108.88
Tele East Cellular	107	366	Telefonica Espana, Iberdrola	242.40
SALE TOTAL		18,852		64.99

1) The firms that purchased a Telebras company will have 20 years of concession over the installed network.

2) The mirror companies are the competitors for the fixed telephone concessionaires, similar to the B Band of the mobile cellular telephone service.

- Figures converted from the original data submitted in reais to US \$ (rate: US\$ 1 = R\$ 1.17).

Source: <http://www.mc.gov.br/AreasAtuacao/Privatizacao/result_leilao.htm>

DIFFERENCES BETWEEN THE CONCESSIONAIRE AND AUTHORIZED REGIMES

Source: Anatel

COMPETITION IN ALL THE MODALITIES

Each user has various options for each service:

Type of service	Local	Regional Concessionaires (3)		Authorized (3 firms - 1 per region)	1 Concessionaire	1 Authorized	<ul style="list-style-type: none">• 1 existing firm• 1 new firm	2 options	
	Long distance intra-regional					1 Authorized	<ul style="list-style-type: none">• 2 existing firms• 2 new firms	4 options	
	Long distance inter-regional						<ul style="list-style-type: none">• 1 existing firm• 1 new firm	2 options	
	Long distance international								

Appendix 11

Source: Anatel

CHRONOGRAM FOR THE INTRODUCTION OF COMPETITION

Source: Anatel

MODIFIED CHRONOGRAM FOR THE ADVANCED SERVICING OF OBLIGATIONS

PHASES OF THE LEGAL PROCESS FOR THE AUTHORIZATION OF THE MIRROR COMPANIES

Habilitation	Technical Proposal	Price proposal
<ul style="list-style-type: none"> • Judicial habilitation • Technical qualification • Financial-economic qualification • Fiscal Regularity 	<ul style="list-style-type: none"> • In conformance with Anatel's regulation • Agreed upon extension <ul style="list-style-type: none"> – Minimum – Additional 	<ul style="list-style-type: none"> • Price to be paid for the right to explore STFC under the concessionaire regime

Source: Anatel

RADIO FREQUENCY USE FOR THE FIXED TELEPHONE SYSTEMS (WLL)

- Immediate liberation of radio frequencies in any place included in the authorization terms
- Payment to be included in the value of the proposed price
- Right to use for a period of 20 years, renewable a single time

- Radio frequencies liberated only in the municipalities with less than 50,000 inhabitants or not included in the authorized service plan
- Radio frequencies liberated in the rest of the municipalities two years after the contract with the authorized is signed

Source: Anatel

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