

Regulatory Issues in the Privatization of Public Utilities: The Chilean Experience

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Between 1985 and 1989, the military government (1973–1990) carried out its third round of privatizations, focused on the so-called traditional public enterprises (PEs), i.e., enterprises created by the State itself and public utilities it had retained after they were seized by the socialist government in 1970–1973.¹ The fact that most of the enterprises privatized in this round are public utilities raises some interesting economic issues. Public utilities have traditionally been considered natural monopolies. However, some public utility activities, such as power generation and long distance phone services, are liable to become competitive, and with technological change the list is increasing.

The efficient provision of public utilities fosters both the international competitiveness of a country and its possibility of satisfying the basic needs of the poorest. Thus, an efficient supply of natural monopoly public utilities presents a challenge to policymakers, which can be broken into two parts. The first is to attain internal efficiency of firms, which is not an easy undertaking, since natural monopolies lack the discipline of market competition. The second is to avoid market power abuses by single suppliers, i.e., to achieve external efficiency.

Until recently, the vast majority of countries maintained public utilities in public hands, the most conspicuous exception being the U.S. Chile, between the crisis of the thirties and the sixties, opted for a mixed itinerary.² Most local phone services and electrical distribution were provided by privately-owned firms, while railways, water and sewage, long distance communications and electric generation and transmission were mostly in public hands.³ During the socialist government, the State seized almost all public utilities.

Great Britain pioneered in privatizing public utilities during the seventies. In Latin America, Chile was the first country to privatize public utilities, followed by Mexico and Argentina in the nineties.⁴

Even though the Chilean regulatory framework for privatized public utilities is comparatively advanced and attempts, using Edwards and Baer's (1993) words, to

“balance the conflicting needs for low cost-service versus reinvestment in these areas on the basis of reasonable profit,” it still is incomplete and somewhat ambiguous, creating the possibility for opportunistic behavior both on the part of the regulator and the firms. Recent rate-setting episodes made explicit the asymmetry of information problem. Regulators had serious difficulties in gathering precise cost data from public utilities. Another problem that emerged is the negotiation power imbalance. The regulatory agencies are in a position of technical disadvantage and in many other aspects as opposed to those of regulated firms. Furthermore, because of their sheer economic size, public utility firms have acquired an influence in the political system and in society as a whole that is hard for regulators to contend with. For instance, four of the ten companies with highest profits are public utilities, of which three are in the electric sector, and the holding company that controls two of these electric companies is also among the ten companies with highest profits. Thus, changes in these companies greatly affect the stock exchange index, hence increasing pressure on regulators.⁵

The Chilean experience also shows that the key social actors have not yet grasped the importance of promoting competition. The Chilean privatization process retained monopolies that have no economic justification. The property structure in the electric sector is the most illustrative case. Although the regulatory framework assumes competition in electric power generation and in supplying large customers (those with a demand exceeding 2MW), the dominant firm in the Central Interconnected System and its affiliates provides more than 65 percent of the power generation, owns the transmission grid and its controlling company—ENERSIS—owns the largest distribution firm, which concentrates about 50 percent of distribution in the SIC area. This industrial organization itself sets up high entry barriers in the electric industry, and more importantly, the dominant generating company owns the water property rights of the most important future projects. Hence, by postponing the development of these projects it could obtain significant rents on its existing capacity.

Recent regulatory developments overlap. The telecommunications legislation under discussion in Congress allows for the vertical integration of local phone services—which are local monopolies—and long distance services. The eventual integration is likely to have a negative impact on the competitiveness of long distance services. Additionally, the way in which the gas pipeline project that will bring natural gas from Argentina is organized is worrisome. It will establish an integrated monopoly in natural gas difficult to regulate as the British experience shows. In addition, ENERSIS, the controlling force in the project, could well use gas to increase the power-generating capacity of its affiliates up to 700 MW, which would further increase industry concentration. On the positive side, the current government is developing an appropriate regulatory scheme for transportation.

Three lessons can be drawn from the Chilean experience with the regulation of privatized public utilities. First, whenever possible, to attain competitive conditions should be the main goal before, during and after privatization. For instance, many PEs had licenses or property rights that guaranteed them a monopoly position. PEs

should be stripped of these privileges before privatization takes place, because it is disrupting and costly to either change property rights or regulations afterwards. Also, restructuring enterprises prior to privatization should take into account the regulatory problems that will ensue. Regulation should allow for new entrants and consider the possibility that current natural monopolies could, due to technological advances, lose this condition.

Second, the goals of regulation are to promote productivity increases and to pass the resulting cost reductions on to customers. The asymmetry of information regarding production costs between the regulator and the firm cloud all regulatory process. Thus the regulatory scheme should guarantee the regulator's prompt access to the monopolies' cost data. However, the best way to disassemble the monopoly of information is by creating yardstick competition among similar local monopolies.

Third, a successful regulation of public utilities requires strong, autonomous, and technically proficient institutions, something that is hard to come across in developing countries. Thus, the speed at which the privatization process is carried out should take into account the degree of progress achieved by regulatory legislation and institutions.

In short, we believe that better regulation of public utilities is required both for efficiency and equity reasons. Better regulation usually means less regulatory activities. When privatization leads to a competitive industry, there is no need for regulation. Less ambiguous regulations leaves less room for conflict between regulatees and regulators and among regulatees. The existence of autonomous and proficient regulatory agencies reduces the will of monopolies to abuse their market power.

An additional lesson is to be drawn from the privatization process itself. Shares of the most important privatized public utilities were sold to their own workers, public employees and the public in general in small packages at very convenient conditions. In this way the privatization process lessened opposition from company workers and made any policy reversal almost impossible. However, this highly diffused ownership has facilitated the control of these companies by their managers or economic groups owning small percentages of shares, expediting the concentration process that ensued their privatization. Had a different large investor with a significant share in the company and with the perspective of a long-term involvement been attracted to participate in the privatization of each public utility, the agency problem and the risk of creating huge industrial conglomerates would have been lessened.

REGULATORY ISSUES IN THE CHILEAN PRIVATIZATION PROCESS

The purpose of this section is to analyze the Chilean experience in privatizing public utilities, with an emphasis on the relationship between the way in which privatizations were carried out and the possibilities of properly regulating public services. Attention will be focused mainly on the electric power industry, telecommunications and transportation. The privatization process is not advanced in other public utilities.

The Regulatory Framework for Public Utilities

During the eighties, prior to privatization of public utilities, a significant effort was made to develop a regulatory framework with the introduction of new legislation. This was done in 1982 for the electric power industry, in 1982 and 1987 for the local and long distance telephone services, and in 1988 for water and sewage services. The legislation mainly defines price-setting schemes based on the principle of marginal cost pricing in simulated efficient enterprises. Later, in 1991 Congress enacted a concession law allowing the private sector to build, operate and transfer public work projects, an area previously reserved to the public sector.

An institutional regulatory capacity was developed prior to privatization. In this sense, we can mention the establishment of an antitrust system in 1973. It consists of a National Prosecution Office and two antitrust commissions. The head of the Prosecution Office is appointed by the President. The Central Preventive Commission is made up of five members (there is also a preventive commission in each region). The chair is designated by the Ministry of Economy. A second member represents the Minister of Finance. There is also a representative of consumers, who is chosen by the Presidents of community organizations. The remaining two members are appointed by the Council of University Presidents (Rectores), one of them a lawyer and the other an economist. As for the Resolutive Commission, the Supreme Court of Justice appoints one of its members to chair it. It is also composed of two members representing the government, both are agency directors, one from the Ministry of Economy and the other from the Ministry of Finance. The remaining two members are Deans of the Schools of Law and of Business Administration, who are nominated by drawing lots.

The National Energy Commission (CNE) was established in 1978, the Superintendency of Electric Service and Fuels in 1985, and the Superintendency of Water and Sanitation Services in 1990. Since 1977 the Undersecretary of Telecommunications—which reports directly to the Minister of Transportation and Telecommunications—is responsible for regulating telecommunications. Seven Ministers sit in the National Commission of Energy, four of which belong to the economic and three to the political area. The Superintendencies of Water and Sewage Sanitation and of Electricity and Fuels depend administratively on the Ministries of Public Works and Economy, respectively. Generally speaking, these agencies are responsible for granting licenses, computing rates, monitoring the quality of services and in the case of the CNE the mid and long-term planning guidelines for the sector.

The Electric Power Industry⁶

In the electric sector it is possible to distinguish three different segments: power generation, transmission and distribution. The last two activities could be considered natural monopolies. However, it is perfectly possible to have a competitive power

generation industry. In fact, in Chile the capacity of a size-efficient plant represents less than 10 percent of the current aggregate domestic demand.

The Chilean regulatory framework assumes competition in power generation and in supplying large customers. It also assumes that electric distribution and transmission are natural monopolies. The price system is made up of regulated rates for customers requiring less than 2 MW of power and freely negotiated rates for the rest. The regulated price has two components: a node price at which distributors buy energy and power from generators and a distribution value added. The node price is determined as the sum of the forecasted average of short-run generating marginal costs for the next 36 months, given the investment program proposed by generators for the next three years, and of the marginal cost of transmission between the generating unit and the distribution node or point. The law specifies that the regulated price must be within a 10 percent band in terms of the average price of freely negotiated contracts. These contracts represent about 40 percent of total power consumption.⁷

Competition in power generation is supposed to operate as follows. When demand expands, future short-run marginal costs increase and this is reflected in higher node prices. Existing or new entrepreneurs invest in generation whenever a project has a return on capital commensurate with the sector's level of risk. The regulatory agency only plays a coordinating role regarding investment. The entrepreneurs have to give due advice of their projects to the CNE, which determines the optimal path of expansion, given the investment prospects and the estimated rate of growth of demand, and relays this information to the private sector. Nevertheless, private entrepreneurs do not have to abide by this plan.⁸

Given that there are significant economies of scale in transmission, the marginal cost is below the average cost. Therefore, marginal cost rates do not cover the costs of transmission. The difference is charged to generators according to their catchment area within the system, where the catchment is the portion of the transmission grid used by a generator. The transmission firm establishes the catchment for each power generating plant.

The value added of distribution is calculated every four years. The procedure consists in determining the costs of an efficient firm and setting rates that provide a 10 percent real return over the replacement value of assets. These rates are then applied to existing companies in order to verify that the average return on assets does not exceed 14 percent or fall below 6 percent. If the average actual return does not fall within this range, the rates are adjusted to reach the closest limit. The operating cost of an efficient firm and the replacement value of assets are obtained as the weighted average of estimates performed by the industry and by the CNE. The weight of the regulatory agency estimate is 0.67.

Although competition practically does not exist in electric power generation, this is a premise of the sectoral regulatory framework. In the central zone electric system (SIC), where privatization is further advanced, there are three generating companies

of some significance. ENDESA and its subsidiaries own approximately 65 percent of the generation capacity. CHILGENER and state-owned Colbún possess 14 percent of the generating capacity of each. Most of the water rights for the main hydro-electrical projects for the next 20 years belong to ENDESA, since it was a PE. Thus, the largest generator has an incentive to appraise new projects considering the effects they will have on the profitability of its inframarginal capacity, i.e., it can achieve monopoly rents by postponing investments. New entrepreneurs are unwilling to enter because they do not have the water rights to undertake the most efficient projects.

It has been argued that economies of scope in generation justify the horizontal integration of generators with different generating sources in order to be better adapted to peak and off-peak demand fluctuations. This is erroneous, because what is really needed is to coordinate the short-run operation of the system so that at all times the generating plants are those that have the lowest short-run marginal costs. In Chile such a coordination mechanism among independent generators and transmission firms exists, thereby rendering horizontal integration unnecessary.

ENDESA also owns the Central Zone transmission grid (recently it has created a subsidiary TRANSELEC to manage it). It therefore has a decisive participation in determining the areas of influence of the generators and thus on the allocation of transmission costs to generators. Because the law is not explicit enough about how these areas are determined and the decision is made by the owner of the grid, there is room for discretion. The fact that ENDESA is the largest generator and also owns the transmission grid, in an ambiguous regulatory framework, creates the possibility of conflict. Recent lawsuits between generators illustrate this point (for details see Blanlot, 1993).

ENERSIS controls ENDESA and the distribution companies (CHILECTRA and Río Maipo) operating in the country's largest demand area (the metropolitan area of Santiago). Given that the distribution companies pay the node price for electric power and energy they buy, they are indifferent as to who the supplier is. On the other hand, generators prefer to sell when actual margin production costs are below the node prices. Thus, a distributor could favor an affiliated generator by making contracts in which energy and power are mostly supplied when marginal costs are below node prices. In 1991 CHILECTRA's supply agreements benefitted ENDESA and were detrimental to Colbún. This led to legal disputes that, after a costly litigation process, forced generating companies to transfer energy among themselves.

This ownership structure, in which a holding company owns the largest distribution company and controls the largest generating company, which, in turn, owns the transmission grid, combined with an ambiguous regulatory framework, increases the risk for new generators who could be possibly willing to invest in generation, by raising the barriers to entry. Furthermore, there is a project to build a pipeline which will annually convey 5 millions m³ of natural gas from Argentina. CHILECTRA would control gas transportation, trading and distribution, thereby creating a fully integrated gas system. This would allow CHILECTRA to control the development of two

or three power generation plants totalling 700 MW, and would increase ENERSIS participation (directly or indirectly) in power generation to about 80 percent, making competition in this industry a chimera.

Setting the distribution value added also bears important problems. The last (second semester of 1992) price-setting process provides valuable lessons regarding the negative effect of incomplete regulatory frameworks. The fact that the costs of the simulated efficient firm are computed as a weighted average of studies carried out by the CNE and the firms gives rise to obvious incentives, for one and the others, to alter the estimates. Discrepancies in the estimation of distribution costs and of the replacement value of assets in some cases exceeded 50 percent. A better solution would probably result from an arbitration process in which an arbitrator would have to decide between the two studies.

The estimation of the actual cost of distribution was particularly sensitive. Distribution companies have diversified their business activities. Also, in certain cases vertical integration in the provision of inputs and services has taken place through affiliated companies. All this makes it more difficult to estimate the actual cost of distribution, allowing regulated firms to charge to regulated business costs borne by the unregulated business, or even setting artificially high transfer prices with the affiliated suppliers in order to increase return on capital beyond the levels established by the law. The return on capital of distribution companies and their affiliated input suppliers or holding companies, in many cases, has ranged from 20 to 40 percent, which is not consistent with the uncertainty of the business.⁹

What made the price-setting process more complicated was that most of the discussion between regulators and firms took place through the press. The stock exchange index plunged 14.1 percent during August and September, the month immediately before distribution prices were readjusted, partially because of alarmist predictions about profit reductions in the electric sector, exerting additional pressures on regulators.

The Telecommunications Sector

Long distance and local phone services are regulated. The rate-setting scheme is based on long-term marginal costs of a simulated efficient firm. The tariffs are set so that the net present value of expansion projects equal zero, when discounted at a rate reflecting the sector's uncertainty. Tariffs are adjusted every five years. The cost studies are prepared by the phone companies. Any dispute about cost estimates between the regulator and the regulatee gives rise to an arbitration process, those characteristics are defined by law.

After its privatization, ENTEL, the former long distance monopoly, retained several exclusive licenses which generated legal barriers to entry in the industry. The sluggishness of the regulatory authority in lifting these barriers and in granting new licenses delayed the emergence of competition. This, together with inappropriate

rate-setting schemes, has maintained prices significantly above marginal costs. In practice, the long distance monopoly attained rates of return on capital, which, on average, exceeded 30 percent. The regulation of long distance services requires a new approach. Competition in long distance service should be the main goal, especially given that technological progress in telecommunications has eliminated the natural monopoly characteristics that existed in the past.

The integration of local and long distance services endangers the prospects of developing competition in long distance. As long as the local telephone service remains a natural monopoly, it will have the possibility of discriminating in favor of an affiliated long distance carrier. It is almost impossible to have a regulation that effectively prevents discrimination due to: (1) the technical complexities involved; (2) the lack of a sophisticated regulatory capacity; and (3) a cumbersome legal system for settling disputes. Even if the phone company does not discriminate against its long distance competitors, only by knowing its competitors' plans in advance constitutes a great competitive advantage (long distance carriers have to ask the local phone company for new connections well in advance).

Recently, the government proposed a bill of law to Parliament, eliminating the legal barriers for competition in long distance services. Nevertheless, at the same time it does not preclude local phone companies from entering the long distance service through subsidiaries. Unless the Antitrust Commissions rules against vertical integration, it could well be expected that the dominant firm (CTC)—supplying about 95 percent of the local phone services—will create its own long distance subsidiary. This is not needed to create competition. In fact, there are three firms primed to compete in long distance through a dubious contract with CTC, carrying a large chunk of existing long distance calls. The presence of CTC in long distance could reduce long-run competition. Otherwise, it is difficult to understand the very costly campaign CTC has carried out to convince the public of the convenience of allowing the company to enter into what is to become a very competitive industry.

CTS has been frequently denounced by the antitrust commissions. Some of the cases involve charging abusive prices for related services, such as directory assistance or verifying the condition of the line for those customers that do not rent the phone apparatus from the company.¹⁰ There have also been long court litigations with minor phone service companies about whether or not CTC meets with the connecting conditions provided for by law. However, the worst case of market power abuse by CTC involves using its monopoly of information to sell phones well ahead of their actual date of installation. Phone installation was sluggish before privatization, resulting in a severe accumulation of unsupplied demand. In order to encourage investment the past government authorized charging a fee on new phones well above actual installation costs. The overcharge decreased over time, until it disappeared in 1993. In 1988 and 1989 CTC sold—charging the fee of the contracting year—phones that were installed up to two years later. Furthermore, because the companies were only required to satisfy an average annual charge, they placed newspaper advertise-

ments announcing a final date for contracting new phones at a price well above the authorized charge. The week after the contracts were signed the company advertised new prices for phones under the same conditions at half the initial price. It must be difficult to find a more flagrant example of market power abuse, but the authorities and the antitrust commissions at the time did nothing to prevent it.¹¹

Transportation

The current government is looking at franchising as a way of improving the transportation infrastructure.¹² Through concessions the private sector will finance the construction of new roads and tunnels. In general terms, concessions work in the following way. The government specifies the technical conditions for the infrastructure and the bidder that offers charging the lowest user's fee is awarded the concession for 20 or 30 years.¹³ In some cases there is a tariff cap. If the cap is too low, bidders can apply for a subsidy and the project is awarded to the applicant requiring the lowest grant.

That public roads should be operated by the private sector has important advantages. It reduces the risk of building white elephants. The government could finance a white elephant through a huge subsidy. However, an explicitation of its cost reduces this possibility. Second, it is difficult for the government to charge the appropriate toll for using the roads, especially when it faces powerful truck owners' confederations. For the same reasons, it is also difficult to penalize users that exceed the weight limit, a circumstance that has a tremendous impact on the useful life of roads. Third, maintenance of public roads is erratic. It is highly influenced by fiscal finances and governments tend to underinvest in maintenance.

The first project, a \$20 million tunnel, was successfully auctioned at the end of 1992.¹⁴ However, franchising raises important regulatory issues that have not been explicitly dealt with in the current legislation. The concessions extend for periods ranging from 20 to 30 years, but the law does not establish an explicit mechanism to adapt the contract to changing conditions.¹⁵ Renegotiations of the contract are allowed, but this creates the possibility for opportunistic behavior. Some of the situations that could occur are the following. If an expansion of the infrastructure is required, what will be the price charged by the franchisee? On the other hand, the traffic through a specific road depends on the other links of the network. Therefore the government affects the demand of each particular route through the decisions it takes for the rest of the network. Furthermore, the law does not consider establishing an independent regulatory entity to enforce contract conditions. This uncertainty increases bidders' discount rate and may produce an adverse selection in the sense that auctions could attract entrepreneurial groups that have the might—through rent-seeking activities—to influence the authorities.

The above problems are being solved through sliding-scale rate-of-return clauses in the contracts. In recent biddings, uncertainty has been greatly reduced by intro-

ducing a minimum traffic guarantee. On the other hand, if traffic exceeds a preestablished level, the government has an increasing participation in the above expectation returns.¹⁶ Another clause gives the government an option to buy the infrastructure concession before its termination, if major infrastructure changes are required. The purchase conditions are included in the auction conditions, avoiding any possibility of infringement on property rights.

The government has also auctioned the main downtown streets to bus transportation. This is a major reversal in urban public transportation compared to the hands-off policy followed by the previous government. Until the seventies the government had a major role in public transportation. It owned a bus transportation company and closely regulated private bus services. The military government followed a *laissez-faire* policy in local transportation. The public bus company was sold out and almost all regulations affecting urban bus services were abolished.¹⁷ The *laissez-faire* policy neither led to efficiency nor to competition. Competition cannot be efficient when it uses a scarce common property: urban streets, in this case. In addition, the resulting industrial organization was a cartel instead of competition. The cartel pricing allowed members to exploit their buses well beyond their normal life. In turn, the high tariffs led to an inefficient overexpansion of the bus stock. Other undesired effects of the *laissez-faire* policy were high levels of pollution and traffic congestion.

The current government decided to auction the right to use the main downtown streets of Santiago to the bus companies. Bidders had to compete through tariffs, frequency, age of buses and other quality measures. This move was strongly resisted by bus owners. In the first auction there were no bids. The government took two measures to break the cartel. First, using pollution as the justification, it prohibited older buses to circulate through downtown streets, creating fissures in a hitherto monolithic cartel. Second, it lodged a complaint against the leaders of bus owners' organizations for collusive behavior with the Preventive Antitrust Commission. The main argument was that nobody had participated in the first auction (to sweeten the deal the government also bought buses 20 years or older at an above market price). While the Preventive Commission was conducting its inquest, a second auction was called and the bus owners participated.

The results of the bidding process were a 10 percent fall in prices, better quality buses and a substantial reduction in travel time (the auction, combined with other regulatory measures, reduced the time a bus takes to cross the downtown section to less than one-third). Other positive effects were less traffic congestion and a decrease in pollution. Now the government is considering extending the bidding process to other areas in the city. This example shows what an active pro-competitive policy can achieve as compared to *laissez-faire* when market failures are significant.

The current privatization process of the state railways also shows greater concern for regulatory issues. The new government received an almost bankrupt firm requir-

ing huge maintenance expenditures and investments, with a rapidly falling market share in overall transportation services. The government decided to privatize the cargo railroad and to keep the tracks, due to their natural monopoly characteristics, and also the unprofitable passenger service. A cargo railway subsidiary was created, 51 percent of which will be auctioned in the near future. The auction will also determine a two-part toll fee for using the tracks. In order to reduce uncertainty, to foster private investment by the cargo company and to prevent "cherry picking" by specialized operators, any new cargo company will have to pay the same two-part toll fee and satisfy common-carrier service requirements.

The huge debt of the railway company is partly explained by internal failures: (1) deficit of entrepreneurial capacity; (2) lack of responsiveness to market signals; and (3) great labor inflexibility. An external reason is the competition from a truck industry enjoying an implicit subsidy. In fact, truck owners are not charged for the real cost of the roads they use. If the government continues with its infrastructure concession policy, this will increase the profitability of trains, something that is being taken into account in the auction. The government chose a second best approach to achieve inter-modal efficiency: it will subsidize the state track railroad company. The subsidy is linked to cost recovery in roads; therefore, as road concessions develop over time the subsidy will decrease and the toll the track company charges the cargo company will rise.

LESSONS FROM THE CHILEAN EXPERIENCE WITH THE PRIVATIZATION OF PUBLIC UTILITIES

In this section we draw four lessons from the privatization and regulation of public utilities in Chile. The first one is that authorities should foster competition whenever this is possible. The second is the need for developing an unambiguous regulatory legislation prior to privatization. The third underscores the need for building able and autonomous regulatory institutions. The fourth one stresses the need to attract different entrepreneurial groups, each having a significant interest in one privatized public utility.

Competition as a Goal

The difficulties involved in regulation should generate a special concern for privatizing under conditions that lead to competition and limit at a minimum the need for government regulation. In some circumstances, an active policy is required to achieve competition. In the previous section it became clear that the lack of consideration of regulatory aspects before and after privatization led to the monopolization of activities that could have been developed under the discipline of compe-

tition. Authorities should have been careful in not making extensive the exclusive rights that benefitted PEs to private firms. These exclusive rights created, in some cases, legal barriers to entry, hence maintaining the monopolistic characteristics of the sector. According to Paredes (1993), this outcome is due to the hastiness of privatization and the need to offer the private sector an attractive deal. Lack of experience in privatizing public utilities in a country that pioneered the process in the region can also be added.¹⁸

In the electric sector, the restructuring of enterprises prior to privatization fell short of what was needed to ensure competition. More attention should have been paid to issues regarding horizontal and vertical integration and joint ownership of distribution, transmission and generation facilities. ENDESA should have been broken up into several firms operating in the SIC before privatization.¹⁹ Moreover, the water rights should have been returned to the State prior to privatization, which in turn, could have granted them conditioned to the timely development of new projects by existing firms or newcomers. Right now the policy options are limited. There is no legal means of forcing a company to develop new projects. Perhaps new entrants should be encouraged to make offers for ENDESA's water rights. A new legislation could compel ENDESA, if it does not plan to develop a given water resource in the near future, to sell the water right. In case of price disagreement an arbitration procedure should be established. The transmission grid should have been set up as a separate company. Two alternative schemes could have been considered. One is turning the grid into a common carrier jointly owned by all generating and distribution firms and open to newcomers. The other is setting up a separate company without any links with generators.

In privatizing telecommunications, care should have been placed in not granting monopoly positions through legal restrictions and exclusive licenses. The decision to grant CTC, the large local telephone company, a license to operate a cellular phone company in its area of concession is also debatable, if it is borne in mind that for technical reasons only two companies can operate in the same geographical area and in the long run could expect that cellular phones could become an important competitor in the local and domestic long distance market.

Another source of concern is the effect that a significant participation of pension funds in the ownership of public utility enterprises has on market competition. Even if horizontal and vertical integration of enterprises with natural monopoly characteristics is restricted, the fact that institutional investors are major shareholders in several enterprises in the same regulated industry could result in firm coordination, even to the extent that they might have common directors on the boards. One way of correcting this problem is to forbid institutional investors to elect the same persons to the boards of companies in the same industry and to penalize conducts that lead to coordinated actions among enterprises in the sector.

Defining a Regulatory Framework

The Chilean experience shows that rate setting schemes, and regulatory frameworks in general, constitute incomplete contracts between regulators and firms, raising the possibility of *ex-post* opportunistic behavior on both sides.²⁰ Ambiguities in the rate setting schemes generate uncertainty over property rights that are being acquired. Consequently, investors highly discount the value of companies being privatized. Another undesired effect of regulatory ambiguity is adverse selection: privatization attracts entrepreneurs with a higher willingness to undertake risks or those having higher influence within the political system (Paredes, 1993).

The regulatory process is increasingly becoming a bargaining process where the relative power and influence of interest groups is having a great impact on the outcome of the regulatory process. This environment has led to the development of rent-seeking activities, as it becomes profitable to devote resources to develop influences with the purpose of favorably affecting the regulators' decisions. Also, important amounts of resources are devoted to settle disputes arising in an ambiguous regulatory framework between regulators and firms and between firms. These circumstances increase uncertainty, which has the effect of raising discount factors, thereby adversely affecting investment and boosting prices.

Thus, a second lesson that can be drawn is that the regulatory framework should be the least ambiguous as possible and must be completed prior to privatization. Otherwise, privatizations could cause undesired income redistributions and welfare losses. The regulatory framework should include disclosure rules ensuring regulators an easy and prompt access to all relevant cost data and specify sanctions for profit transferring. On the other hand, very restrictive regulations could result in efficiency-reducing rigidities. Therefore, the regulatory framework will not solve all the issues. Thus, highly technical and autonomous regulatory institutions are required.

Regulatory Capacity

The strengthening of regulatory institutions is crucial to success in the privatization effort due to the specialized nature of the function. The Chilean experience shows three undesired traits of regulatory agencies that probably are shared by many other countries. First, the unbalanced technical skill between the regulatee and the regulators. Second, the closeness of regulators to the political system. Third, the inadequacy of the regulatory structure. Regulatory institutions sometimes overlap and in others leave important aspects unregulated.

Regulatory agencies are part of the public sector, thus their wages are bounded by public wage scales. Public sector's wages enable hiring professionals with little or no experience, generating conditions for a high turnover. Those that turn out to be more productive quickly learn the nature of the business and with few exceptions migrate to the regulated firms where wages are several times higher. Thus, the

negotiating power of the regulator is unbalanced with respect to the professional capacity of the regulatee. Furthermore, since the regulators could envisage their participation in the regulating entity as a transition to the regulated industry, the risk of regulators being captured by the industry is high.²²

In Chile, regulatory entities have a strong dependence on the Ministries. This encourages rent-seeking activities and increases the political and social pressure that public utilities' owners exert on regulators. Thus, it is necessary to move in the direction of further independence by constituting regulatory commissions that are more autonomous from the political authorities. Increasing autonomy of regulatory agencies should: (1) allow paying competitive salaries that could attract and retain able professionals; and (2) reduce the political pressures that public utility firms exert on the political system. Blanlot (1993) has proposed the creation of a single regulatory commission for all public utilities. The existence of common grounds in regulating different public utilities justifies the creation of a single entity, given the scarcity of highly qualified professionals as well as of financial resources. This commission should take up the responsibility for setting regulated rates, developing the proposed plan for investments, controlling the quality of service, promoting competition and protecting consumers. The commissions should be selected among well-trained lawyers and economists through a process in which technical capacity and independence is assured, with their tenure going beyond and only partially overlapping that of elected governments.

The existence of well-staffed and endowed regulatory agencies does not solve all problems. Still we can expect conflicts between public utility firms and regulators. The regulatory agency cannot be a party and an arbitrator at the same time; hence, the need for a highly technical arbitration process, that certainly is not provided by the judiciary system.²³ An antitrust commission could play an important role by solving disputes between regulators and regulatees and penalizing intentional manipulation of cost data. For the commission to succeed in this role it would also have to be independent from political pressures. The antitrust commissioners should be full time and have a solid background in regulatory economics and law, conditions that are not met by most of the current antitrust commissioners. Probably one commission will be needed instead of the current two.²⁴

Property Diffusion

The military government made significant efforts to deconcentrate property. Popular capitalism was implemented in the second round of privatizations. Shares of banks and pension funds were offered to the general public at very attractive conditions, but with limits in the amount of shares each person could buy. The incentives included tax credits which, in some cases, had a present value exceeding the price of the share, and soft credits for purchasing shares or a 30 percent discount for those paying up front. Labor capitalism was implemented in the third

round of privatizations. Workers of enterprises being privatized and public employees could use their accumulated severance payments in order to buy shares. Soft credits were available for those willing to buy more shares.

The military government's stated reasons for promoting property diffusion were expanding capitalism to larger segments of the population, fostering the market economy by strengthening the domestic capital markets through a wider diffusion of ownership, and in the case of labor capitalism, increasing productivity by putting an end to the traditional opposition of interests between workers and capitalists. Other unstated reasons were the bad experience with the highly concentrated privatization process of the seventies, particularly in the financial sector, gaining public support for the privatization process, reducing workers' opposition and making any policy reversal almost impossible.

The emphasis on property diffusion when privatizing needs consideration. There are three reasons for doing this. First, they have a high cost for the State. Second, a highly diffuse ownership aggravates the owner-manager agency problem. Third, it greatly facilitates industrial concentration. These property diffusion schemes had a high cost for the State. First, the cost of subsidizing credits and the cost of tax breaks.²⁴ Second, not selling a controlling part of the stock in some enterprises reduced their price. Popular capitalism probably had a negative impact on income distribution. Although the number of stockholders increased, these schemes did not reach the poor (for more details see Devlin, 1993).

The owner-manager agency problem is not solved by the existence of institutional investors. Pension funds do not have a performance fee. The only incentives come from attracting new affiliates that pay a front-load fee. Therefore, there is no direct link between the performance of the fund and the profits of the fund management company. Due to information asymmetries, affiliates have serious difficulties in evaluating the performance of different pension funds (AFPs).²⁵ Empirical evidence shows that the main reason for switching from one AFP to another is that the affiliate is approached by a sales agent. In addition, the AFP is accountable for significant deviations from the system's average, so that what matters is not performing substantially worse than the system as a whole. This problem leads us to conclude that the management company reflects in a very imperfect way the goals of the final shareholders (i.e., the pension contributors).

From the point of view of regulation the most troublesome result for popular and labor capitalism is that it greatly facilitated concentration in the electric sector. The way in which ENDESA and CHILMETRO were privatized facilitated their control by ENERSIS. The widely diffused ownership of ENDESA made it possible for ENERSIS, which owns less than 20 percent of the shares, to control ENDESA. Both "labor capitalism" and the participation of pension funds were essential in reducing the power of other shareholders. Doubts regarding the motivation of pension fund voting have led the new government to propose a new legislation that will force pension fund managers to vote for independent directors.

In short, although privatization of public utilities could solve or reduce their most crucial internal efficiency problems, attaining all the potential benefits requires an adequate regulation, something that is not easy to come by.

NOTES

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1. In the first bout (1974–81) the military government privatized all firms that were acquired or confiscated by the socialist government, but the public utilities. In the second cycle the government privatized firms, especially financial institutions, that it had taken over when they became insolvent during the severe economic crisis at the beginning of the eighties. For details see Sáez (1992) and Bitran and Sáez (1993).

2. Before the thirties the State had an incipient entrepreneurial role. Through Ferrocarriles del Estado, created in 1894, it consolidated and expanded its role in railways. Also in 1929 it created a domestic airline (Alé and Mallat, 1990).

3. The State assumed an entrepreneurial role in these activities because it felt that the private sector lacked the resources or the determination to develop these industries at the pace required for rapid economic growth. Some authors claim that the government interventionism inhibited a more active role of the private sector in these industries, particularly through tariff controls which did not allow for their adequate expansion.

4. The Chilean privatization experience is surveyed by Marcel (1989), Alé and Mallat (1990), Hachette and Lüders (1992) and Bitran and Sáez (1993).

5. Electric companies represent about 55 percent of the main stock exchange index (IPSA) and about 90 percent of the stock portfolio of Pension Funds (Tendencias Bursátiles, No. 6, November 1992).

6. This section builds on Blanlot (1993) and Bitran and Sáez (1993).

7. As Blanlot (1993) has stated, this shows that the regulatory system relies highly on the existence of competition in generation.

8. The existence of indivisibilities and economies of scale in power generation imply that the decentralized solution is not necessarily Pareto-optimal, requiring some sort of coordination. The question is whether this coordinating role is sufficient to guarantee a global optimum or whether some additional mandatory role for the State is required.

9. Chilectra leases about 175,000 supports to the phone company. The annual fee is around US \$15 per contract. Chilectra pays ENERSIS a 50 percent fee for negotiating this contract. The Preventive Antitrust Commission requested the National Prosecutor to investigate how this arrangement affects tariff-setting (Ruling No. 830 of October 1992).

10. Ruling 754 of the Preventive Commission forbids CTC from charging, in addition to the cost of the phone call, for directory assistance to listed subscribers and ruled that the company should reimburse customers for previous charges (confirmed by Resolution No. 356 of the Resolutive Commission). Ruling 821 of the Preventive Commission forbids CTC from charging subscribers that do not rent their device from the company checking the status of the equipment until the charge is approved by the corresponding regulatory agency.

11. In 1993 the Preventive Commission reproached this conduct. But considering that too much time had elapsed since the abuse was committed and that the new owners had put an end to these practices, it did not impose sanctions (Ruling 847).

12. Current technology requires a minimum traffic of 2,000 equivalent cars per day to justify toll roads. In Chile less than 20 percent of interurban roads satisfies this condition. Technological advance in the form of electronic tolls will reduce the threshold.

13. Similar schemes were used to expand the railways network at the end of the last century (Alé and Mallat, 1990).

14. In this auction the government set the user's fee and the bidder offering the largest payment to the government was awarded the project.

15. In Mexico the highway concessions program resulted in massive contract renegotiations favoring investors. In Argentina the concessions of highways did not work very well either.

16. Also, the user's fee could be reduced if it does not produce traffic congestion.

17. On the other hand the government finished the construction of the subway that still remains as a PE.

18. The highly leveraged purchases of the first round of privatizations were not repeated in the following processes.

19. Chilctra was split into one generator (CHILGENER) and two distributors (CHILMETRO and CHILQUINTA) prior to privatization. All distribution activities were separated from ENDESA. Furthermore, ENDESA gave birth to three new generating companies: Pehuenche, Colbún-Machicura and EDELNOR (not in the SIC area). However, the past government sold Pehuenche back to ENDESA.

20. For instance, the law allows the electric companies to require reimbursable financial contributions from customers requesting new services. However, the law does not say anything about the way in which the money is reimbursed. Rulings 792 and 793 of the Preventive Antitrust Commission have asked the regulatory agency to specify the ways in which the reimbursement has to be made. The overlapping of distribution concessions is another source of conflict. Ruling 797 of the Preventive Commission accepted the complaint lodged by Puento Alto, a distribution company, against its supplier and competitor, Río Maipo.

21. For instance, the better trained technical staff remained in the privatized firms, creating serious problems of lack of qualified professionals to perform the regulatory function. Devlin (1993) has proposed prohibiting regulatory personnel from working in the regulated industry for two years.

22. As Orr and Ulen (1993) emphasize, after privatization, the efficient operation of enterprises requires a stable, impartial, and efficient regime of contract law. The Chilean judiciary system—which badly requires modernization—are likely to occur at a very slow pace. Thus, the importance of having an effective antitrust system.

23. Most persons sitting in the antitrust commissions have no previous experience in the field. Since 1988, requirements to create universities in Chile are very low. Some of the new universities have less competent faculties than the traditional ones. However, the Deans of their schools participate when lots are drawn to select two members of the Resolutive Antitrust Commission. Another example, in 1992 a pharmaceutical company accused another company of unfair practices. According to the plaintiff, the defendant company had sent doctors a letter saying that the competing product was less effective, which was not the case. In a meeting of the Preventive Antitrust Commission the National Prosecutor triumphantly announced that

the problem had been resolved. Under his guidance both companies had agreed to market the product jointly.

24. The cost of tax credits include that of complicating tax administration. Tax credits to promote any kind of policy are highly discredited. It is more sensible—because of their accountability—to resort to direct subsidies.

25. The government is taking steps to correct this situation. Since 1992 pension funds are required to provide their affiliates with information about the profitability of all funds in a standardized form.

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