



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

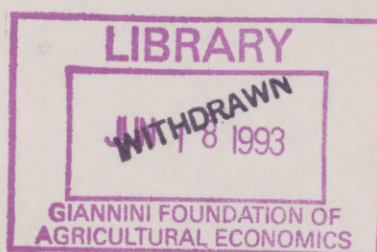
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.



INSTITUTE
FOR
POLICY
REFORM



Working Paper Series

The objective of the Institute for Policy Reform is to enhance the foundation for broad based economic growth in developing countries. Through its research, education and training activities the Institute encourages active participation in the dialogue on policy reform, focusing on changes that stimulate and sustain economic development. At the core of these activities is the search for creative ideas that can be used to design constitutional, institutional and policy reforms. Research fellows and policy practitioners are engaged by IPR to expand the analytical core of the reform process. This includes all elements of comprehensive and customized reforms packages, recognizing cultural, political, economic and environmental elements as crucial dimensions of societies.

1400 16th Street, NW / Suite 350
Washington, DC 20036
(202) 939 - 3450

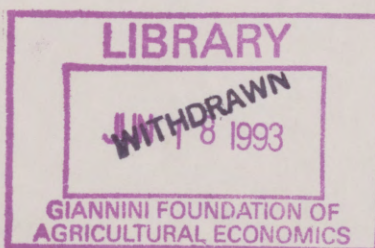


INSTITUTE
FOR
POLICY
REFORM

IPR51

*Institutions and Regulatory Commitment in
Utilities Privatization*

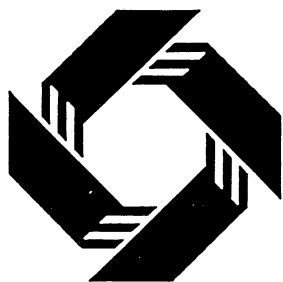
Pablo T. Spiller



Working Paper Series

The objective of the Institute for Policy Reform is to enhance the foundation for broad based economic growth in developing countries. Through its research, education and training activities the Institute encourages active participation in the dialogue on policy reform, focusing on changes that stimulate and sustain economic development. At the core of these activities is the search for creative ideas that can be used to design constitutional, institutional and policy reforms. Research fellows and policy practitioners are engaged by IPR to expand the analytical core of the reform process. This includes all elements of comprehensive and customized reforms packages, recognizing cultural, political, economic and environmental elements as crucial dimensions of societies.

1400 16th Street, NW / Suite 350
Washington, DC 20036
(202) 939 - 3450



INSTITUTE
FOR
POLICY
REFORM

IPR51

*Institutions and Regulatory Commitment in
Utilities Privatization*

Pablo T. Spiller

*William B. McKinley Professor of Economics and Public Utilities
University of Illinois*

and

*Senior Research Fellow
Institute for Policy Reform*

September 1992

Privatization has become a crucial component of the reform process, not only in Eastern Europe where the economic system is being dramatically changed, but also in many developing countries. While many countries have been able to privatize both small and large industrial enterprises, fewer have been able to privatize utilities, like telecommunication networks (e.g., Argentina, Chile, Jamaica and Mexico), and only Chile, and to some extent Argentina, can show success in privatizing the electricity sector. In this paper we provide a framework to understand the differential privatization experiences across both countries and sectors and use our framework to provide an assessment of the performance of three utilities' privatization attempts in developing countries. The main insight of our framework is that the reason we observe so few successful utilities' privatization is that the successful privatization of utilities requires the prior development of safeguarding institutions. Safeguarding institutions would generally be required because the nature of the utilities sectors' assets (highly specific to the sector) and demand (mostly for widespread domestic consumption), increase the probability of administrative -or even outright-expropriation by the government of the firm's specific assets. Such institutional development, however, is unnecessary for most other sectors in the economy, as the nature of their technologies is such that their assets are of a more general purpose, and/or they operate in either export markets or have a more narrow domestic exposure. Thus, it is not that the privatization of utilities necessarily requires large capital investment, nor that foreign investors do not want to invest in highly indebted countries, nor that there is no room for competition in these sectors, but, rather, that few countries have had the political and economic conditions to successfully change their institutions so as to develop the required safeguards for private investment in those sectors to take place. Thus, unless such institutional change takes place, privatization of utilities may either not take place at all, or would they take place, they may fail to generate the potential social benefits expected from privatization, triggering a political backlash against the privatization, with the possibility of a government takeover down the road.

This paper was prepared under a cooperative agreement between the Institute for Policy Reform (IPR) and Agency for International Development (USAID), Cooperative Agreement No. PDC# 0095-A-00-1126-00. Views expressed in this paper are those of the author and not necessarily those of IPR or USAID.

Author's Acknowledgements

Support from the Institute for Policy Reform, Washington, DC, is gratefully acknowledged. I would also like to thank the Universitywide Energy Research Group at the University of California, Berkeley for providing the facilities and the intellectual environment which made this research possible.

EXECUTIVE SUMMARY

Introduction

Privatization has become a crucial component of the reform process in developing countries. While many countries have been able to privatize both small and large industrial enterprises, fewer have been able to privatize utilities, like telecommunication networks, electricity, gas or water networks. It has been claimed that the fact that the successful privatization of utilities is not yet widespread across developing countries is the result of three complementary factors: first, since these usually require large investments, it has been argued that local capital markets may not be able to absorb such large scale privatization. Second, foreign capital, it is claimed, is usually unwilling to commit large amounts because of the host country's high indebtedness levels and consequent exchange risk, thus contributing to the unavailability of capital for this type of privatization. Finally, since these sectors have natural monopoly components, it is claimed that there may not be big benefits in moving from a public to a private monopoly.

In this paper we provide a framework to understand the differential privatization experiences across both countries and sectors and use our framework to provide an assessment of the performance of three utilities' privatization attempts in developing countries. The main insight of our framework is that the reason we observe so few cases while examples of successful privatization of industrial and commercial enterprises abound, is that the successful privatization of utilities requires the prior development of safeguarding institutions. Safeguarding institutions would generally be required because the nature of the utility sectors' assets (highly specific to the sector) and demand (mostly for widespread domestic consumption), increase the probability of administrative -or even outright- expropriation by the government of the firm's specific assets. Such institutional development, however, is unnecessary for most other sectors in the economy, as the nature of their technologies is such that their assets are of a more general purpose, and/or they operate in either export markets or have a more narrow domestic exposure.

Thus, we claim the reason we observe so few successful privatization of utilities is that few countries have had the political and economic conditions to successfully change their institutions so as to develop the required safeguards for private investments in those sectors to take place. Thus, unless such institutional change takes place, privatization of utilities may either not take place at all, or would they take place, they may fail to generate the potential social benefits expected from privatization, triggering a political backlash against the privatization, with the possibility of a government takeover down the road.

Safeguarding Institutions and Privatization

Safeguarding institutions may take many different forms.

The Judiciary

The existence of a well functioning judicial system with respect for property rights and contracts, and with a tradition of review of administrative agencies can serve as an institution that may, to a large extent, deter such expropriation. Administrative law, though, is not well developed or prevalent in developing countries. Thus, attempting to introduce administrative procedures enforced by the courts may find a judiciary that, to a large extent, defers to the executive power. On the other hand, several judicial systems have a long tradition of upholding private property or contracts. Judicial respect for contracts may provide a safeguard to private investment, as contracts between private companies and the government may be treated as contracts between private parties. Thus, using very detailed licenses to stipulate the way to regulate the utilities may provide a measure of safeguard not available otherwise. Licenses, in principle, cannot be changed unilaterally by legislation or by the administration, thus, providing the firm with a safeguard against undue administrative discretion. Several countries have found the advantage of specific licenses. Among those that have successfully implemented

licenses as regulatory instruments are Jamaica, Bolivia, the UK and Mexico.

The Functioning and Nature of Regulatory Agencies

Independent regulatory institutions, not subject to short term manipulation by the polity, may provide also some safeguards against opportunistic behavior by the government. Independence, however, does not assure "proper performance," as a runaway agency may bankrupt a company even against the wishes of the administration. Thus, granting true independence to a regulatory agency with a vague mandate may not provide much safeguard to private investors. Thus, independent regulatory agencies require limits to their discretion.

The Nature of Regulatory Procedures: Transparency vs. Discretion

There are essentially two ways of making regulatory procedures transparent: one, the US style, requires the regulator to take into consideration all the views from all the parties. A second way is through directly limiting the discretion of the regulator, by limiting the actions that they may take (e.g., instituting long regulatory lags, preempting regulators from setting minimum investment requirements or specific prices), and requiring clear arbitration procedures. Transparency, then, is only one condition for a successful regulatory reform. It limits the discretion of the regulatory body, and hence limits its ability to distort the regulation away from its original objective so as to accommodate the interests of particular groups. On the other hand, it limits the ability of the regulator to adjust to unforeseen circumstances (e.g. new products or technologies), and as such may be the tradeoff that has to be paid to achieve private sector participation.

The Nature of the Privatization Process: sector organization, ownership and competition

The form taken by the privatization can also serve as a substitute for formal institutional development. For example, while most of the telecommunications privatizations have maintained, to a large extent, the monopolistic nature of the sector, alternative privatization forms could have increased the public's support for the privatization process, and hence increase the amount of future investment in industry specific capital. Several aspects contribute in this respect. For example, extensive domestic ownership, breaking up the local monopoly, and allowing for new competition, are all measures that will tend to make administrative expropriation substantially more difficult. Extensive domestic ownership, in a situation where most of the new capital will be provided by an outside investor is costly. While it will increase support for the new regulatory system, and hence increase the amount that outside investors will be willing to pay for the enterprise, it also dilutes the outside investors' equity, reducing their willingness to pay. The break up of the local monopoly has a similar tradeoff as extensive domestic ownership. On the one hand, the more companies are formed, and hence the larger the extent of competition, the lower the political support for administrative expropriation. On the other hand, breaking up the public enterprise into smaller companies may adversely impact upon economies of scale or scope, reducing the price that investors will be willing to pay for the public enterprise's assets over and beyond the competitive effect. Finally, allowing competition has a similar tradeoff, as the more competition is allowed, the more new firms will be formed, again developing political support for the privatization. Competition erodes monopoly rents, and hence investors will be willing to pay substantially less.

The fact that the form of the privatization has commitment implications, implies that there is a complex relationship between government revenues from the sale and the extent of future investments in the sector. It is not clear that maximizing the revenue from the sale necessarily implies that the sector will invest more in the future. In the three examples provided above, a lower sales revenue may be accompanied by higher investment levels in the future.

The Timing of Regulatory Reforms

Governments may also recognize their inability to convince private investors of their commitment to a new regulatory system. In that case, creating a reputation for fair treatment of private

investors may be a precondition for successful regulatory reform. Different routes may be taken to create reputation of fair treatment. One possibility, taken by the Chilean privatization of the electricity sector, was to introduce a new regulatory regime before the privatization. Thus, private investors could infer from the performance of the still publicly owned companies how the regulatory system would operate in the future. The Chilean process of electricity privatization, though, took several years, and it is still in process.

Case Studies

We study three cases, the privatization of telecommunications in Argentina and Jamaica, and the privatization of electricity in Chile. The three provide very different examples of strategies and performance. Chile privatized its electricity sector following a drastic regulatory reform and restructuring of the sector. The new regulatory system is based on a very explicit piece of legislation that provides for a transparent regulatory process, substantially limiting the discretion of regulators while at the same time fostering competition. The restructuring of the sector provided for competition in generation, as well as multiplicity of service companies, all interested in maintaining the system. Furthermore, there is substantial stock ownership by the public at large. Jamaica, on the other hand, created incentives for private investments through a license-based regulatory system that severely restricts the ability of the regulator to control prices and investments, while at the same time restricts the ability of the privatized company to raise real prices. The regulatory system, may, however, turn out to be politically unstable. The very high assured rate of return coupled with a very long monopoly license may provide some future government with an incentive to renegotiate the license. The privatization of Argentina's telecommunications network was done without developing an appropriate regulatory structure, and allowing the government a tremendous degree of discretionary power. Furthermore, regulatory policy is subject to substantial political influence. It is, then, not surprising that only three outside investors actually wanted to take over the companies.

These three examples seem to show the importance of developing the appropriate safeguarding institutions prior to the privatization. The appropriateness of the safeguarding institutions may depend crucially on the nature of the political institutions of the country in question. The main lessons to be learnt from these three cases, then, are as follows: a) there is not a single way of developing institutional commitment; b) transitory political homogeneity provides unusual potential for building regulatory commitment in otherwise politically unstable countries; c) contract law can be used effectively to restrain administrative discretion in countries with very strong executive powers; and, finally, d) in the latter type of countries, commitment may only come at the expense of rigid regulatory regimes that provide very little administrative discretion.

I. Introduction

Privatization has become a crucial component of the reform process, not only in Eastern Europe where the economic system is being dramatically changed, but also in many developing countries. While the East European countries have to deal with a drastic change in the rules of the game in all facets of economic activity, that seems, on a first impression, not to be the case for developing countries. Recently, however, several developing countries have made great inroads in their privatization attempts (e.g. Argentina, Chile, Mexico, Jamaica), while most East European countries have yet to show major privatization successes.

The privatization drives in developing countries have ranged from small spice factories (e.g., Jamaica), to airlines (e.g., Argentina, Chile, Mexico), telecommunications (e.g., Argentina, Chile, Jamaica, Mexico), and to the almost total privatization of the electricity system in Chile. While many countries have been able to privatize both small and large industrial enterprises, fewer have been able to privatize utilities, like telecommunication networks (e.g., Argentina, Chile, Jamaica and Mexico), and only Chile, and to some extent Argentina, can show success in privatizing the electricity sector.¹

It has been claimed that the fact that the successful privatization of utilities is not yet widespread across developing countries is the result of three complementary factors: first, since these usually require large investments, it has been argued that local capital markets may not be able to absorb such large scale privatization. Second, foreign capital, it is claimed, is usually unwilling to commit large amounts because of the host country's high indebtedness levels and consequent exchange risk, thus contributing to the unavailability of capital for this type of privatization. Finally, since these sectors have natural monopoly components, it is claimed that there may not be big benefits in moving from a public to a private monopoly.

In this paper we provide a framework to understand the differential privatization experiences across countries and sectors and use our framework to provide an assessment of the performance of three utilities' privatization attempts in developing countries. We consider important to discuss these cases for two reasons. First, because they show the role of institutional reforms in developing the conditions for successful privatization, and second, because it is only through detailed analysis of the economic and political implications of the privatization experiences that we may obtain insights about the role different institutions have in determining the performance of the regulatory and ownership reforms.

The main insight of our framework is that the reason we observe so few successful utilities' privatizations while examples of successful privatization of industrial and commercial enterprises abound, is that the former require the prior development of safeguarding institutions. Safeguarding institutions would generally be required because the nature of the utility sectors' assets (highly specific to the sector) and demand (mostly for widespread domestic consumption), increase the probability of administrative -or even outright- expropriation by the government of the firm's specific assets. Such institutional development, however, is unnecessary for most other sectors in the economy, as the nature of their technologies is such that their assets are of a more general purpose, and/or they

¹ The current Argentine administration has recently sold SEGBA, a major generation and distribution electricity company with a customer base in Buenos Aires, to private investors, including foreign, French and Chilean, investors (La Nación, International Edition, 8/31/92). The government first separated SEGBA's generation from distribution facilities, and then broke the distribution side into two geographically separated distribution companies (La Nación International Edition, 8/8/91). The Argentinean Congress has also passed an Electricity Law concerning the regulation of a privatized electricity sector (La Prensa, 12/21/91). The electricity bill is quite similar to the Chilean one, which is discussed in detail in section V. Thus, if the general privatization of electricity takes place, Argentina would be the second developing country to have fully privatized its electricity sector.

operate in either export markets or have a more narrow domestic exposure.

Thus, it is not that the privatization of utilities necessarily requires large capital investments (Chile's private electricity generating companies are currently investing two billion US dollars in generating projects with little foreign ownership), nor that foreign investors do not want to invest in highly indebted countries (both Argentina's airlines and telecommunications were purchased by foreign companies, and so were, to a large extent, the telecommunications companies of Jamaica, Chile and Mexico), nor that there is no room for competition in these sectors (Chile's electricity generation is totally deregulated, and Mexico and Argentina have substantially deregulated entry into value added telecommunication services). It is, rather, that few countries have had the political and economic conditions to successfully change their institutions so as to develop the required safeguards for private investments in those sectors to take place. Thus, unless such institutional changes takes place, privatization of utilities may either not occur, or should they take place, they may fail to generate the potential social benefits expected from privatization, triggering a political backlash against the privatization, with the possibility of a government takeover down the road.²

II. Public Provision of Private Goods

The structure of asset ownership and property rights in a society is not random. They are endogenous institutions that arise in the interplay of politics, ideology and contracting costs. Since large scale privatization implies a basic change in the structure of asset ownership, to understand the potential for success of a privatization process, it is necessary to analyze the origins of government ownership.

The Origins of Public Ownership

In general, public provision of private goods can arise because of two basic reasons, ideological and contractual. Ideological reasons for the public provision of private goods include the almost total centralization of production in East European countries, and, to a large extent, the public provision of education.^{3,4} We will not discuss this rationale here, as the polity in most countries currently trying to privatize have, to a large extent, experienced important changes, such that ideological considerations do not constitute as strong a basis for public ownership as they may have been a few years ago.⁵ We focus, instead, on contracting problems that may have triggered public production of private goods.

Contracting Problems and Public Ownership

Spiller and Levy (1991) discuss three types of contracting problems that impact upon the development of regulatory systems: contracting problems between firms and their customers, between interest groups and the government, and finally, between firms and the government. Here we discuss

² The fact that the government of Argentina took back a majority stake in the national flag airline, Aerolíneas Argentinas, following a period of substantial public complaints about the performance of the company under Iberia's management and ownership, may reflect the fact that Aerolíneas was privatized without much concern about the appropriate regulatory framework for the sector.

³ On the public provision of education, see Lott (1990).

⁴ On the role of ideology in impacting upon economic development, see North (1990).

⁵ This does not mean that ideology will play no role in the design of privatization processes.

the implications of each type of contracting problems for the development of public ownership.

a) Contracting problems between firms and their customers.

Contracting problems between firms and their customers provide what is usually called the "market failure" rationale for regulation. An example of this type of contracting problem is that between an electricity distribution company and, say, its residential customers. The inability to write efficient long term contracts between the firm and its customers creates social losses (either deadweight or involving real resources) associated with inefficient investment policies (e.g. duplicative or too little investment) or with the exercise of market power. Regulations, then, could be introduced so as to, at least partially, alleviate the inefficiencies associated with either inefficient investment or the exercise of market power. If, on the other hand, the company were able to write long term contracts with its customers that would deter future entrants but at the same time assure efficient pricing, then regulations would not be needed to solve this type of contracting problem. Regulations, though, could be introduced for other reasons.⁶

Another type of contracting failure between firms and their customers involves externalities. Pollution control regulations, for example, would not be required if the polluting firms and the affected individuals could write contracts that would either compensate the latter or restrict the amount of pollution generated.⁷ Regulations introduced so as to solve this general type of contracting problems would be, then, in the absence of implementation problems, Pareto efficient.⁸

There is, however, no need for government to control the operations of the suppliers to achieve the policy outcomes desired. Price, entry or environmental regulations would suffice. Thus, contracting problems between firms and customers should not trigger public production of private goods.

b) Contracting problems between interest groups and the government.

This type of interest groups politics relates to the demands from particular interest groups for special government support. Since cash transfers are difficult to administer, transfers to interest groups, which may consist of a particular set of users or producers, will usually require price or entry regulation.⁹ Contracting problems between interest groups and the government, may, however, under certain circumstances, lead to public ownership. Consider, for example, a declining industry, like railroads in most developing countries, or hotels in Jamaica during the early 1970s. Would the industry continue its decline, it will put at risk the employment of its workers. If the workers are organized, they would support the industry's efforts for financial assistance, and/or for a government buy-out. In the same way that entry regulation provides protection to current suppliers over and beyond what current cash transfers may provide, government ownership assures the current industry workers their employment future, and assures, at least temporarily, their employment quasi-rents. Thus, declining industries are prime candidates for public ownership. Observe, however, that public ownership provides only temporary relief, as the future losses of the nationalized enterprises will have to be

⁶ As we discuss below, a potential reason is to change the distributional consequences of efficient pricing.

⁷ See, Coase (1960).

⁸ That is, they could be implemented so as to make nobody worse off and at least some individuals better off.

⁹ For example, current truck owners could demand from the government direct cash transfers. Since those cash transfers could be diluted with entry, and furthermore, may have to be renewed annually, entry restrictions and price regulation may provide similar wealth transfer.

covered from government revenues, increasing future deficits or the tax burden. As a consequence, stable governments will find the nationalization of declining industries more expensive than unstable ones, as governments with a high probability of losing power will heavily discount the costs of such undertakings. Observe, finally, that even unstable governments may find some sectors too expensive to take over simply to satisfy workers' employment concerns. In particular, sectors that require substantial current investments to keep operating will not be prime candidates for nationalization.¹⁰

c) Contracting problems between firms and the government.

This type of contracting problems may arise because of the potential inability of different levels of government to commit to a particular policy. Consider, for example, the contracting problem between an electricity distribution company and the city it serves. Here the company, in the absence of a proper regulatory structure will tend to invest less than the optimal amount to reduce its exposure to administrative expropriation. Since once the company builds its distribution stations and lines, most of its assets are sunk, the company knows that unless particular safeguards are stipulated, the city may try to administratively set prices below long run replacement costs so as to capture the quasi-rents associated with the operation of those assets.¹¹ This can be achieved, for example, by the strategic use of licensing procedures. In this case, the city may threaten not to renew the company's operating license unless it agrees to lower prices or to undertake particular, unprofitable, investments, or it may actually cancel the company's license and force it to sell its assets below the long run replacement cost to an upstart or competing company. Jamaica,¹² Bolivia¹³ and India,¹⁴ to mention a few, have experienced this type of, what Spiller and Sampson (1992) call "the license end-game problem." The

¹⁰ The takeover may, however, be facilitated by current ideological trends concerning sovereignty, like the Bauxite mines in Jamaica in the late 1970s.

¹¹ These quasi-rents equal the difference between the replacement value of the firm's assets, and the value in their best alternative use.

¹² Upon independence in 1962 the government informed the Jamaica Telephone Co (JTC) that it wanted to renegotiate its license that was to expire in 1966. The government, furthermore, let it be known that it would like the parent company to divest most of its holdings so as to increase domestic ownership of the shares. It also informed the company that it would like to move towards a US Public Utility Commission regulatory style without rate of return assurances, and away from the license-based assured rate of return regulatory system they had till then, and finally, that no more price increases would be granted. As a consequence, the holding company stopped all investments in JTC. Investments were temporarily renewed in late 1960s with an ownership transfer to the Continental Telephone Company. The issue here was to get JTC to agree to a less favorable regulatory system. JTC's main shareholder did not agree, and sold out to CTC. See Spiller and Sampson (1992).

¹³ The current [September 1992] stand-off between COBEE (the private company providing electricity to La Paz) and the municipality of La Paz is quite interesting. COBEE's license was to expire in 1990. The license stipulated that COBEE and the city were to start negotiations for a new license in 1984. By 1990 no license was granted. In 1991 a license was granted by the Mayor of La Paz, but was immediately revoked by the City Council for allegedly not having followed the right procedures. Since 1984, COBEE has essentially stopped its investments in distribution and generation. The issue here was that the generating assets of the company are depreciated from an accounting point of view, even though they are in perfect functioning order. Thus, forcing a sale based on book value would have the effect of further reducing prices. In any case, La Paz customers have the lowest average electricity prices in Bolivia.

¹⁴ The case of the Tata Electric Company (TEC) is quite illuminating in this regard. TEC has been in operation since the formation of the Tata Hydro-Electric Power Supply Company Limited, formed in Maharashtra in 1910. The initial operating license was for 20 years, with renewal periods of 10 years. It has been always renewed for similar terms. In the late 1970's, however, the State Electricity Board of Maharashtra required, as a condition for granting the license to TEC's Tronkey fifth unit that TEC divests a third of its direct industrial residential customers. In the last World Bank loan to TEC, the Bank required from the SEB that the term of the licensing renewal be extended to twenty rather than ten years. Presumably, to limit the ability of the SEB of administratively expropriating Tata's specific assets. See World Bank, Staff Appraisal Report: India, Private Power Utilities (TEC) Project for the Tata Electric Companies, Report No. 8610-IN, (1990).

purpose of instituting a regulatory structure, then, is to provide assurances to the company that its investments will not be administratively expropriated (see Goldberg (1976)).¹⁵ These regulatory structures, however, may not be sufficient to motivate private investment.¹⁶ In particular, in the absence of safeguarding institutions that assure that specific assets would not be expropriated by the local governments, either outright or through administrative procedures, private investors would be unwilling to undertake those capital commitments, and government ownership may become the default ownership mode. We discuss in section III the forms that these safeguarding institutions may actually take.

Government Ownership by Default in Large Sunk Costs/Domestic Consumption Sectors.¹⁷

In sectors where the probability of expropriation of specific assets is relatively high, public ownership may become the default mode. As we discuss below, if the country's safeguarding institutions (e.g. stable politics, independent judiciary, high growth rates, tradition of independent and professional regulatory agencies) are not sufficient to reduce the risk of administrative expropriation, then private investment in sectors with large economies of scale and sunk investments producing mostly for the local market will not be forthcoming. Since lower prices will provide substantial political support, governments will find it politically advantageous to set prices in a way that the firms' sunk investments are expropriated. This expropriation may take the form of setting maximum prices that do not compensate for future (and past) investments. Private investors, then, anticipating such developments will not invest, and future investments will have to be undertaken by the government itself.¹⁸

Government ownership may, then, reflect the long and short term workings of economic and political features, like, political instability, weak judiciary and regulatory institutions, and slow economic growth. In those circumstances, short term considerations take center stage over long term ones.

Publicly owned enterprises, though, will not be immune to the same political forces that triggered government ownership. In particular, political instability will trigger government interference with the pricing and investment policies of the sector. Since investments in those sectors tend to have long gestation periods (e.g. electricity, and to a lesser extent telecommunications), they will tend to provide benefits only in the future. Thus, political instability implies that current governments will tend to delay investments, and that their investments will tend to be of a shorter lead time. As a consequence, countries characterized by unstable politics¹⁹ will have not only chronic shortages in utility sectors but also their capacity will be composed of an inefficient mix, with the larger emphasis

¹⁵ This, however, does not mean that the company has to be assured of a positive return under all circumstances. All what this means is that the government will restrict its ability to set prices.

¹⁶ For example, until 1976, Jamaican private utilities were regulated by a Public Utility Commission. By the early 1970s, however, the Jamaican PUC started to limit price increases to the point that firms were unwilling to undertake further investments. The firms were eventually taken over by the government.

¹⁷ See Spiller and Viana (1992) for an application of this issue to the electricity sectors in the southern cone of South America.

¹⁸ Public ownership may start even from the initial stages of the sector's development, as the risk of opportunistic behavior by the government may deter private investments even at an early stage.

¹⁹ Unstable politics have to be differentiated from unstable governments. Unstable politics capture changes in the political leadership from the governing party (or group) to an opposition party, rather than just minor changes in head of government or in cabinet composition. See Edwards and Tabellini (1991b) for further discussion of this issue.

placed on less specific, lower initial capital requirements (e.g. emphasis on smaller thermal plants in the electricity sector,²⁰ or low maintenance and investment in telecommunications).^{21,22} Similarly, since politically unstable governments will find it profitable to provide subsidies to their constituencies directly through preferential pricing schemes, we should observe that this type of countries will have relatively low prices for local consumption, and that prices will differ substantially by end use, with residential prices being particularly subsidized. In the case of telecommunications this translates into exorbitant prices for long distance and international calls, and relatively low prices for local calls.

Finally, since the prices of publicly provided goods, are controlled by the government, politically unstable governments will tend to manipulate them to try to reduce inflationary expectations, even at the expense of larger future deficits.²³

To summarize, in countries characterized by unstable politics, weak judiciary and regulatory institutions, and slow growth, government ownership may become the default organizational mode for sectors characterized by heavy sunk investments with substantial domestic sales.²⁴ Unstable politics also implies that the pricing and investment policies of the publicly owned companies will be determined by distributional and macroeconomic concerns. As a consequence, average prices may not cover long run costs, and residential prices may be heavily subsidized. Furthermore, countries characterized by unstable politics will tend to show chronic shortages and inefficient capacity decisions.

III. Can Utilities' Privatization Succeed?

Several reasons are behind developing countries' current interest in privatization: first, large fiscal imbalances seem to be behind important privatization processes (e.g. Argentina, Jamaica).²⁵ Second, the realization that government ownership has implied large inefficiencies and breakdowns of services (e.g. electricity in Argentina and Jamaica, telephones in Argentina, Bolivia, Jamaica, Mexico, Uruguay, and Venezuela, water in Bolivia, and in general in Pakistan and Turkey). Finally, in many of the developing countries attempting privatization, political and ideological changes have occurred that

²⁰ Bolivia's case is quite interesting, as most of the recent capacity additions undertaken by the public electricity generation company ENDE were of small, 20 MW gas turbines.

²¹ In Bolivia, again, shortages in telecommunication investments imply that black market telephones are available for US\$2,000.

²² Similarly, large investments initiated by one government may be left unfinished under new governments if it does not expect to stay long in government.

²³ Future larger deficits may have to be taken care of by a future opposition government, while reducing current inflation may help the current government.

²⁴ We have not discussed the potential for outright expropriation of foreign sunk investments in export oriented sectors. Here, administrative expropriation does not work so easily as lower prices do not benefit the government's constituency. Administrative expropriation, however, may take the form of discriminatory high taxes (see Jamaica's Bauxite case).

²⁵ Fiscal imbalances may trigger privatization processes in at least two ways: a) by selling loss making, but potentially profitable enterprises, privatization reduces the fiscal imbalances; b) by selling profitable enterprises the government is able to reduce, transitorily though, the fiscal imbalance.

diminished the sensitivity towards private ownership of "strategic" sectors.²⁶

While these factors may have triggered the desire to privatize, they do not assure, by themselves, that privatization will take place nor that it will be successful. Successful privatization processes have two features. First, there has to be an actual transfer of ownership and control to the private sector. Second, the performance of the sector (in terms of total social welfare) must exceed what would have been achieved under public ownership. Thus, the simple transfer of ownership rights is not enough for a successful privatization. Efficiency considerations have to be taken into account as well.

On the other hand, even if government ownership safeguards have been dismantled, successful privatization requires that the reason for government ownership of the utilities be not longer valid. As we discussed above, there are generically two reasons for government ownership, ideology and contracting problems. We will assume that ideological reasons have already become moot, and hence we focus below on whether the initial contracting problems may have changed.

Privatization and Contracting Problems between Firms and the Government

As we discussed above, the main contracting problem behind government ownership of utilities lies between government and the regulated firms. This contracting failure arises from the nature of the firm's assets (highly specific) and market orientation (mostly for domestic consumption), and the lack of safeguarding institutions that will limit the government's incentives to administratively expropriate these assets.

For privatization to be successful, then, either technology must have changed, so that relatively efficient production can be achieved with less specific assets (as in the case of cellular telephony), or changes in the nature of the regulatory institutions have been implemented so that private investors can now expect that their assets will not be expropriated by administrative procedures.

Thus, if privatization of, for example, publicly owned utilities, was promoted because of macro-economic difficulties, then in the absence of other changes (i.e., regulatory and or safeguarding institutions), it may not succeed in either attracting private sector participation or in increasing efficiency. This seems to have been the case in several of the recent episodes involving regulatory reform in electricity (e.g. Pakistan) or telecommunications (Argentina).²⁷

IV. Safeguarding Institutions and Utilities' Privatization

Safeguarding institutions play two crucial roles in privatization attempts in sectors characterized by important contracting problems between firms and governments. First, since private sector

²⁶ Jamaica's case is striking. In the 1970's, Prime Minister Manley was behind the nationalization of most of Jamaica's utilities as well as hotels, bauxite mines, cement, and a score of other minor enterprises. On the other hand, since the start of his second term as Prime Minister, in 1989, Michael Manley has been strongly promoting the privatization of the same enterprises he initially nationalized.

²⁷ The Argentine telecommunications privatization was undertaken in the midst of major macro-economic difficulties, and without the prior development of new institutional structures to limit the probability of administrative expropriation. The main regulatory changes were introduced in the licensing agreements, which had several subsequent changes. Furthermore, these were not particularly transparent nor reassuring. It is then not surprising that few consortiums actually bid for each of the two telephone firms. As we will discuss below, the licensing agreements were unilaterally changed by the government a few months after the privatization took place. On the other hand, the telecommunications privatization process in Venezuela, which was undertaken in the absence of large macro-economic distortions, has attracted, at least, eight international telephone companies.

participation depends on the perceived probability of administrative expropriation of the firms' specific assets, safeguarding institutions should help in signaling credibility of a stated commitment not to expropriate. Second, since the assumed purpose of the privatization process is to promote efficient private sector development, safeguarding institutions should also serve as mechanisms to limit the possibility of deviation from the intended purpose of the privatization. Even if safeguarding institutions were developed to reduce the probability of administrative expropriation, still the regulatory framework may be such that it will trigger very inefficient performance. In such cases, safeguarding institutions should be developed to limit the possibility of rent-creation/rent-preservation modifications to the regulatory policy, with their implications for inefficient pricing and investment.

Safeguarding institutions may take many different forms, from formal regulatory procedures to informal substitutes like the role of parties. We discuss them *seriatim*.

The Judiciary

First, the existence of a well functioning judicial system that respects property rights and contracts, and that has a tradition of reviewing administrative agencies can serve as an institution that may, to a large extent, deter such expropriation. Such judicial systems, though, are not very prevalent in developing countries. On the one hand, developing countries' administrative tribunals, if they exist,²⁸ tend to deal exclusively with procurement improprieties, rather than to review whether regulatory decisions make any sense and/or whether they were taken following particular procedures. The weakness of administrative tribunals in developing countries, though, does not mean that courts do not function. It simply means that these judicial systems evolved more as conflict resolution processes among private parties (many, though, take long time to resolve those conflicts, like in Bolivia, Brazil or Uruguay, to name just a few) than as a true check on the government. Thus, attempting to introduce administrative procedures enforced by the courts may find a judiciary that, to a large extent, has a very different line of thought.

On the other hand, several judicial systems have a long tradition of upholding private property (Jamaica) or contracts (Jamaica, Chile, and to some extent, Bolivia). Judicial respect for contracts may provide a safeguard to private investment even though Courts do not have a tradition of restraining administrative decisions. Consider, for example, the case of Jamaica. Jamaica's political structure arises from that of its former colonial power, the UK. As a consequence, it has a parliamentary system and a judiciary that developed under the British common law tradition. Because since independence, Jamaica has had a strong two party system, the party in power has full control over the legislature. Thus, judicial restraint of administrative decisions is almost unheard of.²⁹ Any judicial reversal of an administrative decision can easily be overturned by specific legislation. Thus, judicial review of administrative decision making plays no role in Jamaica.³⁰ On the other hand, the Courts' respect for contracts implies that contracts between private companies and the government will be treated as contracts between private parties. Except during the period 1966/1976, regulation of privately owned utilities in Jamaica has been done through the issue of specific licenses. These licenses specify the way regulation is going to be undertaken. They cannot be changed unilaterally by legislation or by the administration, thus, providing the firm with a safeguard against undue administrative discretion.

²⁸ While Argentina and Uruguay have such tribunals, Bolivia and Jamaica do not.

²⁹ That is not the case of constitutional restraint. After all, the judiciary stopped Prime Minister Manley from expropriating land holdings by requiring just compensations for property takings.

³⁰ This is the reason why the creation of the Jamaica Public Utility Commission in 1966 doomed the private utility sector, as the courts did not intervene at all during the JPUC period, while they did before then. See Spiller and Sampson (1992).

Jamaica is not the only country to have found the advantages of using licenses as a regulatory mechanism. The UK's regulatory system is also based on specific licenses. As in Jamaica, the courts seldom overturn administrative decisions. As a consequence, rather than using administrative law to restrain the regulators,³¹ the UK has also found the advantage of using licenses as regulatory mechanism. These licenses specify in great detail how the private company will be regulated.³² Bolivia's regulation of COBEE, the only really private electricity - or utility - company in Bolivia,³³ is also based on a specific license. While Bolivia has a Presidential system, it is one with large Presidential powers. In particular, the fact that the President has the power to "regulate" laws issued by Parliament provides him with substantial powers to undermine vague, or badly written, legislation. Furthermore, the ability of the President to issue Supreme Decrees which can be overturned by future Supreme Decrees implies that regulatory policies may have very little staying power. The solution found here was to grant COBEE a license specifying that its regulation would be undertaken based on a particular 1968 Supreme Decree.³⁴ While the President may issue a new Supreme Decree and a new electricity code, still COBEE's regulation has to be based on the 1968 Supreme Decree.³⁵

Observe, though, that the use of licenses implies that all regulatory changes have to have the agreement of the company. If the Courts enforce licenses as contracts, the company could sue the government for breach of contract. While this system provides the company with safeguards, it also reduces the flexibility of the regulatory system.

Thus, countries with reasonably well developed and functioning judicial systems, like Costa Rica or Chile, may use, to some extent, access to the judiciary as a safeguard of the interests of private investors, and of the original regulatory intent. In this sense, it is interesting to note that Chile's regulation of electricity rates has a conflict resolution process that provides private companies access to the judiciary should the administration attempt changes without modifying the law.³⁶ Countries, like Brazil, where the judiciary system is not reliable, may have to use alternative methods to safeguard the interests of private investors.

The Functioning and Nature of Regulatory Agencies

Independent regulatory institutions, not subject to short term manipulation by the polity, may provide also some safeguards against opportunistic behavior by the government. Such independence can be achieved by assuring the financial independence or by providing long term appointments and

³¹ See Salzberg (1990 and 1991).

³² Although the UK licenses for electricity, water, gas, telephones and airports specify ways for modifying the license even without the consent of the regulated firm. See Spiller and Vogelsang (1992).

³³ Some private natural gas distribution companies are currently being formed in Bolivia. The construction of their distribution networks has been placed on hold until a bill regulating the distribution of natural gas is passed in the legislature.

³⁴ That Supreme Decree created the Electricity Code of 1968.

³⁵ See, Spiller (1992).

³⁶ See Bernstein (1986).

requiring judicial review of the regulatory agencies.³⁷ Observe, however, that such independence does not assure "proper performance," as it implies that an agency with particular views of what has to be done may bankrupt the company even against the wishes of the administration.³⁸ Thus, granting true independence to a regulatory agency with a vague mandate may not provide much safeguards to private investors.³⁹ Thus, independent regulatory agencies require limits to their discretion. Some limits may be specified through licenses, or alternatively through legislation, as in the Chilean implementation of the regulatory framework for telephones and electricity.

To a large extent, though, the idea of "really independent" agencies is quite foreign to developing countries, although, as the Chilean example with the CNE and CNT shows, it can be properly introduced.⁴⁰

The nature of the regulatory body may also be important in assuring the stability of the new regulatory regime. There has been considerable discussion on the advantages and disadvantages of independent regulatory commissions vs. executive departments. The experience in the United States, where we can find both, suggests that as long as they are subject to the same type of judicial review, both will be influenced by legislators and the executive, and neither can be seen as a totally independent commission.⁴¹ In countries where the administrative system requires different standards of review for independent regulatory agencies than for executive departments, the choice of type of regulatory body may become crucial. If, for example, independent regulatory bodies are subject to more exacting outside review standards (be it by administrative tribunals or arbitrators), then independent bodies may provide stronger commitment to a regulatory system than administrative departments.⁴²

³⁷ While providing financial independence tends to insulate the regulatory body from the legislature, it makes the political affiliation of the regulators a critical condition for appointments at the high levels of the regulatory body, as the President will not appoint a person to the regulatory body unless it is reasonably assured of that person's political tendencies. This will have detrimental effects on administrative quality. The Argentine telecommunications regulatory agency, for example, is awarded .5% of all telecommunications revenues.

³⁸ To some extent, the Jamaica Public Utility Commission behaved this way during the late 1960s. At that time, the JPUC rejected, against the wishes of the government, a particular rate increase requested by the telephone company. The government, then, over the objections of the JPUC, imposed a tax on telephone services and granted an identical subsidy to the company. The JPUC claimed the tax to be illegal, as the law specifies that the JPUC is the only regulator of telephone rates and service. See, Spiller and Sampson (1992).

³⁹ This, for example, seems to be the problem with the current proposal for the regulatory framework for Bolivia's gas sector, where the regulator will have independent funding, will be appointed for long periods, and will have total discretion on the how, what and when.

⁴⁰ Both agencies (The Comisión Nacional de Energía and the Comisión Nacional de Comunicaciones) are directed by a board composed of government ministers, and hence they are not independent. Furthermore, the Executive Director is appointed by the Board, and hence he is not independent. Both Executive Directors were replaced when the new democratically elected administration took place.

⁴¹ For example, while the US National Labor Relations Board is an independent commission, it is said to be strongly controlled by the executive (see Spiller and Gely (1990) and references therein). On the other hand, the US Environmental Protection Agency, while being an agency in the US Department of the Interior, has been subject to substantial control by Congress.

⁴² For example, the fact that the Argentine National Communications Commission, was created as part of the Public Works Ministry (and eventually transferred to the Ministry of Finance) may have increased its potential politization. While its decisions are subject to the Administrative Procedures Act, which regulates the workings of standard governmental agencies (e.g. procurement, hiring, etc), its decisions can only be reviewed by the Executive Power. In fact, the CNT's decisions are subject to

The Nature of Regulatory Procedures: Transparency vs. Discretion

There are essentially two ways of making regulatory procedures transparent: one is the US style, namely, requiring the regulator to take into consideration all the views from all the parties. In this sense, the British approach to regulation is quite non-transparent. The Director General of, say, OfTel, may make its decisions with no regard to what any interested party may have said. Furthermore, DGs, in contrast to US regulators, do not have to inform anybody of their intent to make a particular decision. Thus, requiring regulators to hold public hearings, to inform about their intentions, and to allow all parties to participate in those hearings would, to a large extent, restrict the regulator's ability to implement his own particular view.

A second way by which transparency may be achieved, is through limiting the discretion of the regulator. A regulatory process that is being used by several countries in regulating their telecommunications sector is based on the price cap system (Chile and Mexico, and the UK in all its utility sectors). A price cap system works in its most simple form by allowing the company to raise prices from the existing levels at the local inflation rate minus X percent, where X is determined initially for a given set of years taking into account the potential for technological change and other type of cost reductions.^{43,44}

Traditional rate of return systems have faced substantial implementation problems because the legislation itself sets the maximum allowable rate of return (e.g. India's experience with the Tata Companies).^{45,46,47} A related issue concerns the determination of the rate base. The rate base can be set by accounting, administrative, bargaining or judicial procedures. The more transparent the procedure, the lower the need for conflict resolution processes.⁴⁸

substantial political interference from both parliament and the Ministries.

⁴³ Transparency, however, does not imply that the regulatory system may not have strong inefficiencies. For example, Isaac's (1990) analysis of the price cap system in Arizona shows that it produced a severe rate deterioration because of the fixed termination date. Another problem was that the price cap was actually a constant price ceiling for a period of five years. At the end of the period, there were strong demands by the utility for a drastic rate increase.

⁴⁴ The UK Director General of Telecommunications seems to take into account the potential for labor savings by British Telecom in its determination of the appropriate price-cap level. See Spiller and Vogelsang (1992).

⁴⁵ See World Bank, *India...*, op cit, supra, footnote 14.

⁴⁶ The initial terms on which the Argentine government called for bids for its telecommunications network was based on a rate of return/price cap sequence. During the initial period firms were supposed to be allowed to set rates so as to achieve a 16% rate of return over regulated assets. In the second period, however, there is a price cap system. The interim rate of return system, however, was quite vague, with the regulatory authority having the power to disallow investments without judicial review. The lack of judicial review applies also to the imposition of penalties for alleged lack of fulfillment of service and quality quotas. A few months later, however, after substantial opposition from parliament, the terms of the licenses were changed and all reference to an assured rate of return was dropped. Instead the license stipulated an initial price per pulse (which eventually became approximately 0.025 US\$ per pulse) and a monthly price adjustment mechanism (60% of the increase in the consumer price index and 40% of the increase in the exchange rate). *La Nación*, International Edition, 10/29/90.

⁴⁷ Bolivia's 1968 Electricity Code grants electricity companies a real return on assets of 9%. Such real return may be quite low under particular macro-economic and political circumstances.

⁴⁸ Jamaica's telecommunications regulators cannot disallow investments. On the other hand, Argentina's telecommunications regulators can, with very little scope for appeals.

Chile's electricity regulatory system uses an incentive scheme where node prices (i.e. bulk electricity delivered to distribution companies), and prices for the regulated electricity distribution companies are based on short run marginal cost of energy and on long run marginal costs derived from "best available technologies," as calculated by the CNE (National Energy Commission).⁴⁹ While this regulatory system provides substantial incentives for cost reduction to the regulated firm, it may also have the risk of political interference in the rate setting, through manipulation of CNE's computations. Political interference, however, is diminished by the inclusion of automatic adjustment clauses, and a transparent arbitration process. Furthermore, this arbitration process cannot be sidestepped by the administration, without a change in the law.

Transparency, then, may limit discretion. The Jamaican telecommunications regulatory system is specified in the 25 years monopoly license given to Telecommunications of Jamaica Co. The license stipulates a very transparent rate of return method. Differences between the government and the company have to be settled by arbitration, that must assure that profitability is in the specified range (17.5 to 20%). Furthermore, the license does not allow the government to disqualify investments nor challenge costs. While this regulatory arrangement provides good short run investment incentives, it may, after the system becomes decongested, provide incentives for excessive investment and costs. Given the past history of the Jamaican Public Utility Commission, however, the reasons for the current license to tie the regulators' hands are understandable. It is unclear whether the privatization would have succeeded in relieving congestion and improving the network the way that it has actually done if the license provided substantial discretion to the regulators. Transparency, then, is only one condition for a successful regulatory reform. It limits the discretion of the regulatory body, and hence limits its ability to distort the regulation away from its original objective so as to accommodate the interests of particular groups. On the other hand, it limits the ability of the regulator to adjust to unforeseen circumstances (e.g. new products or technologies), and as such may be the tradeoff that has to be paid to achieve private sector participation.

The Nature of the Privatization Process: sector organization, ownership and competition

The form that the privatization takes place may also provide safeguards to private investors. For example, while most of the telecommunications privatization have maintained, to a large extent, the monopolistic nature of the sector,⁵⁰ alternative privatization forms could have increased the public's support for the privatization process, and hence increase the amount of future investment in industry specific capital.

Several aspects contribute to this. For example, extensive domestic ownership, breaking up the local monopoly, and allowing for new competition, are all measures that will tend to make administrative expropriation substantially more difficult. Extensive domestic ownership, in a situation where most of the new capital will be provided by an outside investor is costly. While it will increase support for the new regulatory system, and hence increase the amount that outside investors will be willing to pay for the enterprise, it also dilutes the outside investors' equity, reducing their willingness to pay.⁵¹ In the Argentine telecommunications privatization, it was stipulated that the bidders would control not more than 60% of the outstanding stock, with the remainder being sold, part to the workers (10%), part to

⁴⁹ See World Bank, Chile: Energy Sector Review, (1988). See, also, Bernstein (1986).

⁵⁰ This has been the case of Jamaica and Mexico, where in both cases the public telephone companies' monopoly was maintained in the privatization process, in the Jamaica case for a full 25 years period and for all telephone services.

⁵¹ Restricting foreign investment to a certain maximum percentage would achieve this objective. Observe, however, that this type of restriction implies that local shareholders pay for their shares less than potential foreign investors.

telecommunications cooperatives (5%) and the rest in the open market. In the Jamaican telecommunications privatization, only a small portion of the stock was sold to the public. The privatization of Chile's electricity sector, however, had a very large degree of public participation, either directly or through pension funds. For example, 62% of ENDESA is owned by small stockholders, 22% by pension funds, 4% by the workers and the remaining by other type of stockholders. Chilegener and Chilemetro each has 35% of their stocks in the hands of pension funds. Furthermore, workers own 24% of Chilemetro. Thus, it seems that Chile pursued the privatization of its electric companies with substantial emphasis on diffusing ownership across the public rather than concentrating them in the hands of the operators. The Chilean approach has not been replicated in any of the telecommunications cases discussed here, where emphasis has been given to obtain investment commitments from the operating group, and as a return the investor group obtained the rights to purchase most of the company's stock.⁵²

The break up of the local monopoly has a similar tradeoff as extensive domestic ownership. On the one hand, the more companies are formed, and hence the larger the extent of competition, the lower the political support for administrative expropriation. On the other hand, breaking up the public enterprise into smaller companies may adversely impact upon economies of scale or scope, reducing the price that investors will be willing to pay for the public enterprise's assets over and beyond the competitive effect. Chile's experience with the electricity sector followed this approach. Rather than maintaining monopoly conditions, the public enterprises were broken along generation, distribution and transmission, the distributing companies were broken into regional companies, and generating plants were spun-off individually. On the other hand, only Argentina broke the telecommunications company, albeit into two non-competing regional monopoly companies.

Allowing competition has a similar tradeoff, as the more competition is allowed, the more new firms will be formed, developing political support for the privatization. On the other hand, competition erodes monopoly rents, and hence investors will be willing to pay substantially less.

The fact that the form of the privatization has commitment implications, implies that there is a complex relationship between government revenues from the sale and the extent of future investments in the sector. It is not clear that maximizing the revenue from the sale necessarily implies that the sector will invest more in the future. In the three examples provided above (i.e., widespread domestic ownership, breaking up the local monopoly and promoting competition), a lower sales revenue may be accompanied by higher investment levels in the future.⁵³

Finally, many privatization attempts, particularly in the case of telecommunications (e.g. Argentina, Chile, Jamaica and Mexico) have taken the form of specific licensing agreements which, in turn, determine the nature of the regulatory regime. The advantage of such a procedure is that since changes in the license requires the agreement of the private firm, imbedding the regulatory structure in the license reduces the possibility that the government will unilaterally alter the regulatory system.

Creating Reputation: The Timing of Regulatory Reforms

⁵² The privatization of British utilities, though, emphasized widespread domestic ownership. Furthermore, it may be argued that the sale by the Conservative government of the remaining stock in British Telecom just before the election may have been done so as to assure total private ownership in case of a Labour Party win. See Spiller and Vogelsang (1992).

⁵³ I am not making the point here that lower sales revenue shows a good privatization process, but rather that low sales revenues simply represent lower profits in the future, either because the market is going to be very competitive, or because the company may be expropriated.

Governments may also recognize their inability to convince private investors of their commitment to a new regulatory system. In that case, creating reputation for fair treatment of private investors may be a precondition for successful regulatory reform. Different routes may be taken to create reputation for fair treatment. One possibility, taken by the Chilean privatization of the electricity sector, was to introduce a new regulatory regime before the privatization. Thus, private investors could infer from the performance of the still publicly owned companies how the regulatory system would operate in the future. As we will discuss below, the Chilean process of electricity privatization took several years, and it is still in process.

Economic Growth

A high sectorial growth rate, as well as in the economy at large, could also provide assurances to private investors. If the government would expropriate the assets of the incumbent firm, the government would then have to undertake by itself further future expansions as its loss of reputation would deter other private firms from entering the sector (or into other sectors where the government would like to see private investments).

Party Politics, Electoral Systems, and Political Stability

Private investment, however, may not be forthcoming even in the presence of a sensible regulatory structure, if the coalition that instituted the original regulation cannot deter others from modifying the regulatory system towards their own interests. The higher the likelihood that the relative power of interest groups change, the higher the likelihood that regulations will change accordingly. Some electoral systems provide for a more automatic reflection of electoral changes than others. Regional representation, single non-transferable votes, party lists systems, all have very different implications to how sensitive the composition of the legislative body is to minor changes in constituencies' interests, and also to the role that parties, and party machines, may play in the polity.

In turn, the more volatile the composition of the legislature, the higher the likelihood that today's bargain will be unraveled following some exogenous shock to constituents' interests. Since one of the costs of deviating from the stated regulatory policy is the loss in reputation that the government faces, a party in government with a low probability of remaining in, or rapidly regaining, power, may find it more politically profitable to deviate from previously stated regulatory purposes than one that has a longer horizon. The latter will internalize the loss of reputation, and hence will tend to deviate only under more extreme circumstances. Government stability, then, reduces the need to develop special safeguarding institutions. Political parties' policy stability also encourages regulatory stability. A relevant feature of party organization in this respect is the extent of control that the political parties can exercise over their legislators. Thus, the higher the power of parties, the more stable policies will tend to be over time, and hence, the lower the need for safeguarding institutions (Spiller and Levy, 1991).

In general, then, economies where the incentives for administrative expropriation are high, and sectors where the efficient technology requires large sunk investments, like the telecommunications and electricity sectors, will not attract efficient levels of private investment unless safeguarding institutions are created that will protect their investments.

V. Three Cases of Utilities' Privatization: Argentina, Chile and Jamaica.

In this section we discuss three utilities' privatization cases: Telecommunications in Argentina and Jamaica, and Electricity in Chile. The three provide very different examples of strategies and performance. Chile privatized its electricity sector following a drastic regulatory reform and restructuring of the sector. The new regulatory system is based on a very explicit piece of legislation that provides for a transparent regulatory process, substantially limiting the discretion of regulators while at the same

time fostering competition. The restructuring of the sector provided for both competition in generation, as well as multiplicity of service companies, all interested in maintaining the system. Furthermore, there is substantial stock ownership by the public at large. Jamaica, on the other hand, created incentives for private investments through a license-based regulatory system that severely restricts the ability of the regulator to control prices and investments, while at the same time restricts the ability of the privatized company to raise real prices. The regulatory system, may, however, turn out to be politically unstable. The very high assured rate of return coupled with a very long monopoly license may provide some future government with an incentive to renegotiate the license.⁵⁴ Finally, the privatization of Argentina's telecommunications network was done without developing an appropriate regulatory structure, and providing the government with a tremendous degree of discretionary power. Furthermore, regulatory policy is subject to substantial political influence. It is, then, not surprising that only three outside investors actually wanted to take over the companies.⁵⁵

These three examples seem to show the importance of developing the appropriate safeguarding institutions prior to the privatization. As we will discuss below, though, the appropriateness of the safeguarding institutions may depend crucially on the nature of the political institutions of the country in question.

A. The Privatization of Argentina's Telecommunications Sector

Before the privatization in November 1990, the telecommunications sector consisted of a national company, ENTEL, and two private regional companies (CAT - Compañía Argentina de Teléfonos serving in five provinces, and CET, Compañía Entrerriana de Teléfonos, serving only in the Province of Entre Ríos, both companies being owned by Ericsson) and a large number of small cooperatives operating in rural areas.⁵⁶ ENTEL provided services to 90 percent of the subscribers, while CAT (owned by Ericsson) provided basic services to six provinces. Both ENTEL and CAT were subject to essentially the same type of regulatory environment, under the supposed control of the SEC (Secretaría de Estado de Comunicaciones), a division of the Ministry of Public Works.⁵⁷ Both ENTEL and CAT suffered from lack of investment incentives, to the point that there was a chronic shortage of capacity⁵⁸ and long lines to obtain service,⁵⁹ of relatively poor quality. Table A.1 provides some quality

⁵⁴ An opportunity to renegotiate the license was opened in 1991 when the licensee wanted to amend the current Telephone Act to include cellular and fiber optics as part of telecommunications services, for which the company was granted a monopoly. The Government, though, failed to take that opportunity. See, footnote 105.

⁵⁵ The extent of political involvement is such that the government's passage of a monetary reform law invalidated the terms of the original agreement just a few months after the two private companies started operating.

⁵⁶ Showing the speed of the privatization process, the initial terms of reference for the privatization overlooked the existence of CAT and CET. Later on the terms of reference were adjusted so that the areas served by these two companies were going to be "privatized" as part of the two regional monopoly companies. As a consequence, the two companies would have had to be nationalized first, to be privatized again later. Ericsson was eventually forced to divest its assets to the two operating companies.

⁵⁷ This division was eventually transferred to the Ministry of Finance under the Deputy Secretary of Communications (Subsecretaría de Comunicaciones).

⁵⁸ Fernandez (1979) estimated that the black market price in 1979 for a connection was 7 times ENTEL's connection charges. Today's connection charges are approximately US\$1,000 (see Telefónica de Argentina, Prospectus (1991)).

⁵⁹ At the time of the privatization, it took two years to obtain a line. Telefónica de Argentina, Prospectus, (1991).

indicators.⁶⁰

Table A.1

QUALITY MEASURES: ENTEL

YEAR	LOCAL CALLS COMPLETED (IN %)	LONG DISTANCE CALLS COMPLETED (IN %)	AVG. LINES PENDING REPAIR (IN %)	LINES P/100 INHAB
1980	na	na	0.9	na
1981	na	na	1.0	7.78
1982	43.6	na	1.0	8.16
1983	48.6	na	1.3	8.48
1984	47.0	24.8	1.9	8.75
1985	43.7	21.6	1.4	9.02
1986	44.6	18.4	1.5	9.42
1987	46.0	na	1.3	9.71
1988	47.0	23.0	1.6	10.07
1989	48.9	29.2	na	na
1990	49.0	29.7	1.5	10.07
Standard	95.0	85.0	0.5	

Source: Abdala (1992), Tables I.2 and I.3.

The process of privatization of Argentina's telecommunications started in 1988 during the Alfonsín Administration. At that time a plan to privatize the government monopoly (ENTEL) through a direct sale of 40% of ENTEL's shares to Telefónica was proposed, but eventually was abandoned because of political opposition. The Menem Administration introduced, instead, a plan that consisted of the division of ENTEL into two regional companies (north and south, with Buenos Aires being divided between the two),⁶¹ with foreign investors having to bid for 60% of each company's stock.⁶² Only three consortia presented bids, two for the South and three for the North company.⁶³ The two regional companies would provide local service under monopoly conditions, and would jointly own two affiliates companies, one providing under (transitory) monopoly conditions international services, and another providing value added services in competition with other producers. Thus, this restructuring of the

⁶⁰ The low quality service comes not only from the lack of lines, but also from a relatively old technology. At the time of the privatization, only 15% of Telefónica's lines were connected to digital switching stations. On the other hand, 58% were connected to electromechanic stations, 21% were connected to Cross-bar stations, and less than 3% to semi-electronic stations. The average age of these stations were, respectively, three, 28, 14 and eight respectively. See, Telefónica de Argentina, Prospectus, (1991).

⁶¹ The companies were called in the official bid documents, Compañía Licenciataria Sur S.A. and Compañía Licenciataria Norte, S.A. They eventually became, Telefónica de Argentina and Telecom Argentina respectively.

⁶² The foreign investors had to include an operator, who had to hold, in principle a 30% stake in the company.

⁶³ For the South the two consortia were headed one by Telefónica de España, and the other by the Italian Stet and France Telecom. For the North, the consortia were headed by Telefónica, Bell Atlantic and Stet and France Telecom. Each was also joined by a banking firm and a local investment group.

sector provided for competition to develop in the future in some basic services, as well as current competition in value added services, and, in principle, for benchmark competition in the provision of basic services, although customers were not given the choice of basic network supplier.

Telefónica's bid was the highest for both companies, but was given a license to operate only the South. Bell Atlantic was given the North license, but eventually its bid was withdrawn as, supposedly, it was not able to obtain appropriate financing.⁶⁴ The consortium lead by Stet and France Telecom, then, received the license to the North. Thus, all the bidders that had appropriate financing were granted a license. Telefónica's group paid US\$114 million in cash plus US\$ 2.7 billion in notes, most of those being in foreign debt instruments of Argentina, which were bought at approximately 80% discount. The Telecom group paid US\$ 100 million in cash plus US\$ 2.2 billions in Argentine debt.⁶⁵ The government agreed to take over more than US\$ 2 billions of ENTEL's debt, two thirds of which was accrued during the year before the privatization.⁶⁶

The outcome of the licensing process suggests the little interest that this privatization process raised among international investors. To understand this failure to attract foreign investors, the uncertainty concerning the nature of the regulatory regime that would follow the privatization, and the way the privatization itself was handled has to be discussed.⁶⁷

The Evolution of the Regulatory Framework for the Privatized Companies.

The basis of the regulatory system to follow the privatization was spelled out in the licenses. The licenses, and their implementation, however, changed over time. See Table A.2. The initial plan of the Menem Administration, offered in September 1989, had three regional monopoly companies, one for the Metropolitan area of Buenos Aires, and two that would divide the rest of the country, and one international company. This plan was changed in early January 1990 to the current division between the North and the South, with the two subsidiary companies. The terms of reference were changed again, by Decree 677/90 of April 11, 1990. Based on these terms of reference seven consortia presented pre-qualification bids.⁶⁸ This plan granted each license for a period of ten years. These ten years were divided in three basic periods: a two years transition period, a five years exclusive license period, and a three years renewal period. The proposed regulatory structure was as follows: during the two years transition period the companies would be allowed to set prices so that they could get a

⁶⁴ Bell Atlantic's participation was more of a management contract rather than a direct ownership, as its proposed share was going to be in violation of the 30% requirement. This, however, was not the reason for the elimination of Bell Atlantic's adjudication, as prior to that decision the government changed, again, the bidding rules to allow the operator to have at least 4.9% of the stock, barely what Bell Atlantic had at that time (Decree 1130/90 of 6/14/90).

⁶⁵ Because of the uncertainty about the value of Argentina's debt, it is unclear how much the two companies paid. Assuming that all the notes were in Argentina's debt valued at 20%, then their (minimum) payments were US\$ 1.1 billion.

⁶⁶ La Nación, International Edition, 11/12/90.

⁶⁷ Another factor that may have reduced the interest in the privatization was the requirement that part of the payment should be in foreign debt instruments, given that they were held by a relatively small number of banks. See, Gerchunoff and Coloma (1992).

⁶⁸ These consortia were lead, respectively, by Cable and Wireless, Nynex Corp., Telefónica de España, Stet, GTE, France Cables et Radio, and Bell Atlantic. La Nación, International Edition, April 30, 1990.

pre-tax 16% return on assets.^{69,70} During the basic license period, prices would be adjusted by a price cap with an X of two percent. During the renewal period, the X is increased to four percent.

Table A.2

EVOLUTION OF THE PRIVATIZATION AND REGULATORY SCHEME

September 1989	Initial privatization plan under the Menem Administration <ul style="list-style-type: none"> - Three Regional Monopolies <ul style="list-style-type: none"> * Metropolitan Area * North * South
January 1990	Basic Two Companies Plan <ul style="list-style-type: none"> - North - South
March 1990	Price Increase 300%
April 1990	Change in Terms of Reference <ul style="list-style-type: none"> - Three Period Regulatory Plan <ul style="list-style-type: none"> * 2 years transition: 16% rate of return * 5 years exclusivity: cpi-2% * 3 years renewal: cpi-4% - Several service requirements
October 1990	Agreement on price indexation for transition period <ul style="list-style-type: none"> - 60% domestic inflation - 40% devaluation
October 1990	Initial Pulse Price set at US\$0.038 per pulse <ul style="list-style-type: none"> - Elimination of 31.5% tax with no change on final price - Price increase of 42%
April 1991	Price freeze following convertibility law
April 1991	Price reduction of 5%
November 1991	Dollarization of Rates for the remaining of the transition period, with rates indexed to US inflation.

While seemingly simple, this three period regulatory system was extremely murky. First, it was unclear whether, during the transition period, the regulators had the power to block price increases,

⁶⁹ While prices would be indexed monthly, the companies could, in principle, bring about real price increases every six months during the 24 months period.

⁷⁰ Again, to show the extent of the uncertainties involved in the process, it was unclear whether the 16% was a floor or a ceiling. The Director of Entel, Ing. María Julia Alsogaray, claimed that it was a ceiling. See, La Nación, International Edition, 3/19/90.

even if the computations did not bring the rate of return to 16%.⁷¹ Second, the licenses provided the regulator with substantial discretion in determining the rate base and allowable expenses, since it was up to the regulators to determine whether past investments and expenses were reasonable. Third, the licenses specified -as they currently do- a long list of minimum service requirements that had to be achieved at different points in time.⁷² The regulators were required to impose penalties for violating the minimum service requirements. These service requirements included: number of new installed lines per year; percentage of phone calls completed at the local, intercity, inter-regional and international levels per year; percentage of repair calls answered in 20 seconds; percentage of domestic and international operator calls answered in 10 seconds; average number of days to make repairs; average time it takes to install local users; number of new public phones per year, etc. If these requirements were not met the licensees were subject to fines as well as to non-renewal by the CNT. All these requirements, and the fact that the regulatory agency could exclude investments and costs from the computation of rate of return, implied that the CNT would have had large discretion in the setting of tariffs, fines and at renewal time.

Based on this regulatory scheme, the bids were presented and the adjudication given. In the interim, however, a heavy political debate developed concerning the potential for very high prices and profits. As a consequence, after the initial adjudication the terms were changed again. This time, while all the service improvement requirements for the firms were left standing, the price adjustment mechanism and the profitability assurances were changed. Instead of a rate of return for the transition period, the licenses stipulated a monthly price adjustment mechanism. This mechanism consisted of a monthly price increase based on the previous month inflation rate (60% weight) and on exchange rate movements (a 40% weight). As a consequence, the initial price level became crucial. The discussion between the companies and the government centered on the price per pulse (Wall Street Journal, 10/25/90). It eventually became approximately 0.038 US\$ per pulse.⁷³ This price was achieved by eliminating a tax of 31.5% over telephone services but without changing the retail price, and by an increase of more than 42% just prior to the transfer.⁷⁴

The terms of the licenses, however, were unilaterally changed by the government with the introduction of the Convertibility Law which prohibited indexation from April 1, 1991. This law was the cornerstone of a stabilization plan of the new Economics Minister, and its objective was to limit the ability of the Federal and Provincial governments of financing deficits with inflation. As a side issue, the law also prohibited all indexation agreements. As a consequence, the recently privatized companies saw their price agreement unilaterally abrogated by the government.⁷⁵ Negotiations started immediately between the government and the two firms to design a price increase mechanism. The position of the

⁷¹ The fact that prices were increased, in March 1990, by 300% provided, according to the companies, with reasonable real prices to start with. This can be seen by the fact that they, later on, bargained hard to have real prices at the 3/90 level. La Nación, International Edition, 10/29/90.

⁷² The licenses, however, did not -and do not- specify minimum investment requirements in monetary terms, leaving instead to the companies how to satisfy their service requirements.

⁷³ La Nación, International Edition, 10/29/90, and Telefónica de Argentina, Prospectus, December 1991.

⁷⁴ Since the telephone tax was earmarked for pension payments and was not replaced by any other revenue source, this event created substantial criticism inside the Peronist party for the privatization of telecommunications, and for the privatization process in general. La Nación, International Edition, 10/8/90. Eventually, monies raised from the public offerings were transferred to the government pension funds.

⁷⁵ La Prensa of 4/12/91 quotes the Minister of Economics as saying that "the 'desindexation' imposed on the value of the telephone pulse, ..., did not violate any contractual arrangement, as 'such unit should be worth today the same as last August.'"

Table A.3

OWNERSHIP OF TELECOMMUNICATIONS COMPANIES
AT TIME OF PRIVATIZATION

TELEFONICA

Telefónica Holding	60%
Citicorp	
Telefónica Int.	
Inv. Catalinas	
Financial Institutions	
Government	30%
To be divested	
Workers	10%

TELECOM

Telecom Holding	60%
STET	
France Telecom	
Perez Companc	
JP Morgan	
Financial Institutions	
Government	30%
To be divested	
Workers	10%

TELINTAR[#]

Telefónica	50%
Telecom	50%

STARTEL[#]

Telefónica	50%
Telecom	50%

Sources: Abdala (1992), Telefónica de Argentina, Prospectus, December 1991 (in Spanish).

TELINTAR has an exclusive license to provide international services. STARTEL has an unlimited non-exclusive license to provide value added telecommunications services like data transmission, telex, etc.

government, then, was that the prices were high and profitable, and since the stabilization program essentially was supposed to eliminate inflation, there was no need for a short term price adjustment mechanism. At the same time that the government, through different voices, e.g. the Minister of Public Works, the Chairman of the CNT, members of Parliament, determined that the prices were frozen, the

government also started to demand from the companies that they adhere to the terms of the license concerning the service improvements.⁷⁶ In particular, they demanded immediate changes in the handling of complaints. As a consequence, Telefónica, for example, extended its hours of service to the public. At the same time, the two enterprises repeated their commitments to their short and long term investment plans.⁷⁷ Later in April, the government required from the companies to reduce their prices per pulse by 10.3%, and announced that a new regulatory law was being prepared (La Prensa, 4/7/91, and 4/12/91). The companies eventually acquiesced, and announced that they were suspending the indexation as of 4/1/91 to support the stabilization plan. The companies also agreed to reduce their rate by 5%. (La Prensa 4/16/91).

Prices remained frozen until November 1991, at which time the companies demanded the implementation of the initial indexation agreement, requesting a 28% average price increase. The companies eventually agreed to set telephone prices in US Dollar terms, and to index the prices to the US rate of inflation. As a consequence prices were increased an average of 1.3%. The government allowed, though, the rebalancing of rates.⁷⁸ The resulting price level, though, is quite high, given that all calls are pulse-based. Rates for domestic calls vary according to distance and time of day. Table A.3 shows that a call between Buenos Aires and La Plata (a city located just 50 km from down-town Buenos Aires, and well inside the metropolitan area, would cost six pulses per minute, or just above US\$.23 per minute. On the other hand, a call to a city like Córdoba, located approximately 400 km from Buenos Aires, would cost more than US\$ 1 per minute.⁷⁹

Even though prices were partially frozen less than six months after the start of operations, the companies seemed to have been able to obtain large profits during that period. On the one hand, Telefónica's balance at the time of the public offering reported an after tax gross operating profit of US\$384M.⁸⁰ At the same time, Telecom reported a gross after tax profit of US\$314M.⁸¹ Recalling that the private investors paid approximately US\$1,250M for 60% of the two companies, Telefónica and Telecom's cash flow seems to be quite profitable.⁸²

An Evaluation

⁷⁶ La Prensa, 4/7/91.

⁷⁷ Telefónica's investment plan for 1991 was of US\$370 million, and attempted to introduce new 70,000 to 100,000 new lines (La Prensa 6/6/91). Telecom's plans, were to invest US\$ 2 billion over six years and to introduce 700,000 new lines and to renew 400,000 old lines (Wall Street Journal, 10/25/90).

⁷⁸ The rebalancing implied an increase in local rates of approximately 10% and a reduction in long distance and international rates of 20% or so. La Prensa, 11/13/91.

⁷⁹ Just for comparison, the call to La Plata would be similar to a call from San Francisco to a city across the bay in Contra Costa county, like Concord. Similarly, a call from San Francisco to Los Angeles would cost, in Argentina, US\$1.33 per minute.

⁸⁰ This value is the net operating profit, plus depreciation minus taxes. That is, interests were not deducted from profits. The net after tax profit reported for the eleven months ending in 11/30/92 was of US\$115 M. See Telónica de Argentina, Prospectus, December 1991.

⁸¹ See La Prensa, November 11, 1991.

⁸² Previous reports in the Argentinean press provided higher estimates of profits. For example, La Prensa (6/26/91) reported expected profits for the two companies combined to be US\$ 1,872 millions, of which 40% (US\$ 748 million) belonged to the government. Thus, the firms were supposed to receive US\$1,123 millions, which was approximately the value of their combined payments for the two companies.

Table A.4

TELEFONICA DE ARGENTINA
LONG DISTANCE CHARGES
December 1992

Monday/Friday: 8:00 am-8:00 pm
Saturdays: 8:00 am - 1:00 pm

Distance (in kms)	Pulses/minute	US\$/minute
-30	4	0.15
30-55	6	0.23
55-110	8	0.30
110-170	12	0.46
170-240	18	0.68
240-320	25	0.95
320-440	28	1.06
440-600	35	1.33
600-840	43	1.64
840+	54	2.05

Note: All other times, 50% discount.

Source: Telefónica de Argentina, Prospectus, (December 1992).

The previous discussion shows two basic features: first, it shows the difficulties that the Argentine polity had in committing to a particular policy, even when there was a written agreement. Second, it shows the lack of attention by the designers of the privatization process precisely to that problem. Thus, instead of delegating regulatory authority to a relatively independent agency, the CNT was created as a very weak and politically influenceable agency. As a consequence, the regulatory process would naturally evolve as a non-transparent one, providing the private firms with very little incentives to invest in the long run.

The lack of attention to institutional development, can be seen by the fact that at the time of the bidding there wasn't a clear idea of how, and by whom, the terms of the licenses were to be enforced. In fact, while the bidding was adjudicated on June 26, 1990, the National Telecommunications Commission (CNT) was formed by a Presidential decree (#1185/90) only on June 22, 1990. Because of the uncertainties about the regulatory system, though, the companies took control only in November 8, 1990. The fact that the body that was going to implement these regulations did not exist nor the rules and regulations under which it would operate were spelled out, couldn't but increase the risk involved in taking over the communications companies. Furthermore, the new CNT was initially created as part of the Ministry of Public Works, a quite obscure and not very influential ministry. As a consequence, the potential for manipulation of the Commission was quite high. Also, the decisions by the CNT were not subject to judicial review, but rather could be appealed to the Executive. Thus, the organization of the regulatory commission did not provide further reassurances of regulatory objectivity and professionalism.

Another aspect of ENTEL's privatization that shows the lack of concern for institutional development, is the fact that the privatization of ENTEL provided very little scope for widespread

domestic shareholdings (see Table A.4), and that there was very little scope for competition.⁸³ In fact, as we discussed above, most of the government's effort was to try to attract an international operating company into the consortium, rather than obtaining political support for maintaining private ownership of the telecommunications network.

The previous inability of Argentina in maintaining economic and political stability, coupled with the lack of prior development of regulatory institutions, and the regulator's (or government's) lack of substantial outside review may have contributed to the lack of interest by foreign investors, and the difficulties in completing the privatization.

It is possible to speculate to what extent it could have been done differently. To answer that question an understanding of the political system is necessary. Argentina's political system is composed of multiple parties. Except for the first and second Perón government,⁸⁴ no party has had control over the executive and over both houses of Parliament. During the Menem presidency, though, the Peronist Party had, again, an almost total control over the legislature.⁸⁵ This unusual extent of political control is what has allowed President Menem to undertake large scale changes with minor opposition from the legislature. Future governments, though, will most likely face a more fragmented legislature, of the type that President Alfonsín had to deal with. While almost total control over the legislature allows the current government to carry its policies without much opposition, it could use its transient political power to increase the durability of the policies that it undertakes. For example, the Menem administration could have introduced specific legislation restricting future regulators' discretion before ENTEL's privatization, future governments (without a similar extent of control over the legislature) would find it quite difficult to pass legislation to change such regulatory structure, providing then an important safeguard for future investors in telecommunications. As we will see below, this is precisely what the Chilean government did in 1982, and to a large extent, may be behind the sustainability of its regulatory regime.

Thus, would the Menem administration have followed the Chilean electricity approach, and introduced, first, a proper regulatory system, restructured ENTEL in the appropriate way, and only then sold its components, the current performance of the telecommunications sector could have been substantially improved.⁸⁶

To understand the lack of emphasis on institutional detail, it may be worthwhile to consider the circumstances under which this privatization process took place.

First, the privatization process was introduced in the midst of serious macro-economic instability. Different macro-economic stabilization plans were introduced, none very successful. At that time the Argentine central government's deficit was quite large and the external debt was traded at less

⁸³ Some rationalize this process by pointing to the small size of Argentina's stock exchange before the introduction of the Convertibility Law in 1991 (Gerchunoff and Coloma 1992). Below, however, we will see that the Chilean stock market was also small as trading in electricity companies alone accounts for almost 50% of all current trading volume. The Chilean experiment had an advantage over the Argentinean one in that before the privatization there was a large set of institutional investors mostly composed by private pension plans.

⁸⁴ From 1946 to 1955 and from 1973 to 1976.

⁸⁵ While the Menem Administration has almost total control over the Senate, its control over the Chamber of Deputies is less complete as there is a small group of Peronist deputies (called the "Group of Eight") that tend to vote with the opposition.

⁸⁶ The fact that the current administration is undertaking such an approach to the electricity sector may suggest that the lesson may have been learnt.

than 20% of par value. The privatization was also seen as a way to reduce the foreign debt, as the bidders were required to make some of their payments in foreign debt instruments. Thus, there was a marked urgency in achieving the privatization because of the substantial macro-economic difficulties of the country.⁸⁷ Second, the dramatic situation of ENTEL suggested to many that the problem was managerial rather than regulatory. As such, it was assumed that by bringing an operating company with expertise in telecommunications, the speed of investments and quality improvements would increase.

Apart from the macro-economic problems and the deteriorating situation of the company, it has been claimed that the speed with which the privatization was undertaken was the result of an attempt to create a reputation for privatization. To what extent this is true cannot be said. If that is the case, though, a better reputation could have been developed with a privatization that actually improved quality, reduced prices and increased network access. On the other hand, given the statist tradition of the Peronist Party, President Menem may have attempted a rapid process of privatization so as to show, in quite a dramatic way, the drastic nature of the policy change that would be undertaken during his administration.

To summarize, the privatization of ENTEL shows the difficulties that can be encountered if institutional design is not taken into consideration at the time of the privatization. First, the lack of safeguards implied that few bidders were interested in taking over the companies. Second, it also implied that the prices paid were quite lower than those that would have been paid if safeguards were in place from the beginning. Third, the emphasis on obtaining foreign operators' participation seems to have reduced the extent of potential participants, further reducing the price paid, and reducing the political support for the privatization. Fourth, even though ENTEL's privatization was undertaken in a rush, substantial effort was undertaken to reduce the exercise of market power by the two companies (e.g. required investment plans, price formulae, etc). This effort, though, seems to have been wasted as the lack of institutional design implied that the original price had to be set so high that it most probably exceeded the potential benefits from capacity expansion. Finally, to a large extent the privatization of ENTEL reflects a great missed opportunity, since the unusual political power of the Menem Administration could have been used to design a regulatory mechanism that would have remained stable for several years, providing the right incentives for private investment.

B. The Privatization of Jamaica's Telecommunications Sector⁸⁸

The Jamaican telecommunications sector has been subject to a massive reorganization since the late 1980s in both its structure and regulatory framework. Whereas today a single private company operates under a regulatory framework characterized by a license that substantially limits both the discretion of the government and the pricing ability of the company, just five years ago it was composed of a domestic and an international company, both publicly owned, both subject to a regulatory framework characterized by almost total ministerial discretion,

Most observers will agree that today's telecommunications sector in Jamaica is a much more dynamic one, providing Jamaicans with a much better service. On the other hand, there is widespread skepticism about the benefits of the current regulatory framework: tight monopoly over all telecommunications (including equipment supply), very little administrative discretion, continuous price adjustments to satisfy, what is seen by many, as a high rate of return requirement. In this section, I will

⁸⁷ See, in particular, Gerchunoff and Coloma (1992).

⁸⁸ See Spiller and Sampson (1992) for a much more detailed discussion of the evolution of the Jamaican telecommunications sector, and of its privatization.

Table B.1

Period	KEY EPISODES IN JAMAICA'S TELECOMMUNICATIONS SECTOR Regulatory Institution/Ownership/Event
● Pre-1962	<ul style="list-style-type: none"> • <i>Telecommunications Policy Under Colonial Rule</i> • All Island License (domestic operations license) granted in 1945 to the Jamaican Telephone Company, with the Telephone & General Trust (T&GT), a British Concern being the majority shareholder. • License requires: <ul style="list-style-type: none"> - specific minimum returns - use of ad-Hoc Rate Boards - Court enforcement of License • Private ownership of domestic and international companies • Modest but continued growth in service
● Independence 1962-1967	<ul style="list-style-type: none"> • <i>Issuing of New Licenses to JTC and the Creation of the JPUC:1962-1966</i> • Requirement of Jamaicanization of ownership • New License in 1966: <ul style="list-style-type: none"> - specifies maximum rate of return - regulation by a new independent, and permanent, commission (the Jamaican Public Utilities Commission) - promotes participation by interest groups - requires Jamaicanization by 1971 • <i>The Takeover of JTC by Continental Telephone Company: 1967</i> • CTC agrees to: <ul style="list-style-type: none"> - terms of 1966 license - specific expansion and financing plan - extant pricing levels • Stagnation of service
● 1968-1975	<ul style="list-style-type: none"> • <i>The JPUC and the Quasi-Expropriation of JTC's Assets</i> <ul style="list-style-type: none"> - Absence of judicial review • <i>Creation of JAMINTEL (1971):</i> a joint venture between Cable and Wireless (a British government owned company) and GOJ to take over C&W (West Indies) international communications facilities (and international communications operating license) in Jamaica.
● 1975-1976	<ul style="list-style-type: none"> • <i>The Takeover of JTC (1975):</i> Transfer of ownership of JTC to the Government • Disbandment of JPUC • Regulation by the Ministry of Public Utilities and Transport
● 1979-1985	<ul style="list-style-type: none"> • Introduction of International Direct Dialing • <i>Boom in the Profitability of International Communications and the Beginning of the Policy of Subsidization of the Domestic Network</i> • Increase in profitability of both the domestic and international companies
● 1987-1990	<ul style="list-style-type: none"> • <i>Creation of Telecommunications of Jamaica and the Divestiture of GOJ's Holdings</i> • Telecommunications of Jamaica (TOJ - a joint venture of GOJ and C&W) to take over all of JTC and JAMINTEL assets and licenses • New domestic and international telecommunications licenses granted to TOJ: <ul style="list-style-type: none"> - Guarantee real returns on equity in a narrow band equal to current levels - Restrict governmental discretion in approving rate increases - Introduce binding arbitration - Allow judicial review - Regulation by Ministry with no participation of interest groups • Boom in investment

attempt to provide an answer to why the reforms of the late 1980s took the form they did, and to whether they could have been done any better. In attempting to answer these questions, there is a need to understand the workings of the political institutions in Jamaica.

Our main insight is that while, in the abstract, the adopted regulatory structure looks quite inefficient, once the institutional characteristics of Jamaica (its political system, its politics and interest groups, the role of the judiciary and of the bureaucracy) are understood, the regulatory framework developed in the late 1980s can be seen as, perhaps, a third best alternative. While it could have been designed better, its current features respond to the basic commitment problems that Jamaica's governmental institutions have in their relations to sectors characterized by large sunk investments with a domestic consumption base (i.e., public utilities). In particular, given the nature of Jamaica's politics and political system, a legislation based regulatory mechanism (e.g., U.S. regulatory style) constitutes an implicit contract that is too flexible and incomplete to provide the required safeguards for investment and growth. Instead, regulatory mechanisms based on specific long term contracts between the government and the companies may, if properly designed, provide such safeguards. These long term contracts, however, cannot be designed to be fully contingent. As a consequence, they will necessarily contain *ex-ante* rigidities and inefficiencies. One of these rigidities is the fact that, differing from most legislation, these contracts tend to have a specific finite term. As a consequence periodic "end-games" will develop. Since the government has the power not to grant a new license, the companies will take actions to protect their specific assets, while the government may take actions to "soften" the companies to accept different contract terms. Thus, politics (including the ability of the companies to use the political process) as well as the nature of the expiring long term contract will be key determinants of these renegotiating costs.

Decentralized constraints on regulatory agencies, or for that matter ministerial departments, are usually not binding in Jamaica as its Parliamentary system with two strong and competitive parties, assures the party in power full control over legislation. As a consequence, regulatory laws, either sector (e.g. the Electricity Act, the Telephone Law) or agency specific (e.g. the Jamaica Public Utilities Act) will usually not serve as *ex-ante* constraints on the administration/regulators. Thus, for example, a ruling by the Courts that a particular administrative decision violates the statute can be overturned by appropriate legislation during the same administration. On the other hand, operating licenses are contracts between the government and the company. While the government can change the law, it cannot unilaterally alter the terms of the contract. Furthermore, because of the nature of Jamaica's Courts, independent, with long lasting tenure and with a final appeal level at the Privy Council in London, they can be called upon to determine alleged violations of the contract by either party.

Both governments and firms have seen the importance of these regulatory instruments and they have been used during different periods with different results.⁸⁹ Spiller and Sampson (1992) show that the nature of those licenses have been key determinants of the performance of the industry. In particular, they find that the sector developed relatively well during the time when the licenses constrained the ability of government to set rates with political considerations in mind (before independence and after 1987). On the other hand, it was the nature of the formalistic but substantively unconstrained regulatory structure defined in the 1966 Public Utility Act, under which the 1966 domestic license was granted, that set up the stage for the large extent of discretion taken by the newly created regulatory commission. Such regulatory flexibility increased the contracting costs between the government and the company, triggering the eventual sell-out of the domestic company to the government in 1975.⁹⁰

⁸⁹ Shareholders' agreements between the private investors and the government have also been used as regulatory safeguards. Cable & Wireless and the government of Jamaica (GOJ) used shareholders' agreements to regulate their relation in JAMINTEL (in 1971), and again concerning the regulation of Telecommunications of Jamaica (TOJ) in 1987. The second shareholders' agreement was eventually written into the licenses given to TOJ to operate both the domestic and international communications networks.

⁹⁰ The increase in contracting costs was the result of the independence of the regulatory commission, the standing rights of interest groups, and the lack of specific terms under which judicial review could be undertaken.

The use of specific long term contracts as safeguards against administrative opportunism has also substantive implications. For example, very flexible regulatory mechanisms, even if written in the license, may not provide the necessary safeguards as opportunistic behavior may not be stopped by courts.⁹¹ Thus, for a license to provide safeguards, its substance must restrict administrative discretion in clear ways.⁹² The substance of the chosen regulatory mechanism, though, is also affected by the interplay of regulatory and political institutions and interest groups.

Jamaica is a fascinating case to explore the roles of institutions because in the 50 years since Jamaicans were granted the right to vote there have been several important regulatory institutional changes accompanied by changes in the performance of the sector. Jamaica has experienced both different regulatory regimes and ownership arrangements. From private ownership, to public and to private again. Table B.1 provides the key periods and events in the evolution of Jamaican regulatory institutions and ownership arrangements concerning both the domestic and the international telephone companies (JTC - Jamaica Telephone Company, and , since 1971, JAMINTEL, the Jamaica International Telecommunications Inc., respectively).

The regulatory and structural changes of 1987/1990 represent major changes in the way the Jamaican telecommunications sector was regulated and organized. Not only were the institutional changes the most important, and discrete, since the introduction of the JPUC in the mid 1960s, but the sector experienced an unknown vitality. The main hypothesis we want to provide evidence on is that the performance of the sector responds to a large extent to the resolution of the government/firm contracting problem through the writing of a regulatory contract that was seen as credible and binding. Furthermore, this regulatory contract was designed so as to reduce short run political opposition. In the next section we explore to what extent these regulatory changes could have been improved upon, given the political, contracting and structural constraints we discussed above.

a. The Creation of Telecommunications of Jamaica and the Divestiture of GOJ's Holdings.

In 1985, in part because of the coming expiration of JAMINTEL's license and of the shareholders' agreement between GOJ and C&W, negotiations between the two developed with the intention of merging both operating companies.⁹³ In 1987 the two agreed on the creation of Telecommunications of Jamaica (TOJ) a joint venture between the GOJ and C&W, created in May 1987. The shareholders' agreement had a few basic components: first, the two partners were to contribute their shares in the two operating companies to the enterprise;⁹⁴ second, the two companies were to become wholly owned by TOJ;⁹⁵ third, a new regulatory mechanism was devised stipulating the ways by which the government was to set JTC and JAMINTEL's prices; fourth, licenses were to be amended to formalize the new regulatory mechanism, and to make TOJ the licensee; finally, a certain

⁹¹ See Spiller and Sampson (1992) for a discussion of the 1966 license, which instituted a very flexible regulatory scheme.

⁹² For example, a license that does not grant exclusivity over a specific territory or service may open up the stage for opportunistic administrative behavior, and may thus not serve as a proper safeguarding institution. Similarly, a license that specifies a price formula that may have to be renegotiated in the future without consideration of a minimum real rate of return may again fail to provide the necessary safeguards.

⁹³ The Chairman of JTC, Mr. Mayer Matalon, was named special Ambassador, and he, together with other government officials, represented Jamaica in the negotiations with C&W.

⁹⁴ Thus, the valuation of each contribution was going to determine their share in TOJ.

⁹⁵ Thus, independent shareholders in JTC were going to receive shares in TOJ.

divestiture of GOJ's shares in TOJ was also agreed upon.

In 1988 the shareholders' agreement was formalized with the granting of licenses to TOJ. The main points of these licenses are given in Table B.2. These licenses represented a regulatory turning point. First, they forced the government to maintain the profitability levels of the companies at their pre-TOJ levels, thus assuring that their operating returns would be sufficient to cover their cost of capital (see Table B.3). On the other hand, the company would not be able to increase average real prices as its pre-TOJ profitability was close to the upper level of the permissible profit range.

TABLE B.2

MAIN COMPONENTS OF THE 1988 TELECOMMUNICATIONS LICENSES

- a) JTC is granted a monopoly over all domestic (both local and toll) telephone services, while JAMINTEL is granted a monopoly over all international communications;
- b) Both licenses are for 25 years, with a renewal period of 25 years.
- c) Both companies are regulated on a rate of return basis, with net after-tax (and special dividends) profits having to be not less than 17.5 nor more than 20% of (accounting) shareholders' equity, where assets are revalued annually;
- d) Rate setting is as follows:
 - i) if the company wants to adjust its tariffs, it proposes a new tariff to the Minister of Public Utilities and Transport.
 - ii) if the Minister accepts, then that tariff goes in effect;
 - iii) if the Ministry does not accept, and the Minister's offer is not accepted by the Company, there is a relatively simple arbitration procedure, with the arbitrator having to set rates that satisfy point c) above;
- e) TOJ is not required to obtain permission to perform investments, nor the government can disallow investments undertaken by the Company;
- f) The government may supervise quality of service.
- g) If for any reason the government desires to cancel the license of one of the two companies, it has to cancel the other as well;
- h) If the government cancels a license it may be required to buy the assets of the company at fair market value, would the company fail to obtain an alternative investor.
- i) TOJ may appeal to Jamaica's Supreme Court for GOJ's violation of the license.

Since, in principle, TOJ was free to change its tariff structure, it had an incentive to increase prices of the inelastic segments of the demand. For this reason, though, upon privatization an agreement was reached between TOJ and the Government that domestic rates would not be increased.⁹⁶ This agreement, that TOJ has so far kept as domestic prices have not been increased

⁹⁶ While there does not seem to exist a signed document on this respect, insiders mentioned to us the existence of a gentlemen's agreement to freeze domestic prices for, at least, five years. Furthermore, in the TOJ's 1991 Annual Report, the Chairman's Letter explicitly mentioned that increased revenues from network expansion and international communications would allow TOJ to maintain constant the nominal price of domestic communications.

TABLE B.3

	Real Prices (1991=100)		Real After Tax Return on Equity (1991 Prices) in Percentage			Number of Main Stations	Real Total Fixed Assets in 1991 Prices
	Int'l	Domestic	JTC JAMINTEL	Combined			
1973	229	160	3	-4	1	37786	1250458
1974	184	212	1	0	1	42276	1306674
1975	154	182	0	-2	-1	46681	1334266
1976	139	202	1	2	1	50566	1364509
1977	127	169	-6	0	-4	51749	1337301
1978	106	224	1	-1	1	54325	1303891
1979	91	285	10	1	7	53770	1275769
1980	118	321	8	7	8	54140	1276148
1981	98	265	6	5	6	54890	1297115
1982	92	249	10	13	11	58508	1315215
1983	84	229	5	16	8	62797	1327612
1984	70	284	16	17	16	66520	1497876
1985	107	219	17	21	18	69208	1644007
1986	90	183	*	12	*	73104	1649885
1987	83	183	14	18	15	76678	1694059
1988	119	169	18	29	21	81710	1809131
1989	107	152	19	27	21	85179	1740513
1990	89	128	20	23	21	89958	2364788
1991	100	100	16	25	19	106181	3167345

* JTC had a change of fiscal year in 1986 and thus cannot provide a profitability level for that year.
Source: Spiller and Sampson (1992).

since 1984, had three political consequences: first, by providing incentives to the sector to invest, TOJ has increased the rate of expansion of the local network, thus satisfying to a large extent the aspirations of the middle class. Second, by focusing the increases in nominal revenues on the international segment, it has not alienated the core supporters of either party concerning telecommunications policy.^{97,98} Finally, government revenues through taxes have also increased, as its average tax collection from telecommunications has doubled in real terms from the period 1981/1985 to 1987/1991.⁹⁹

Three issues require further discussion concerning the creation of TOJ and GOJ's divestiture. First, the regulatory principles on which the 1988 licenses are based; second, the way the divestiture was actually made, and finally, the possible effects that the creation of TOJ may have had on the performance of the companies.

The 1988 licenses created a very simple mechanism for price adjustments and for dispute

⁹⁷ TOJ, though, has recognized the fact that the real price of domestic services is too low, creating too large a demand for the network. As a consequence, it has tried to increase domestic prices by shifting customers' billing away from flat service fees towards measured calls. We do not know yet the extent of this process.

⁹⁸ Stone (1992, pp:119-120) presents evidence that while initially, most JLP and middle and upper income voters supported the sale of GOJ's stock in TOJ to C&W, most PNP and lower income voters opposed it. Since then, though, there has been an increase in public support towards the GOJ divestment of TOJ shares. While in July 1991 54% supported the policy, in March 1990 only 36% did so. Most of the shift from negative to positive occurred among the lower income and PNP voters.

⁹⁹ From J\$97M to J\$190M in 1991 prices.

TABLE B.4

DISTRIBUTION OF OWNERSHIP IN
TELECOMMUNICATIONS OF JAMAICA
(In Percentages)

DATE	GOJ	C&W	PUBLIC	PRICE IN US\$
5/19/87	82.711	9.402	7.88	0.1811
7/23/87	72.111	20.002	7.88	0.1811
10/2/87	53.111	39.001	7.88	0.1818
9/28/88	40.00	39.002	20.99*	0.1564
7/13/89	20.00	59.002	20.99	0.2174
11/16/90	0+	79.002	20.99	0.2205

* TOJ employees hold 2%.

resolution. The government has a short period of time to answer TOJ's requests for rate increase. If TOJ and GOJ disagree, then the issue goes to an arbitrator, who is required to set rates subject to the rates of return specified in the license. Furthermore, GOJ decisions do not have to be subject to public hearings. The rate of return is based on shareholders' equity rather than on rate base. As a consequence, if the rate of return allowed by the license is higher than C&W's opportunity cost of funds, then C&W will have an incentive to increase its participation in TOJ, as well as for TOJ to finance its investments through retained earnings rather than through long-term debt.¹⁰⁰ As the next footnote shows, though, the evidence on this regard is mixed.¹⁰¹

TOJ also has a strong monopoly over telecommunications in the island, including the domestic sale of terminal equipment.¹⁰² The rationale for the granting of such strong monopoly is quite clear. If the government is interested in maintaining, or even deepening, the extent of cross-subsidization towards domestic services, then revenues have to be generated from as many alternative sources as possible.¹⁰³ In particular, since international communications is the main provider of subsidies, competition in the international communications sector would damage the ability to cross-subsidize. On the other hand, since the international communications sector has a relatively elastic demand, achieving revenue from all sort of other sources (e.g. surcharges for fax machines) allows the company to reduce the real price of international communications and still achieve its rate of return. On the other hand,

¹⁰⁰ Since changes in equity equal operating profits minus dividends, larger dividends imply that equity grows less rapidly, and as a consequence allowed total profits to increase less rapidly as well. Thus, by not distributing its earnings in the form of dividends, TOJ's working capital should increase. The excess working capital could then be used to finance the system's expansion.

¹⁰¹ Dividends have been distributed at 9% over share capital, representing in 1991 only 4% of shareholders' equity. On the other hand, the debt to equity ratio has increased from 13% in 1988 to 61% in 1991. Real working capital has remained relatively constant since 1988, at around J\$450M, at 1991 prices, or slightly less than a third of total TOJ's annual revenues. This evidence, though, is not conclusive on whether the licensing arrangement provides abnormal returns to TOJ's original shareholders. The evidence on stock prices that we discuss below suggests that it did.

¹⁰² This monopoly position was held previously by JTC, thus it is not a new feature of the regulatory process. While users may attach to the network any equipment they want, they have to notify the company. This requirement holds also for fax machines, PBXs as well as for regular telephone extensions. The company, then, will add a rental charge/surcharge accordingly.

¹⁰³ The company, realizing the political goodwill it achieves with the public by providing cheap domestic services, may also support the cross-subsidization policy. Furthermore, as we will see below, the privatization of the sector did not provide for large domestic ownership, thus diminishing the potential political clout of the company.

critics of the licensing arrangement have suggested that it may deter the introduction of new products and technologies.¹⁰⁴ The cost of the cross-subsidy, then, is the maintaining of a strong monopoly situation in a time when new products are developing rapidly, and where technological convergence is prevalent.¹⁰⁵ Would the government promote a more competitive environment, it will have to contend with large raises in domestic prices, an issue that in the 1970s turned to be very contentious.¹⁰⁶ Furthermore, it is conceivable that being so close to an election year, a policy that would trigger large domestic price increases would have been seen as political suicide.

A second issue that requires analysis concerns the way TOJ was created. I discuss above how widespread domestic ownership and multiple providers rather than a single monopoly may serve as institutional safeguards, as they increase political support for maintaining private ownership and for restraining the government from directly or indirectly expropriating the sector's specific assets. The creation of TOJ, on the other hand, was not performed in that way. Instead, a single company was created, to which a strong monopoly was granted, and ownership was concentrated in a foreign company. See Table B.4.¹⁰⁷ Ownership concentration in C&W, though, does not seem to have been planned at the time of the creation of TOJ. Instead, it seems that TOJ was created with the intention of GOJ retaining an important share in TOJ. C&W,¹⁰⁸ though, saw the advantages of expanding its ownership share, and eventually took over 79% of TOJ stock.

The creation of TOJ involved GOJ and C&W contributing their shares in the operating companies. The shareholders' agreement also required C&W to purchase shares in TOJ from the government so as to increase its participation to around 20%. The Manley government eventually sold all its shares through a series of transactions with C&W and a public offering in September 1988.¹⁰⁹

¹⁰⁴ To some extent, this is a dynamic, X-efficiency, argument. See, for example, Meyrick (1991) and Adam, Cavendish and Mistry, (1992).

¹⁰⁵ Consider, for example, the problem that arose when a company wanted to provide cellular services in Jamaica. TOJ contended at that time that the license provides it with a monopoly over all telecommunications services, including cellular, and furthermore, that it had already performed several investments in cellular. The government eventually sided with TOJ and is presenting a bill to Parliament to amend the Telephone Law to include non-wire telecommunications in the monopoly sector. The government had at least two reasons to side with the company. First, even though the Telephone Law talks about wire-communications, the license is silent about it, and the meaning of the license was that the monopoly was over all telecommunications services, at least those that are so commonly called. A second reason relates to the cross-subsidization of the domestic services. If cellular turns to be very profitable, then providing TOJ with the monopoly over cellular would allow it to further reduce the price of international communications, reducing, then, the cost of the cross-subsidy. If cellular services do not turn to be sufficiently profitable, though, then prices for the remaining services would have to be increased, so as to maintain the minimum rate of return on equity.

¹⁰⁶ On the other hand, as we discussed above, the institutional features of the early 1970s regulatory process were behind the difficulties in raising domestic prices. To what extent the public will be strongly opposed to domestic price increases is uncertain, particularly, given the economic characteristics of the domestic users.

¹⁰⁷ Apart from C&W, the largest shareholders are the employees of TOJ (owning 2% of outstanding stock) and seven institutional investors, none with a larger stake than 2%. The largest individual shareholder is Joseph Mayer Matalon, the son of TOJ's Chairman of TOJ's Board, and also a member of TOJ Board, who owns .5% of the stock. See TOJ 1991 Annual Report.

¹⁰⁸ By then, C&W had become a private company.

¹⁰⁹ The GOJ retained a few nominal shares allowing it to keep its representatives in the Board as a result of the 1987 shareholders' agreement.

See Table B.5.¹¹⁰

The agreed upon valuation of GOJ's contribution was US\$144.7 M while that of C&W was US\$16.5M (at the exchange rate of July 23, 1987). After legal costs and excluding dividends received during a period of two and a half years, the GOJ received US\$ 155M, which after discounting (at 12%), represents US\$130M,¹¹¹ which is Spiller and Sampson's (1992) valuation of GOJ's shares in JTC and JAMINTEL as of March 87. See Table B.5. Thus, the GOJ seems to have received a fair value for its assets. On the other hand, until April 1991 TOJ shares were being traded at less than 20 US cents, suggesting that the prices at which the GOJ sold to both the public and to C&W may have reflected the value of TOJ as perceived by the market.

TOJ's license, on the other hand, stipulates a particular rate of return. Assuming that the company achieves every year the lower allowed bound (17.5%), then we can compute the rate of discount that would generate a price equal to approximately US\$.20. Comparing that rate of discount with the actual real rate of interest in Jamaica gives us a measure of how much confidence investors had in the performance of the license. Assuming that TOJ disburses 4% of its real equity in the form of dividends, then a discount rate of 20% implies a stock price equal to US\$.187 in March 1988.¹¹² Now, in 1988 the average prime lending rate was 23%, while the rate of devaluation for the year was zero implying a real rate of interest (in US\$) of 23% minus the US inflation rate (about 4%). Thus, a real discount rate of 19% for the private sector was quite reasonable for Jamaica in 1988. A real discount rates of 19% would imply a value for TOJ shares as of March 1988 of US\$.212, a bit higher than the price of the public sale, but exactly equal to the price paid by C&W in the two latest acquisitions.¹¹³ The stock market price of TOJ has been around 20 US cents except after May 1991 when the Bank of Jamaica reduced its discount rate, bringing a boom to the stock market. At that time, TOJ stock increased to 30%^{114,115} The fact, then, that the market valuation of TOJ was throughout the period similar to our estimate of the value of TOJ's stock, assuming that the license holds for its complete period, provides some support to our hypotheses that the 1987 regulatory regime is credible.

¹¹⁰ There was substantial criticism of the way the last two tranches were sold to C&W as minority shareholders were not given the chance to bid on these sales.

¹¹¹ The discounting is done at the time of the transaction.

¹¹² This number is generated as follows: Take K_0 to be the value (in US\$) of TOJ equity per share as of March 1991. The price of a share in TOJ is given by: $P = \sum_{t=1}^{25} d_t / (1+\delta)^t + K_{25} / (1+\delta)^{25}$, where δ is the discount rate, K_t is the value of equity as of period t , $K_t = K_{t-1} * (1+.175) - d_t$, where d_t represent the dividend distribution in period t , with $d_t = K_{t-1} * .04$.

¹¹³ Slightly lower rates of discount imply substantially higher prices. For example, a rate of discount of 15% would imply a 3/88 price of US\$.37, almost 100% above the public sale price.

¹¹⁴ Since TOJ has a large share of the market's total trading (20%), though, TOJ share prices may have moved the index. The beta of TOJ with Jamaica's market is .92.

¹¹⁵ We just saw that a reduction of 5 points in the discount rate brings an increase in TOJ's price to almost 37 US cents. See footnote 148.

TABLE B.5
GOJ SALES PROCEEDS

DATE	ITEM	NOMINAL US\$	DISCOUNTED US\$
7/23/87	CONTRIBUTION	-144697826	-144697826
REVENUES			
7/23/87	C&W Acquisition of 10.6%	18539275	18539275
10/2/87	C&W Acquisition of 19%	33359992	32632626
9/28/88	Public Sale of 13.1%	19793509	17303557
7/13/89	C&W Acquisition of 20%	41986260	33564852
11/16/90	C&W Acquisition of 20%	42760915	29350546
	Sub Total	156439951	131390586
LEGAL COSTS			
7/13/88	Legal fees	-11889	-10645
9/28/88	Legal fees	-1472896	-1287611
7/13/89	Legal fees	-63688	-50913
12/17/90	Legal fees	-12392	-8424
	Sub Total	-1560865	-1357594
	NET REVENUES	154677965	129834253

Notes:

- a) Discount rate of 12%
- b) Present value calculation as of 7/23/87
- c) Exchange rate of transaction date.
- d) The original asset transfers provided C&W with 9.4% of TOJ and the private shareholders with 8%.

Source: Spiller and Sampson (1992).

The government's decision to dispose of its shares at, on average, its "fair market value," then, did not imply major wealth redistribution towards the purchasers. The government's decision to continue reducing its ownership share beyond the 40% it achieved at the time of the public sale, however, generated several problems: First, the 1988 Sale Prospectus mentioned that the government intends to maintain a 40% ownership share. On the other hand, the government decision to sell its shares directly to C&W, even though at a price slightly above the stock market quotation of the time, substantially concentrated the ownership of TOJ in a foreign corporation, reducing, to some extent the potential political clout of TOJ.

Even though the GOJ disposed of most of its shares through direct transactions with C&W, its public offering of 13% of TOJ stock was done in a way to facilitate the stock acquisition by workers and domestic households. For example, 2% of the outstanding stock (21.1 million shares) was reserved for

employees, while 51,000 residential customers of JTC were granted priority for up to 1750 shares each.¹¹⁶

The movement towards the creation of TOJ and the introduction of the 1988 licenses has implied large changes in the way the sector operates. First, Table B.3 shows a reduction in the volatility of real international prices.¹¹⁷ Second, the profitability of the companies has been systematically high, but well in the license-prescribed range. This high level of profitability has allowed the companies to increase their level of investment. The increase in the number of main lines has been quite rapid, as has been the increase in the value of the network's fixed assets. See Table B.3. Furthermore, the increase in profitability has allowed JTC to increase its indebtedness, in such a way that it was able to finance a large part of its investments through long term debt. Finally, the increase in the size of the network has implied substantial welfare gains for consumers (Spiller and Sampson (1992)).¹¹⁸

Undoubtedly, then, the post 1987 period has been good for consumers, the firms and the government. To what extent this increased welfare period could have been replicated without the creation of TOJ and its privatization, or whether it could have been instrumented better, is unclear. On the one hand, before the public issue of shares in 1988, a five year capital expenditure project of US\$600M was announced by the Minister of Public Utilities and Transport,¹¹⁹ to be financed, in part, by a loan of the Government of Japan. Eventually, these negotiations ended with the Overseas Economic Corporation Fund of Japan providing a loan for US\$62M to cover equipment bought from Japanese suppliers. Whether this program could have been implemented under the pre-1987 regime is unclear. The history of the JTC shows several development programs that went nowhere, as financing and pricing problems delayed or preempted their implementation. On the other hand, the 1987/1988 regulatory change provided the company with a relatively stable regulatory environment that facilitated the implementation of such a large expansion program. Thus, it is not clear to what extent the full divestment of GOJ shares played an important role in facilitating the rapid development of the sector.

The privatization of TOJ took place in September 1988 with the GOJ divesting through a public sale 13% of TOJ stock (see Table B.5). Table B.e shows that TOJ's returns do not have a drastic increase in fiscal year 1989¹²⁰ following the privatization. As can be seen from the Table, the main increase in profitability occurred between fiscal years 1985 and 1988. On the other hand the Table

¹¹⁶ The employee share scheme implied some restrictions on resale. Employees purchasing shares through the "employee share scheme" could resell freely only those shares that were "priority shares." Discounted shares could be transferred within two years only to "eligible" employees, while free shares were not transferable during the first two years. Unsold "employee share scheme" shares were to be retained in a pool to be sold to "eligible employees" after the close of the application list. See TOJ prospectus. Almost all shares reserved for the employees were sold, either in the first or the second round. TOJ's 1991 Annual Report list 20,341,946 shares being held by employees, thus, approximately 750,000 shares that were originally reserved for the employees remained to be sold to employees by March 1991.

¹¹⁷ From February 1990 to January 1992, there have been five increases in the prices of international calls, or one increase every half year, approximately.

¹¹⁸ Spiller and Sampson's (1992) consumer welfare gain measure for this period does not take into account several developments. First, the company has been installing fiber optic cables around the island and within all Kingston exchanges. Second, the island has been almost fully converted to digital technology. Third, cellular telephony was introduced in late 1991 (our 1991 measures go up to March 1991). These developments should provide welfare increases which we cannot measure with the data at hand.

¹¹⁹ The Gleaner, April 18, 1988.

¹²⁰ Because since 1987 both companies' fiscal years run from March to March, the privatization date was on the 1989 fiscal year.

shows a drastic increase in investment in fiscal years 1990 and 1991, after the privatization. Because of the discussion of the previous paragraph, it is feasible that TOJ would have undertaken the expansion plan in any case, using concessionary credits. During the 1989/1991 period, however, JTC invested approximately US\$230 M, almost half of it financed by increases in its long term debt, and the remaining through internally generated funds. It is in this sense, though, that the history of JAMINTEL is quite illuminating, as all through the 1970s and 1980s its rate of investment had been relatively slow, with working capital increasing during the 1980s, to the point that at the end of the decade its working capital exceeded its fixed assets. This experience suggests that neither C&W nor GOJ wanted (or could) extend their exposure in the company.¹²¹ The post 1988 experience, though, is quite different. TOJ started a rapid development process, which used most of the operating profits generated during those three years. Thus the privatization must have provided C&W with enough incentives to invest in Jamaica.

This event shows, then, the role of alternative ownership and regulatory institutions in providing institutional safeguards for private investment. The emphasis that the post 1987 regulatory regime put on contracts rather than on legislation reflects, to some extent, the characteristics of Jamaica's political institutions. In the absence of a strong judiciary with its respect to property rights, it is uncertain to what extent this contracting approach could have provided the necessary institutional background to promote rapid private sector participation. On the other hand, the nature of the regulatory institutions also shows the role of the politics of the times. The extent of cross-subsidization, in turn, has been used as a way to obtain political capital in support of the privatization, at the cost, perhaps, of a more dynamic and competitive sector.

b. An Assessment of the Regulatory Reforms of 1987.

In this section we analyze the extent by which the regulatory changes of 1987 could have been instrumented better. We discussed above several shortcomings of the regulatory changes of 1988 and of the way the privatization was undertaken. We can classify them in three groups: competition, pricing and ownership policies. The regulatory and structural changes of 1987 provided a total lack of competition even in the more dynamic segments of the sector; maintained a policy of cross-subsidization towards the domestic/household segment, and a generally inefficient pricing scheme; the emphasis in the privatization process on direct sales rather than public offerings provided for ownership concentration in a foreign concern with limited domestic ownership. All these features have, on the one hand, non-trivial income redistribution aspects, and may, also, impair the evolution of the sector in the future.

Alternatively, the 1987 regulatory change could have provided TOJ with monopoly over the basic local network, but allowed competition everywhere else; instituted a flexible pricing scheme with small administrative discretion (e.g. price caps); and provided for widespread domestic ownership. This scheme would have, on paper, looked as a much more efficient regulatory mechanism given the rapid technological change in value added and long distance communications. It would have, in principle, provided TOJ incentives to innovate and to reduce its costs, and would have, also in principle, provided for widespread political support for maintaining the privatization process. In this section we explore whether these three schemes could have been implemented in Jamaica.

Consider, first, the decision to provide TOJ with a total monopoly over all telecommunications, both domestic and international. We discussed already the political costs of introducing competition in value added and long distance communications (including international). These costs, though, depend

¹²¹ Observe, though, that the congestion in the domestic network may have also reduced the profitability of further investments in the international segment.

on the extent of competition that is allowed. If international communications would have been left in the monopoly sector, but competition would have been allowed in the provision of value added services and terminal equipment, then the extent of cross-subsidization may not have been impacted so heavily and the costs of reduced revenue could have been smaller. In any case, cross-subsidization cannot be the reason for extending TOJ's monopoly over all areas.¹²² Thus, competition or monopoly is not an all or nothing policy, but rather there is a continuum of competition possibilities. The GOJ chose an extreme one.

While a more narrow monopoly franchise could have been granted, it would have required some more institutional design. In particular, a narrow monopoly franchise, may grant the administration (ex-post) discretion on the definition of what the local/monopoly segment is. For example, assume that the monopoly is just for the local network. In that case, should fiber-optic cables be considered part of the network?¹²³ Should large users be allowed to by-pass the network? Should cable TV be considered part of the network? While, in principle, providing regulators with flexibility on these and related matters could motivate the firm to adopt proper pricing and to innovate, administrative discretion could also be used by the regulators to quasi-expropriate the company's sunk investments. To counterbalance the extent of administrative discretion, a conflict resolution process, like arbitration, could, in principle, be developed. This conflict resolution process, though, may limit the extent of competition that could be developed, as the firm would normally challenge entry decisions that adversely affect its profitability.¹²⁴ Alternatively, the license could take two approaches, in one it could define precisely the set of activities that are open for competition, so that what is not explicitly mentioned is granted to TOJ. Thus, terminal equipment, value added services, cellular, cable TV, and even international communications, could have been carved out of TOJ monopoly. While in the future new products would have to be included in the monopoly segment, at least from the beginning large segments of the sector, particularly those subject to rapid technological change, could have been open for competition. A second approach, would define precisely what TOJ has monopoly over and whatever is not explicitly mentioned is open for competition. This policy could generate substantial difficulties, as in the term of the license (25 years) it is possible that new technologies, not currently imaginable, could make the old network based technology obsolete, essentially prohibiting TOJ from investing in these technologies, while at the same time, not providing strong incentives for a new entrant to come in.¹²⁵ In any case, opening up domestic value added services and new technologies for competition would not have meant high political costs, as the extent of required rebalancing to maintain the competitiveness of TOJ in those sectors would not have been too great. Thus, the fact that the GOJ pursued a total monopoly policy was, to a large extent, an important missed opportunity, and to our opinion a political mistake.

¹²² A cynic may even ask why not to grant TOJ monopoly over other, non-telecommunications, areas as that would allow a reduction in the markup on international communications services.

¹²³ This is not a theoretical question as the Telephone Law does not mention fiber-optic cables. As a consequence, following JTC's investment in fiber-optics, there was a discussion about whether TOJ had monopoly over supply of telecommunications over fiber-optic networks. This issue has not been solved yet, and the amendments to the Telephone Law will, perhaps, finalize this issue.

¹²⁴ To some extent, this was the nature of the partial deregulation of telecommunications as implemented throughout the late 1970s. During this period, most of the partial deregulation was done through Court decisions. Given the fact that Congress was quite divided over telecommunications issues, the Courts had substantial discretion over telecommunications policy, and thus disagreements between the FCC and AT&T were eventually resolved in Courts. That AT&T could not stop the deregulation process in the Courts is related to the political biases of the Appeal Courts dealing with these issues. See Spiller (1990).

¹²⁵ Since TOJ's costs would then be very low, a new entrant with a new network technology may not find it possible to compete with TOJ.

In a sense, the main difficulty is in liberalizing international communications. The international communications segment is the most dynamic part of Jamaican communications, and its markup seems to be too large. Reductions in the costs of international communications, as well as the provision of value added services in that segment, would have implied substantial gains to the average Jamaican. On the other hand, it would have implied an extremely high increase in the price of domestic calls. As Table B.3 shows, the price of domestic calls has been falling in real term since 1980, to the point that the price of today's calls is only 30% of that in 1980. To make the point even further, the flat rate rental fee service is less than US\$ 5 per month, an unusually low price, while a call from Kingston to New York City costs over US\$10 per minute (Spiller and Sampson (1992)). Rebalancing rates,¹²⁸ thus, may be a political gamble that not many politicians would be willing to take. It is here, though, that the main gains from liberalization would occur. That the political leadership did not undertake such action may be politically understandable in the short run, although it inflicted a long term loss to the average Jamaican.¹²⁷

Consider, now, the introduction of alternative pricing schemes. There are several pricing schemes that could be implemented. The one chosen here is a rate of return on equity, whereby the company requests rate increases wherever it believes its rate of return is not on the target zone. Disagreements with the GOJ are settled through binding arbitration. While this pricing scheme is behind the current incentive to invest, it does not provide enough incentives to reduce costs. A more flexible pricing scheme, however, may, given Jamaica's politics and political structure, increase contracting costs between the government and the company. Consider, for example, the introduction in the license of a price-cap system. Price-cap systems operate as automatic adjustments to prices over a base-price fixed ahead of time.¹²⁸ Price-cap systems have so far been instituted for a particular period of time, as seldom these fixed adjustment rules will provide the firm with a normal return.¹²⁹ Instead, they may provide for substantially positive or negative returns. Since the firm will stop operating if it expects negative returns for a long period of time, price caps would normally have a certain time limit, at which time they would be revised. This revision provides substantial administrative discretion, and in the absence of a minimum expected rate of return, it may provide incentives for the regulators to quasi-expropriate the firm's assets. Thus, price-caps would, if at all, have to be introduced with a short horizon, with an assurance of expected rate of return, and with a clear conflict resolution process to arbitrate differences between the government and TOJ at the renegotiation of the price-cap

¹²⁸ Since Jamaica has more incoming than outgoing calls, reducing the price of international calls would require a change in the accounting rates agreed with the US operators, as otherwise, the company would not have an incentive to further expand its international network, as it will lose money with each outbound call.

¹²⁷ Some commentators suggested that the reason international communications remained in the monopoly sector is because otherwise the price that the government would have received for the company would have been very small. That assumes, inconsistently, though, that the price of domestic services remains constant. Since the large majority of assets are in the domestic segment while the most revenues come from international operations, increasing domestic rates by five or six times would generate sufficient revenue to make an independent domestic operator profitable. Thus, the price for the domestic operation would represent the stream of discounted profits from domestic operations, which would not differ dramatically from the current levels.

¹²⁸ Price caps are usually called, CPI-x, where CPI reflects the percentage increase in some price index (retail or consumer), and the allowed price increase is a fixed percentage (x) less than the index.

¹²⁹ For example, Chile's electricity regulation requires a readjustment of rates every four years, to be undertaken by the regulators in consultation with the firms. Similarly, the UK widespread price cap system requires a readjustment of the price cap every four or five years, to be undertaken, again, by the regulator.

factor.¹³⁰ In the framework of Jamaican politics, then, a price-cap would simply create a longer regulatory lag, where instead of the company being able to file for a price increase every time it thinks its profitability is affected, prices would be adjusted automatically for a period of time.¹³¹ Would the firm make abnormal returns during that period, it could keep them. Would it make abnormal losses, however, it would have to sustain them. Currently, would the firm expect losses it can file for a rate increase. If the firm would make abnormal returns, the GOJ could call a rate review. That longer regulatory lag, however, cannot be too long. Too long lags may imply that either the company or the government would want to renegotiate the license. In any case, a key to the success of such price cap is an explicit assurance of expected return, to be enforced by a transparent conflict resolution process. That the regulatory changes based pricing on a rate of return system may have contributed to some amount of inefficient investments and to slightly higher than necessary costs.¹³²

Consider, finally, the way the GOJ disposed of its stake in TOJ. It is clear that at the time of the public offering, GOJ was interested in achieving widespread stock ownership by domestic residents. For example, the price of J\$.88 was consciously chosen by the government so as to assure the total placement of its stock,¹³³ and, as discussed above, there were also special priority arrangements for household customers of JTC and for TOJ employees. On the other hand, the sale of GOJ's remaining stock to C&W went against widespread ownership. These sales may have been triggered by two important reasons: first, as mentioned above, JAMINTEL's experience showed that C&W involvement by itself does not assure strong C&W investments, even when it had almost 50% of the shares. Second, during 1988/1989 there were strong fiscal and foreign exchange pressures that may have convinced the government to sell its shares to a willing and ready buyer. The fact that C&W was willing and ready, though, shows the power of the licensing arrangements. Several commentators criticized the government on its handling of these sales.¹³⁴ Income redistribution aside, though, our analysis shows that given the nature of the regulatory scheme, the company will have incentives to expand and improve the network for the next several years. If conflict with the government develops, though, the ownership structure of TOJ will not provide it with extra political capital to counter the administration's side. Thus, it is possible that a few years before license renewal time, TOJ may rationally forecast political problems, and restrain its investment program, triggering perhaps, an early renewal of the 1988 license. On the other hand, a more widespread stock ownership could, in principle, have served as a safeguard, and could have made possible a less rigid regulatory scheme

¹³⁰ That is, at the expiration of a price-cap regime, a new value to the price-cap formula has to be agreed upon. If the license does not assure TOJ of a particular rate of return, then the GOJ would essentially be given total discretion, and opportunistic behavior may be unavoidable.

¹³¹ In essence, we can think of the current regime as operating under two price caps, one for the domestic, and one for the international segments. The domestic is subject to a price cap equal to zero, while the international one is linked to the devaluation of the Jamaican dollar (with x being set to zero). This scheme may have to be adjusted when this adjustment process stops providing TOJ with a return in the allowed range. So far, though, prices of the international sector have been adjusting every few months, so that the real price of international telecommunications has remained relatively stable since privatization. See Table B.3.

¹³² One could even speculate a scheme where the license does not provide for any price regulation at all. In such case, we can expect that both domestic and international prices would be increased. Since Spiller and Sampson's (1992) estimates of the elasticity of demand for domestic services is well below 1, a monopolist would clearly have an incentive to raise prices. Furthermore, assuming that the marginal cost of international calls is given simply by the accounting price between TOJ and its international partners, their estimates of an inverse demand elasticity of .64 suggests that international prices may be 40% below monopoly levels.

¹³³ Private conversation with Richard Downer, consultant to the GOJ on the privatization.

¹³⁴ See, for example, *The Gleaner*, xxxx.

than the one spelled out in the 1987 shareholders' agreement. Observe, however, that widespread ownership is not assured without restrictions on ownership of shares, as domestic residents could easily end up selling their shares overseas, fully eliminating the safeguard advantages of widespread ownership.¹³⁵ Because of the small size of the Jamaican population and economy, it may be too optimistic to assume that, in the absence of ownership control, domestic residents will want necessarily to hold in a very diffuse form a large proportion of a major public utility's shares.

To summarize, first, because of the need to restrain administrative discretion, it is not at all clear that a very flexible pricing scheme could have been designed to produce drastically better cost efficiencies. To a large extent, given the nature of Jamaican politics and political structure, the license provision of a minimum rate of return seems to be crucial for assuring performance, thus restricting the type of incentive mechanisms that may be used. Furthermore, our discussion above suggests that the range of allowed returns does not seem to be much above C&W's alternative use of funds, and thus this range may not be excessive. Second, as long as the political will to cross-subsidize domestic communications remains strong, competition in long distance and international communications would be constrained. This, however, may eventually translate in a large social cost as the segments that cross-subsidize domestic rates are among the most technologically dynamic segments of the sector. Furthermore, realignment of rates prior to the privatization may have substantially damaged public support for the privatization process. Finally, while GOJ could have tried to sell its stake in TOJ to the public rather than to C&W, it is uncertain whether in the long run diffused domestic ownership would have remained, given the openness of Jamaica's capital markets. Thus, the 1987 regulatory change seems to have erred in the preservation of a tight monopoly over all telecommunications segments. While allowing competition in some segments of the market would have required a strong realignment of rates with a possible short term political backlash, it could have had long term benefits in the form of a more dynamic sector and lower prices in a quite elastic segment of the market.¹³⁶ This, to a large extent, represents the missing opportunity in the whole regulatory change/privatization process.¹³⁷

C. The Privatization of Chile's Electricity Sector.¹³⁸

The Regulatory and Institutional Structure

In 1978 the Chilean government started a drastic restructuring of the electricity sector, both concerning the nature of the regulatory process, and of its ownership structure. While before 1980

¹³⁵ For example, in early 1967 Jamaicans owned 9.1% of JTC. Shortly after CTC's acquisition of T> shares, the New York Stock Exchange quotation of JTC shares increased, and Jamaicans sold JTC shares to the point that by the end of 1969 5% of the shares were held by local residents.

¹³⁶ A corollary of this previous policy error, is that maintaining the extant structure of prices constant was also a policy mistake. In 1987 the GOJ did not try to realign rates, even if a monopoly was going to be maintained, so as to eliminate cross-subsidization of the domestic segment. Observe, however, that realigning rates without promoting competition would have been even less politically viable.

¹³⁷ Not only it was a missing opportunity, but it may also translate in substantial political problems in the future as TOJ claims that newer technologies fall under its exclusive license.

¹³⁸ See Spiller and Viana (1992) for a more detailed discussion of the evolution of Chile's regulatory system and performance.

tariffs were based on a rate of return method,¹³⁹ today regulated tariffs are determined on long run marginal costs principles, with rates for large customers (and wholesale rates as well) being determined in the open market.¹⁴⁰ While before 1978 the government had direct say on electricity tariffs, current tariffs are set by a mechanism that does not allow short run government interference with the determination of rates.

With respect to the ownership and structure of the sector, while in 1978 the electric system was based on two publicly owned integrated companies, ENDESA and Chilectra, today there are eleven power generating companies, 21 electricity distribution companies and two integrated companies, many of those being traded in the Chilean stock exchange (Philippi, 1991). The average daily trading of eleven electricity companies amounts to 45% of the value of all stock transactions in the Chilean stock exchange, with ENDESA accounting for 21% of that value and ENERSIS to 12%. See Table C.1. Table C.2 presents the distribution of ownership across the population for the largest companies.

TABLE C.1

CHILE: ELECTRIC UTILITIES' STOCK TRANSACTIONS
(FIRST SEMESTER 1991)

UTILITY	US\$ Millions	Share of Total In %
CHILECTRA	15.3	2.3
CHILGENER	89.1	13.2
CHILQUINTA	2.0	0.3
COLBUN	5.6	0.8
EDELMAG	0.3	0.0
EDELNOR	2.4	0.4
ELECDA	0.9	0.1
ELECTRICID	4.6	0.7
ELIQSA	0.7	0.1
EMELAT	1.2	0.2
EMELSA	2.8	0.4
ENDESA	125.0	18.5
ENERSIS	49.8	7.3
PILMAIQUEN	9.2	1.4

SOURCE: Philippi (1991).

This drastic restructuring of the sector was achieved by separating generation and transmission from local electricity distribution. For example, the distribution side of ENDESA was broken into several distribution companies each with coherent geographic and economic units, and they were subsequently privatized. Similarly, Chilectra was broken into three units, one generating and two distribution units. See Tables C.3 and C.4 showing the main generating and distributing companies, and whether they used to be part of ENDESA or CHILECTRA. Table C.3 shows that in the integrated system, ENDESA

¹³⁹ Until 1980, electricity companies were regulated by a Tariff Commission composed of representatives from Government, the firms and consumers. The Tariff Commission would set maximum annual revenues which should provide each company with at least 10% return on its "profit assets." Profit assets were computed as the company's annually revalued assets. The companies, which were vertically integrated and mostly public, could design their own tariff structure, subject to the maximum annual revenue. Electricity prices were substantially distorted during the 1971/1974 period, when they were frozen under high inflationary circumstances (Bernstein, 1986).

¹⁴⁰ We discuss below in more detail the workings of the current tariff determination process.

TABLE C.2

CHILE: OWNERSHIP OF MAIN ELECTRICITY COMPANIES
(In %; December 1990)

OWNERSHIP	<1> ENDESA	CHILGENER	COLBUN	<2> CHILECTRA METROPOL.	CHILECTRA V REGION
GENERAL PUBLIC	38.8	8.2	1.3	-	-
PENSION FUNDS	26.3	31.1	0.0	29.0	17.0
EMPLOYEES	3.3	1.5	0.0	28.3	-
FOREIGN FUNDS	7.3	9.4	0.0	-	0.0
STATE	0.0	0.0	97.4	0.0	0.0
OTHERS <3>	24.3	49.7	1.3	42.7	83.0
TOTAL	100	100	100	100	100
TOTAL SHAREHOLDERS	51833	1403	864	4751	1738

NOTES:

<1> Pehuenche, SA is owned by ENDESA (95.4%).

<2> CHILECTRA METROPOLITANA is owned by Enersis.

<3> Includes other legally established companies.

controls more than 50% of total capacity. Nevertheless the extent of divestment of ENDESA's generating capacity has been quite large. As we will see below, the distributing companies are regulated according to their density. CHILECTRA Metro, though, is the only one classified as "high density" as it serves more than 1 million customers. The remaining distributing companies are classified as either "medium density" (17 companies) or "low density" (seven companies with less than 20,000 customers). Tables C.3 and C.4 also show the extent of concentration in both generation and distribution that characterized the pre-1980s regime. The divestment of the larger companies was done through sales to the public at large, while the smaller units (less than 50 MW) were sold directly through public auctions (Philippi, 1988).

The restructuring process has been quite successful. Electricity prices are closely related to long run marginal costs, private investment is taking place in all areas of activity (including hydroelectric plants), and as we just saw, electricity companies are widely held and are daily traded in the local stock exchange. The market is very dynamic, with contracts among generating, transmission and distribution companies and their consumers taking new and varied forms.¹⁴¹ The regulatory system has sustained without much problems the financial crisis of the early 1980s, and has shown to be resilient to government and interest groups pressures.¹⁴²

Much of the success of this restructuring process is based on the nature of the regulatory regime developed following the creation of the National Energy Commission (CNE) in 1978.

¹⁴¹ For example, recently, generation and distribution companies have started to invest in transmission lines.

¹⁴² The fact that the major electricity companies are widely held among small investors and pension plans may have also contributed to the stability of the regulatory system. For example, in 1989 two thirds of ENDESA's stocks were held by small investors (Philippi, 1991).

TABLE C.3

CHILE: POWER SUPPLY COMPANIES
(1991)

SYSTEM	OWNERSHIP	INSTALLED CAPACITY (In MW)		TOTAL
		THERMAL	HYDRO	
NORTE GRANDE INTERCONNECTED SYSTEM				
EDELNER	S<1>	86.0	10.2	96.2
CODELCO	S<3>	471.0	0.0	471.0
Self-generators		132.2	0.3	132.5
SUB-TOTAL		689.2	10.5	699.7
CENTRAL INTERCONNECTED SYSTEM				
ENDESA	P	349.4	1602.7	1952.1
CHILGENER	P<2>	511.5	245.1	756.6
PEHUENCHE	P<4>	0.0	500.0	500.0
COLBUN	S<1>	0.0	490.0	490.0
PULLINQUE	P<1>	0.0	48.6	48.6
PILMAIQUEN	P<1>	0.0	35.0	35.0
OTHERS	<5>	0.0	66.3	66.3
Self-generators		226.6	84.6	311.2
SUB-TOTAL		1087.5	3072.3	4159.8
AYSEN ISOLATED SYSTEM				
EDELAYSEN	S<1>	0.0	10.4	10.4
Self-generators		2.0	3.7	5.7
SUB-TOTAL		2.0	14.1	16.1
PUNTA ARENAS ISOLATED SYSTEM				
EDELMAG	P<1>	45.6	0.0	45.6
Self-generators		47.4	0.6	48.0
SUB-TOTAL		93.0	0.6	93.6
TOTAL		1871.7	3097.5	4969.2

NOTES:

- <1> Previously owned by ENDESA
 <2> Previously owned by CHILECTRA
 <3> Self-generator
 <4> Previously owned by CORFO, now owned by ENDESA
 <5> Include 3 small companies.
 S: CORFO (state) controlled company
 P: Private company.

*The Regulatory Regime*¹⁴³

The regulatory structure is quite transparent. The CNE is the basic regulatory institution in the electricity field. It has the responsibility for developing and coordinating investment plans, policies and regulation for the sector. The CNE is a decentralized organism directly under the office of the

¹⁴³ For a detailed description of Chile's regulatory system, see Comisión Nacional de Energía (1989). For a technical description of the pricing methodology, see Philippi (1988), and Bernstein (November 1986). For a discussion of the movement towards marginal cost pricing and the problems involved, see Bernstein (1986), Philippi (1988), and Philippi (1991).

TABLE C.4

ELECTRICITY DISTRIBUTION COMPANIES
(1991)

SYSTEM	OWNERSHIP	CUSTOMERS (in 1,000)	CAPACITY (MW)	ENERGY (GWh)
<i>NORTE GRANDE INTERCONNECTED SYSTEM</i>				
EDELNOR	S<1>	140	96	139
<i>CENTRAL INTERCONNECTED SYSTEM</i>				
CHILECTRA METRO	P<2>	1106	902	4741
CGEI	P	365	217	1138
CHILECTRA REGION V	P<2>	285	213	1119
SAESA	P<1>	114	62	328
EMEC	P<1>	110	55	289
FRONTEL	P<1>	107	35	184
CONAFE	P	94	52	271
EMEL	P<1>	91	37	195
ELECDA	P<1>	84	36	187
EMELAT	P<1>	46	36	187
EMELARI	P<1>	39	17	90
ELIQSA	P	35	17	90
EE DEL SUR	P	16	6	29
EE PTE ALTO	P	14	5	26
CE LITORAL	P	13	3	14
OTHERS		12	4	22
TOTAL		2531	1699	8932
<i>AYSEN ISOLATED SYSTEM</i>				
EDELAYSEN	S<1>	14	8	148
<i>PUNTA ARENAS ISOLATED SYSTEM</i>				
EDELMAG	P<1>	36	46	72

NOTES:

<1> Previously owned by ENDESA

<2> Previously owned by CHILECTRA

P Private company

S State owned company (CORFO)

SOURCE: CNE, and Philippi (1991), installed MW has been estimated with a .6 load factor, 1988 energy values.

Presidency. It is formed by a council of seven ministers and an Executive Secretary. The staff of the Executive Secretary numbers 20 individuals, and its budget is approved yearly by the Minister of Finance (Philippi, 1991).

The CNE has two basic functions. First, it determines the regulated prices (which have to be

approved by the Minister of Economics).¹⁴⁴ A second role of the CNE is to guarantee the coordination of the several independent generation, transmission and distribution companies in the interconnected systems (the Interconnected Central System, ICS, and the Norte Grande Interconnected System, NGIS).

Prices are based on two concepts: first, in the absence of strong economies of scale, competition at the generation level should bring wholesale prices (at the "center of gravity" of the system) close to the system's long run marginal costs (including marginal power and energy costs). Thus, large users (those with installed capacity above 2,000 kW)¹⁴⁵ have been allowed to negotiate freely with the generating companies to obtain the type of service they would like.¹⁴⁶ To provide for a competitive wholesale electricity market, wheeling charges have been regulated by the CNE.

Second, electricity distribution would tend to be characterized by large economies of scale. As a consequence, the CNE regulates maximum retail tariffs. Maximum retail tariffs are designed to approximate long run marginal costs. They are composed of three parts: a) long run marginal energy and power costs; b) long run marginal transmission costs; and c) value added of distribution.

To compute marginal energy costs, the CNE has designed a relatively simple dynamic programming model that takes into account the dependency of Chile's electricity system on the current, and forecasted, hydrological conditions.^{147,148} The marginal power charge represents the marginal expansion cost of the system to accommodate an increase in peak demand. Since peak generation is done through reservoir or gas turbine power stations, the CNE uses the cost of installing a 50 MW gas turbine as the cost of peak power development (Philippi, 1991).

The CNE regulated energy and power prices are used for two purposes. First, energy (and power) sold to distribution companies is priced at CNE's levels.¹⁴⁹ Second, they form part of the

¹⁴⁴ As we will see below, the Minister of Economics' approval, however, can only be denied for price adjustments that do not come from the specified automatic adjustment clause. Thus, the administration can only interfere with major retail (or toll) price realignments. Even then, though, the proposed prices have to satisfy the legislative mandate, providing firms with a recourse to the courts if the proposed prices seem, to be too much below, or above, long run marginal costs.

¹⁴⁵ In April 1980 contracts with large clients were deregulated, with a floor of 4,000 kW installed capacity. In 1982 the floor was reduced to 2,000 kW.

¹⁴⁶ This may involve interruptable or not, peak or off-peak service. It may also involve partial joint investments in dedicated (or public) transmission lines.

¹⁴⁷ Present (1990) generation amounted to 18,000 GWh, of which 60% was hydraulic and 40% thermal. While current hydroelectric installed capacity is just 3,000 MW, CNE (1989) estimates the hydroelectric potential to be 28,000MW. The hydroelectric generating system consists of run-of-the-river plants, some reservoirs with limited regulating capacity and several power stations associated with the Laja lake that has an interannual regulatory capacity of about one third of the annual consumption. As a consequence, the level of Laja lake is crucial in determining the operating costs of the system. Furthermore, because of the significant regulating capacity in the reservoir, the marginal cost of energy tends to be relatively constant over the day and during weeks. It fluctuates during the year, though, as hydrological conditions change (Philippi, 1991, and Bernstein, 1986).

¹⁴⁸ The simplicity of the program can be seen by the fact that to analyze one year of data it requires half a minute of CPU time in a Digital Deck 10 computer (Bernstein, 1986).

¹⁴⁹ While such system provides the generating companies with investment incentives, as they can predict relatively well the prices they will get from selling to the distribution companies, it reduces the incentives for the distribution companies of searching for the lowest cost electricity supplier. Observe, however, that since the regulated prices are adjusted automatically whenever

maximum retail price that distribution companies can charge.

Regulated transmission costs¹⁵⁰ are based on the relative location of the distribution company vis-a-vis the center of the system, which is Santiago, on the capacity of the distribution system, and on whether the flow is to or from Santiago. The sum of transmission costs and energy and power costs are called node prices, as these are the prices at which transactions between generating and distribution companies take place.¹⁵¹ The node charges computed by the CNE are adjusted every six months (April and October) in such a way that they equal the average of the anticipated marginal costs over the following three years (Bernstein, 1988). These charges are computed using indexing formulae that depend on fuel costs, equipment costs, dam levels, exchange rate and so on. These formulae would operate automatically if the energy or power charges increase by more than 10% (Philippi, 1991). The node charges, however, are not allowed to differ by more than 10% of the competitive wholesale prices.

Finally, the regulated distribution costs are derived from a typical system efficiently adjusted to the size of the locality in question. Actually, the CNE uses only three types of distribution sizes, high, medium and low distribution density. See Table C.4 for a list of the different distribution companies. The value added of distribution is not related to energy supplied, but rather to the power supplied. Thus, only energy losses are considered distribution costs. Furthermore, for each customer, distribution value added is allowed to depend only on three factors: administrative costs (including invoicing and customer service), power demand costs at peak time (this includes expanding the distribution system, as well as buying from the generating system one additional peak kW), and finally, the costs of losses associated with energy distribution. Thus, retail prices are derived from four components, each of which is based on relatively easy to compute formulae, none based on actual operating costs of the distribution companies. As a consequence, the distribution companies have strong incentives to reduce their own costs so as to increase their own profitability.¹⁵²

A second role of the CNE is to guarantee the coordination of the several independent generation, transmission and distribution companies in the interconnected systems. This objective involves two aspects. First, to assure that there is an efficient dispatch the CNE developed a set of rules to be followed by the Economic Load Dispatch Center (ELDC) of each interconnected system.^{153,154} The ELDC plans the electricity system's operation for both the long and short term as well as the daily operations. It also estimates marginal costs, which are used to settle the daily accounts among the generating companies.¹⁵⁵ Second, the CNE oversees the investment programs of

they differ by more than 10% of competitive wholesale prices, the inefficiency of such a system is relatively minor.

¹⁵⁰ These have to be differentiated from the wheeling charges that are used in competitive wholesale transactions.

¹⁵¹ The term node comes from the fact that the transmission costs are computed up to the relevant node (i.e. sub-station) in the integrated system.

¹⁵² The value added of distribution is recomputed every four years (Philippi, 1991).

¹⁵³ These rules apply to all companies operating in interconnected systems with over 100 MW installed capacity, selling at least 10% to the public grid, and with installed capacity of more than 2% of the system (Philippi, 1991).

¹⁵⁴ The ELDC was created in 1985.

¹⁵⁵ For example, companies that have contracts to supply but who are not called upon, have to compensate those that have actually provided the electricity.

the generating companies.¹⁵⁶ Investments in transmission are undertaken mostly by the main transmission company. Since there is free entry into transmission and interconnection is required, would the transmission company not invest, users may find it profitable to enter into transmission.¹⁵⁷ As ownership in the sector has become increasingly private, CNE's role in promoting investment has become less important over time (Philippi, 1991).

The Evolution of the Sector

Chile's electricity sector has had a continuous expansion during the last 50 years. While, initially, self-generation accounted for two thirds of total power generation capacity and generation, by 1990 the share of self-generation fell to one quarter of both capacity and generation, as the public service companies expanded their capacity, doubling the capacity every decade during the 1940-1960, and at a slightly slower pace during the 1970s and 1980s. See Table C.5. Most of the generation is hydroelectric, with self-generators also using hydro power.

TABLE C.5

CHILE: POWER GENERATION CAPACITY
(MW)

YEAR	PUBLIC SERVICE	SELF- GENERATION	POWER GENERATION CAPACITY
1940	179	308	487
1945	202	355	557
1950	390	385	775
1955	541	451	992
1960	600	543	1143
1965	887	566	1453
1970	145	686	2143
1975	1879	741	2620
1980	2212	728	2940
1985	3094	873	3967
1990*	3341	968	4309

Source: Philippi (1991).

Note:

* In 1991 a 660MW hydroelectric power plant is added

The largest consumption sector has traditionally been industry and mining, accounting today for 70% of all consumption. To a large extent the importance of mining may also explain the role of self-generators in both total capacity and generation. The degree of electrification is quite high, with 97.9% of urban households and 62.0% of rural households being connected to electricity (the average

¹⁵⁶ Observe that investment programs are crucial for the tariff setting process to work, as it assumes that the system is constantly in long run equilibrium.

¹⁵⁷ Apart from the regulated wheeling charges, transmission owners receive payments based on the difference between marginal costs and node prices. See CNE (1989).

penetration is then 91.4%).¹⁵⁸ See Table C.6.

TABLE C.6

CHILE: ELECTRICITY CONSUMPTION BY SECTOR
(in GWh)

YEAR	COMMERCIAL & RESIDENTIAL	OTHERS <1>	INDUSTRY & MINING	SYSTEM CONSUMPTION <2>	TOTAL
1970	1299	682	4335	1235	6253
1975	1808	831	4691	1405	6927
1980	2424	931	6414	1982	9327
1985	2837	1214	7486	2502	11202
1990	3736	1530	10211	2895	14636

SOURCE: Philippi (1991).

Note:

- <1> Others include public and municipal consumption, public lighting, public transport and irrigation.
<2> System consumption includes losses and consumption in transformation centers.

The current regulatory and pricing policy, designed by the NEC in late 1979, has been in force since 1980, but was formalized into a new electricity law in 1982. Until then, though, electricity prices were based on the electricity law of 1931, with the amendments of 1959. The 1959 amendments provided for a maximum rate of return on fixed assets of 10%, and introduced the automatic revaluation of fixed assets. From 1959 on, electricity prices were determined by a Tariff Commission, composed of representatives of the President, the enterprises, consumers and headed by the Director of the Office of Electric Services. During the 1960s, though, the companies seldom reached the maximum allowed rate of return. The sector's financial situation deteriorated substantially during the period 1970-1973, as no price adjustments were allowed even in the face of hyperinflation. In the period 1974-1979, attempts were made to improve the financial situation of the companies. This process culminated with the creation of the CNE and the development in 1979 of the current regulatory regime. Since then, electricity prices, in US\$, have remained relatively stable, falling during the early part of the 1980s and increasing at the end. See Table C.7.

The Effects

The regulatory system that was implemented in the early 1980s has produced an electricity system that is based on the following principles: prices should be close to long run marginal costs, prices should not vary by end use, and prices should depend on the nature of the location.

The off-winter average retail tariff in 1988 was approximately 0.08 US\$/kWh,¹⁵⁹ while the average node energy price in Santiago at the 220V level was 0.032 US\$/kWh, and the peak power

¹⁵⁸ See, CNE (1989).

¹⁵⁹ Tariff BT1, which has a fixed monthly charge of US\$ 0.87 per month. World Bank (1988).

TABLE C.7

CHILE: AVERAGE ELECTRICAL ENERGY PRICES*
CENTRAL INTERCONNECTED SYSTEM
(US\$ cent/KWh)

YEAR	NODE PRICE <1>	RESIDENTIAL TARIFF (100KWh)<6>	PUBLIC LIGHTING <2>	SMALL INDUSTRY <3>	LARGE INDUSTRY <4><6>	AGRIC <5>
1972		1.93			0.72	
1973		1.52			0.65	
1974		1.53			0.61	
1975		2.54			1.21	
1976		3.04			1.70	
1977		4.61			2.91	
1978		4.53			3.05	
1979		6.28			4.26	
1980		8.96			5.11	
APR 81	4.41	11.70	9.35	10.12	6.31	5.00
OCT 81	4.74	12.24	9.85	10.67	6.68	5.15
APR 82	4.74	12.25	9.87	10.69	6.68	5.16
OCT 82	3.59	8.80	7.55	7.55	5.52	4.02
APR 83	3.60	7.59	6.55	6.55	4.87	3.41
OCT 83	3.52	7.45	6.45	6.45	1.78	3.37
APR 84	3.41	7.37	6.32	6.32	4.67	3.18
OCT 84	3.20	6.18	5.28	5.31	3.84	2.65
APR 85	2.90	6.70	5.61	5.79	3.97	2.82
OCT 85	2.76	6.40	5.37	5.56	3.78	2.74
APR 86	2.86	6.53	5.52	5.70	3.91	2.90
OCT 86	2.75	6.48	5.44	5.62	3.81	2.83
APR 87	2.85	6.58	5.55	5.73	3.93	2.95
OCT 87	3.14	7.06	6.01	6.19	4.29	3.29
APR 88	3.35	7.34	6.28	6.45	4.53	3.59
OCT 88	3.62	8.23	7.28	7.60	4.78	3.97
APR 89	3.92	8.78	7.84	8.19	5.18	4.33
OCT 89	4.13	9.24	8.25	8.62	5.45	4.56
APR 90	4.39	9.84	8.79	9.18	5.80	4.85
OCT 90	3.92	8.77	7.83	8.18	5.17	4.32

NOTES:

* Since prices do not discriminate by user, this table reflects the most advantageous tariff choice per time of customer.

<1> Load factor (LF)=0.6; Voltage level 220KV

<2> LF = 0.457, low voltage

<3> LF = 0.274, low voltage

<4> LF = 0.548, high voltage

<5> Hourly tariff, high voltage

<6> Series until 1980 may not be comparable with post 1980.

Source: Prices until 1980 from OLADE, various issues, from 1981 on, Philippi (1991).

node charge was 3.6 US\$/kWh (Philippi, 1991).¹⁶⁰ As Table C.7 suggests, though, customers have

¹⁶⁰ The BT1 tariff has a winter charge of 0.16 US\$/kWh, as winter is the peak consumption period. See Philippi (1991) for a fascinating discussion of the introduction of the winter tariff.

TABLE C.8

CHILE: TYPICAL ELECTRICITY TARIFFS CHARGED BY
DISTRIBUTION COMPANIES
(1986-1988, in US\$)

Tariff	ELDENOR (Regions I & II) (12/86)			CHILECTRA METROPOLITANA (Santiago) (6/88)			
	Fixed Charge month	Demand Charge max kW month	Energy Charge kWh	Fixed Charge month	Demand Charge max kW month	Energy Charge kWh	Winter Surcharge kWh
BT1 Metered							
up to 90 kWh/month	.73	-	.088	.87	-	.08	.16
over 90 kWh/month	1.08	-	.102	.87	-	.08	.16
BT2 Monthly Contracted							
without peak limits	1.08	10.51	.058	.87	10.0	.046	-
partly peak usage	1.08	7.00	.058	.87	6.43	.046	-
BT3 Monthly Maximum							
without peak limits	1.72	10.51	.058	1.61	10.0	.046	-
partly peak usage	1.72	7.00	.058	1.61	6.43	.046	-
AT2 High Voltage with Monthly Contracted							
without peak limits	1.08	6.74	.051	.87	6.08	.0396	-
partly peak usage	1.08	4.34	.051	.87	3.93	.0396	-
AT3 Monthly Maximum							
without peak limits	1.72	6.74	.051	1.61	6.08	.0396	-
partly peak usage	1.72	4.34	.051	1.61	3.93	.0396	-
AT4 Off-Peak Tariff	2.52	-	.051	2.41	-	.0396	-
Plus off-peak demand	-	.95	-	-	.76	-	-
Plus peak demand	-	5.79	-	-	5.31	-	-

SOURCE: World Bank (1988).

substantial choices among different types of tariffs, some including interruptable supply, off-peak usage, as well as maximum monthly readings. That prices are close to marginal costs can furthermore be seen from the high voltage tariff AT2 (which will be used by industrial and commercial users). The energy charge is 0.0396 US\$/kWh while the peak demand charge with partly peak hour use is 3.93 US\$/kw. The energy charge is almost identical to the energy node charge, as is the peak power charge. See Tables C.8.

That prices also vary substantially across locations can be seen in Table C.9. Table C.9 presents the average prices that ENDESA charged to public service distribution companies and to large private customers in 1986. First, we observe that large users get either the node peak power price or slightly above that, while the energy charges for large users is one or two percent higher than that charged to the distribution companies. Thus, large users' prices are indeed close to marginal costs. Second, there is substantial variation across regions even in the Central Interconnected System. These differences arise from the workings of the transmission prices. Since large users' prices are competitive, it suggests that CNE's computation of marginal transmission costs may actually reflect their

TABLE C.9

TYPICAL TARIFFS CHARGED BY ENDESA FOR HIGH VOLTAGE CUSTOMERS
(December 1986; US\$1 = Ch\$195)

LOCATION	VOLTAGE	DEMAND CHARGE Ch\$/kW max/month	ENERGY CHARGE Ch\$/kWh
Public Distribution Companies			
Taital	110	965.50	6.78
Diego de Almagro	220	768.7	5.4
San Isidro, Alto Jahuel	220	620.3	4.01
Rancagua	154	571.1	3.91
Temuco	154	571.10	3.91
Valdivia	66	557.3	3.14
Osorno	66	592.7	3.15
Puerto Elvial	23	1,537.30	6.97
Large Users			
Diego de Almagro	220	816.4	5.51
San Isidro, Alto Jahuel	220	620.3	4.09
Rancagua	154	571.1	3.99
Valdivia	66	557.3	3.21
Osorno	66	592.7	3.21

Note: Delivery points are ENDESA's substations. Additional charges may apply for other delivery points. Tariffs do not include value added of 20%.

Source: World Bank (1988), Annex 15.

true value.

Even though prices seem to be close to marginal costs, that has not stopped the private electricity firms from making reasonable profits. ENDESA, for example, except for 1985 has had positive profits, with the average yearly profit level since 1983 amounting to US\$ 71 on less than 1,700 MW of installed capacity (in 1989). See Table C.10.

The regulatory system has also promoted large investments by private electricity companies. Currently, ENDESA, PEHUENCHE and CHILGENER have six investment projects (five of those involving hydroelectric plants) for a total of US\$ 1,830 million. These projects will add 1,429 MW of installed capacity over the next five years. This additional capacity represents an increase of a third of the industry's 1989 installed capacity.¹⁶¹

To summarize, the privatization of Chile's electricity system has resulted in prices close to marginal costs while at the same time it has maintained substantial incentives for private firms to invest. The success of the privatization is not simply that the designers of the electricity reform were sophisticated enough to make the right policy prescriptions,¹⁶² but also that they designed a regulatory

¹⁶¹ In 1989 the installed capacity of private firms was 2,902 MW, while that of public generating companies was only 586 MW. See Philippi (1991).

¹⁶² In fact, there seems to be quite a bit of problems in implementing the current transmission policies.

TABLE C.10

CHILE: PROFITABILITY OF ENDESA
(In US\$ Millions)

YEAR	PROFITS
1983	101
1984	33
1985	-65
1986	50
1987	62
1988	179
1989	106
1990	104

Source: Philippi (1991).

system that on the one hand substantially limited regulators' discretion, and that, on the other hand, will be quite difficult to change by future administrations. In fact, the historical timing of Chile's reforms parallel that of Argentina. In 1982 when the new Electricity Law was passed, the Pinochet administration had, by the nature of being a military dictatorship, substantial control over the legislative process. The designers of the system realized, though, that if they had kept the regulatory system developed in 1980 simply as an administrative decree it could be reversed by future governments, undermining its incentive implications. On the other hand, by making the regulatory system a very specific law, future administrations would have to either follow the law, or try to reverse it in the legislature. Given Chile's tradition of fragmented legislatures, a large coalition would have to be assembled, which may not be forthcoming. The Argentina's telecommunications case, though, shows how the Menem Administration missed the opportunity to commit future administrations to a telecommunications regulatory policy that would provide incentives for efficient investment in the sector.¹⁶³

The Chilean case, though, shows also the importance of developing widespread support for the new regulatory and ownership arrangements. Their policy of promoting domestic ownership by individuals or through institutional investors has created another interest group committed to private ownership of the sector.

VI. Final Comments and Suggestions for Further Research.

We discussed above the difficulties that the privatization of public utilities may encounter in promoting private investment in the absence of safeguarding institutions. The reluctance to invest in highly specific assets implies that the price paid for the public firm may be smaller than the one that could be extracted if those safeguarding institutions were already in place. Thus, critics of rapid privatization moves in public utility sectors may be right in charging that the government could have, in principle, achieved higher sale prices.

The privatization of firms in sectors characterized by substantial contracting problems between

¹⁶³ As mentioned at the introduction, the Menem Administration may have realized the advantages of writing specific laws. The 1991 Electricity Act seems to go to that purpose. See footnote 1.

firms and the government, like in local telecommunications and electricity distribution require substantial safeguards to provide the private investors with incentives to take charge of the companies, and to make the future investments that may be required to improve the performance of the sector. In the absence of safeguards, though, private investment will only come at substantial costs to the government. This cost may take the form of very high initial prices, like in Argentina's telecommunications case. Unless reversed, these costs may be politically unbearable, triggering a political backlash against privatization processes in general. The required institutional developments, then, highlight the unavoidable tradeoff between providing incentives for private sector development and growth, and implementing the "a-institutional," theoretical first, or even second best regulatory policy.

The three cases discussed above suggest the need to match the nature of the regulatory regime to the political institutions of the country in question. Chile and Jamaica provide two extreme cases of ways to limit administrative discretion. While in the Chilean case administrative discretion is limited by specifying very clearly the way regulated prices have to be computed in the law, in the Jamaican such specification is done in the license. These are not random differences. While the Jamaican system could have been implemented in Chile, the opposite is not true. Specifying the regulatory process for telecommunications in the law would not grant private investors in Jamaica unusually high safeguards, as future administrations could easily change the law as they would normally control the Jamaican Parliament. Thus, the nature of Jamaica's political institutions constrains substantially what type of regulatory system can, in principle, be implemented. Both countries, though, have strong judiciary systems, and thus both could use those systems to enforce the law or the license. Countries with weaker judiciary systems, may have trouble in enforcing either system against a very strong administration. In this respect the case of Argentina is illuminating. While the Menem Administration could get away with unilaterally breaking the agreements stipulated in the licenses, that seems to have been anticipated by the bidders. The lack of assurances made bidders require unusually high telephone prices to take control of the companies. These prices may eventually create such strong political pressure that the privatization itself may be in jeopardy. The lack of consideration for institutional design is costing the Argentine public substantial amounts in terms of high prices, while at the same time it may, in the future, unravel the privatization of telecommunications. The latter may turn to be the main missing opportunity of the Argentinean privatization process.

REFERENCES

Abdala, M.A., Distributional Impact Evaluation of Divestiture in a High Inflation Economy: The Case of ENTel Argentina, Ph.D. Dissertation, Boston University (1992).

Adams, C., W. Cavendish, and P.S. Mistry, Adjusting Privatization: Case Studies from Developing Countries, (1992).

Bernstein L., J.S., "Marginal Cost Pricing of Electric Power in Chile: Conceptual, Methodological and Practical Aspects," National Energy Commission, Chile (1986).

Coase, R.H., "The Nature of Social Cost," Journal of Law and Economics, (1960): 1-44.

Comisión Nacional de Energía, The Energy Sector in Chile, (1989).

Fernandez, R., "Asignaciones Aleatorias vs. Asignaciones por Precio: El Caso de ENTel," CEMA paper # 11, Buenos Aires (1979).

Galal, A., et. al., "Welfare Consequences of Selling Public Enterprises: Case Studies from Chile, Malaysia, Mexico and the UK," mimeo, World Bank, (1992).

Gerchunoff, P., and G. Coloma, "Privatizaciones y Reforma Regulatoria en la Argentina," Instituto di Tella, Buenos Aires, (1992).

Goldberg, V., "Regulation and Administered Contracts," Bell Journal of Economics, (Spring 1976).

Hachette, D. and R. Luders, Privatización en Chile, CINDE, Santiago (1992).

Isaac, R.M., "Price Cap Regulations: Pitfalls of Implementation," University of Arizona, (1990).

Johansen, F., "Build Own and Transfer Schemes: Some Issues," mimeo, (1989).

Lott, J.R., "An Explanation for the Public Provision of Schooling: The Implications of Indoctrination," Vol 33. No.1, Journal of Law and Economics, (April 1990).

Meyrick, A.J. "The Regulation of Public Utilities in Jamaica," UK Overseas Development Administration, mimeo, 1991.

North, D.C., Institutions, Institutional Change, and Economic Performance, Cambridge: Cambridge University Press (1990).

Philippi, B., "Estrategia Energética Chilena y la Organización del Sector," (1988).

Philippi, B., "The Chilean Electric Power Sector in the Last Decade: The Design and Implementation of a New Policy," Universidad Católica de Chile, (1991), prepared for presentation at the CERES Workshop on Electricity Regulation in the Southern Cone, Montevideo, May 17, 1991.

Salzberg, E.M. "The Judges of the English Court of Appeal - Decision-making Characteristics and Promotion to the House of Lords," mimeo, 1990.

Salzberg, E.M. "The Delegation of Legislative Powers to the Courts and the Independence of the Judiciary," mimeo, 1991.

Spiller, P.T., "Government Institutions and Regulatory Policy: A Rational Choice Analysis of Telecommunications Deregulation," forthcoming in P. Quirk and R. Rich, eds., Understanding and Improving Public Decision Making, IGPA, University of Illinois, (1990).

Spiller, P.T., "Regulatory and Competition Issues in Selected Bolivian Sectors," The World Bank, (1992).

Spiller, P.T., and B. Levy, "Regulations, Institutions and Economic Efficiency," The World Bank, (1991).

Spiller, P.T., and C. Sampson, "Regulations, Institutions and Commitment: The Privatization of Jamaica Telecommunications," University of California, Berkeley, (1992).

Spiller, P.T., and I. Vogelsang, "Regulations, Institutions and Commitment: The Privatization of British Telecom," in preparation, (1992).

Spiller, P.T., and L. Viana, "How Not to Do It: Electricity Regulation in Argentina, Brazil, Chile and Uruguay," University of California, Berkeley, (1992).

Stone, C. "Putting Public Enterprises to Work: A Study of Privatization in Jamaica." unpublished, 1992.

World Bank, "Chile Energy Sector Review," August 1, 1988.

