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Redistributive Impact of Privatization and the Regulation of Utilities in Chile

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Abstract

Privatization has been one of the primary factors generating changes in the Chilean economy over the last decade. Privatization has faced some opposition due in part to its uncertain effect on employment and prices. Despite the importance of the topic, only few attempts have been made to analyse empirically the gains and losses associated with the privatization process and its concomitant regulatory framework. The purpose of this paper is twofold. First, to provide an idea of the effect of privatization on efficiency and then, to understand whether those who oppose further privatization, can justify their position on the grounds that privatization, in fact, negatively affects the poorest.

Keywords: privatization, efficiency, welfare impacts, regulation, utilities, state owned-enterprises

JEL classification: D31, D42

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1 Introduction

Privatization has been one of the primary factors generating changes in the economy over the last decade. Western countries with some privatization experience have, on an overall basis, evaluated the process favourably. However, privatization has faced major difficulties in most countries because serious political opposition has limited its extent. In part, the opposition reflects the uncertainty faced by workers and consumers regarding the impact privatization will have on employment and prices.

There is no doubt that these fears are closely related with the regulatory framework and the effect that this framework has on final prices. In Chile, the regulation of natural monopolies was introduced before privatization, which makes it possible to distinguish between the privatization and deregulation eras. Discussion has focused on the theory that the cost of inadequate and unsuitable regulation could have been extremely high.[1] In the specific case of Chile, this concern can be summarized in three related factors. First, regulations (laws and administrative decrees) were not sufficiently clear and several aspects were not properly dealt with. Second, before privatization was actually implemented, insufficient consideration was given to the specific mechanisms required to adequately regulate private monopolies. Third, some privatized firms have retained certain powers which would have been more appropriate to state-owned enterprises. Together, these elements have hindered the development of an appropriate degree of competition in the market and have pervasively affected consumers, particularly the poorest sector.

Despite the importance of the topic, only a few attempts have been made to empirically analyse the gains and losses associated with the privatization process and its concomitant regulatory framework (see Paredes 1995). More recently, efforts have been made to estimate the distributive impact of privatization on specific groups (Estache, Gomez Lobo and Leipziger 2000). The purpose of this paper is twofold: first, to provide an idea of the effect of privatization on efficiency and second, to understand whether those who oppose further privatization, can justify their position on the grounds that privatization, in fact, negatively affects the poorest.

The paper has four sections in addition to the introduction. Section 2 describes the role the government envisaged for itself through ownership; the failure of this aim and the economic and political environment in which privatization evolved. Section 3 synthesizes the findings of the impact of privatization on welfare in two critical sectors for which data were available: electricity and telecommunications. Section 4 presents estimates of the effect of privatization on the poorest and section 5 concludes.

2 The economic and political background

The political system prevailing in Chile until 1973 began developing in the early 1930s. The great depression was probably the most important factor that determined the role of the state and of other sectors and entities in the economy for the next forty years. The

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1 An analysis of the specific regulations is in Paredes (1995). See also Bitran and Saavedra (1993); Blanlot (1993); Muñoz (1993) and *The Economist* (1995).

shocks associated with the great depression led to shifting the focus from an export-oriented economic policy to an inward-oriented one.

The crisis of the 1930s hit the Chilean economy much harder than its neighbours,[2] and the government tried to stimulate growth through increased internal demand. Furthermore, the structural transformations also had influenced the general perception of the state's economic role. Thus, in 1933 President Alessandri stated:

> State intervention to stimulate and coordinate the production is an inescapable fact, that goes beyond any individualism of the past... The complexity and the additional functions imposed by modern life convert the State into a regulatory and leading force of progress and social welfare (*El Mercurio*, 2 January 1933, quoted in Sáez [1988]).

These theories justified the state's increasing intervention. In 1933 the government raised all custom tariffs 50 per cent over their previous level. New taxes were levied during the same year and a new tax on excess profits was introduced. Also, the government increased its expenditures and the employment of civil servants rose from 2.5 per cent of total employment in 1930 to 4.4 per cent in 1940. On an overall basis, however, Alessandri's economic policy was only the beginning of interventionism in Chile.

The subsequent political atmosphere supported the increasing role of the state in the society and, in particular, the creation of an 'entrepreneurial state' under Pedro Aguirre Cerda. The spearhead for this interventionism was the Corporación Nacional de Fomento (CORFO), an agency empowered to project and implement national development.

Professional economists of that period tended to share the belief, reflected in the *Revista Anales*, that the government should have an active role in the economy:

> ... From the above, it can be inferred that customs tariffs and import licenses must be established *a priori*, as an unmoveable doctrine whenever it is necessary to protect a domestic industry, since each national product replacing imports will consistently create wealth, regardless of the seeming costs in monetary terms (*Anales*, quoted in Sáez [1988]).

Thus, in Chile, as in most other Latin American countries, the 1930s witnessed the launching of an inward-oriented industrialization process. To this end, CORFO was oriented toward investing in new ventures, acting as a development bank and financing R&D, with full autonomy to propose and carry out investment projects. CORFO financed investment projects through specific taxes levied for that purpose and through loans from the central bank. However, the government soon gave up the development of new investments and concentrated more on the management and control of firms.

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2 By 1937 Chile's GDP was 3 per cent over the 1929 figure. Argentina's GDP, on the other hand, was 11 per cent higher than in 1929. Brazil's GDP remained stable for the 1929-32 but by 1937 it was 42 per cent higher than in 1929. Chile was relatively more affected than its neighbours because of the effect of depression on Chilean exports, especially nitrate. In 1937 the real value of Chilean exports was 74 per cent of that attained in 1929. For details, see Sáez (1988).

Between 1940 and 1970, CORFO became involved in all types of activities. In the initial stages CORFO set up ENDESA (electricity), CAP (steel), both in 1944, and ENAP (petroleum) in 1950. IANSA (sugar) was established in 1952. After the second half of the 1950s, CORFO became even more involved and started investing in forestry and fishing. By 1966 CORFO had set up an important fruit infrastructure (freezing and packing), training institutions such as SERCOTEC (1951) and INACAP (1965) and in 1964 the ENTEL (telecommunications).

The progressive growth of the state, reflected not only in CORFO's impressive dominance, led to increasing inefficiency. The size of the government peaked in the early 1970s during the Allende administration. In 1970, when Allende took office, there were 75 state-owned enterprises; by 1973, when he was ousted from office, there were more than 200. In addition, in 1973 there were 259 firms under government control which had been illegally 'intervened'. Overall by 1973, firms owned and intervened by the government accounted for 39 per cent of GDP. Under Allende, the banking sector became almost fully state-owned, and as capital accounts were closed, financing for private firms was basically under government control. In addition to the numerous firms under some form of control, over 3,000 commodity prices together with interest and exchange rates were regulated by the state. The average tariff was 105 per cent (with enormous dispersion) and most social services, such as education, social security, health and so forth, were government monopolies.

In 1973, in the throes of an economic and political crisis, a military regime overthrew Allende, limiting civil rights, banning trade unions and political parties, and initiating a process of structural adjustment and reform. Although the economy was beset by many microeconomic distortions and macroeconomic disequilibria, the public sector deficit was the most serious problem. A fiscal deficit of 25 per cent of GDP and an accompanying inflation rate of over 500 per cent in 1973 forced the authorities to take urgent economic action. An increase in taxes (the 1975 tax reform) and a drastic cut in government expenditures were the first measures attempting to reduce the fiscal deficit. In particular, expenditures on civil servants' salaries were reduced by more than 30 per cent in four years, as public sector employment was cut by a third (100,000 jobs). Simultaneously, the new government deregulated most of the fixed prices (out of 3,000 price-controlled commodities, only 30 were left by 1975), reduced import tariffs and implemented the above-mentioned tax reform.

The goal of the public sector reform was to end the chronic fiscal deficit. From the very outset of the new administration, the government required its agencies to reduce their headcount by 20 per cent, discontinued all transfers of funds to public organizations, did away with discriminatory rules favouring public institutions (basically the civil service) and increased prices of public services considerably.[3] As a result, state-owned enterprises improved their performance, and the government moved from a GDP deficit of 12.4 per cent in 1973 to a balanced budget in 1979. Likewise, the state-owned enterprises converted losses totalling 7.8 per cent of the GDP in 1973 to a profit, a situation which still existed in 1994.

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3 For instance, the public sector adopted the same principle of service suspension for unpaid bills as had been used in the private sector. Likewise, income tax and import duty exemptions for public sector enterprises were discontinued.

In 1974, the top priority given to reducing fiscal deficit partly accounts for the many firms being privatized, as well as the process of privatization itself. The government acquired ready cash by selling the firms and, more importantly, it was no longer forced to finance firms with chronic deficits.

Among the first to be privatized were firms which had always been private but had 'intervened' by the Allende government. During the first stage of the privatization process (1974-78), the government returned 259 illegally intervened firms to their original owners, and sold 200 firms and banks considered to be potentially competitive (i.e., those without natural monopoly characteristics) or which had historically been in private hands.

During this first privatization stage, the government did not set up a regulatory environment. The prevailing theory was that controls on natural monopolies were not necessary, as it was not the government's intention to privatize these. It was during this stage that the government encouraged a concentration of ownership by selling the firms in bulk. Moreover, policymakers did not envisage any problems with respect to the prospective conglomerates, as the sole concern was to increase efficiency. On the other hand, and even though fixing the deficit problem was a priority, critics argued that the government was not overly concerned about pricing the assets according to their fair value. A small and imperfect stock market, a limited number of bidders (foreign capital was reluctant to invest in Chile at that time), firms sold in packages and the particular timing of the divestiture may explain why some analysts argue that the deals were closed at relatively low prices.[4] However, as no market existed for these assets and the government sold most firms directly, it is difficult to know whether any implicit subsidies were involved. Moreover, even though the above-mentioned factors were, in all respects, detrimental to possibly obtaining higher prices for the assets, to argue over suitable transfer prices and the existence of implicit subsidies seems pointless: in the mid-1970s, when Chile was in the midst of one of the most turbulent periods in its history, the relevant real discount rate may well have been as high as 30 per cent. In fact, using a 10 per cent real discount rate to estimate the present value of firms privatized in the first round, we find that only one firm of the seven for which stock prices were available and which were analysed had a positive present value.[5]

When the first privatization period came to an end in 1979, only 58 firms were government controlled (versus 75 firms in 1970.) However, the government still retained monopolies for ENTEL, long-distance telecommunications, and ENDESA, electricity generation. In addition, the government controlled CODELCO (the largest Chilean copper mining firm), Chilectra (electricity distribution), and CTC (the telephone monopoly), all of which had been nationalized during the Allende administration.

In 1982, three years after the conclusion of privatization, the debt crisis was severely affecting the Chilean economy. Since the two largest conglomerates in the country accounted for more than 50 per cent of the external borrowing and because of the high

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4 See, for instance, Edwards and Edwards (1987).

5 This was the case for Sudamericana de Vapores. The others firms considered were Cristalerias Chile, Compania de Cervecerias Unidas, Cemento Polpaico, INDUS, Gasco, and Pesquera Iquique.

level of multiple operations, these firms were unable to meet their financial obligations with the banks. By the end of 1981, the government intervened in the two largest banks and seven *financieras*. Later, in 1983, the government stepped in again to intervene in five more banks, closed two and established direct supervision over three others, a measure which represented a reversal of the privatization process. Eventually the government ended up taking control of more than 50 banks and firms. Consequently, the intervention of the holding company associated with Banco de Chile and Banco de Santiago meant that some firms were liquidated, but most of the viable ones, which could generate enough cash flows to meet their financial obligations, continued operations. For some of these firms, the government provided subsidies through a preferential exchange rate.

There is relative agreement that the first phase of privatization faced problems mainly because of a lack of regulation. Harberger (1985) argues that the general bank failures of the early 1980s stemmed primarily from a failure of the Superintendency of Banks to force recognition of bad loans. Likewise, the practice of tampering with the stock market to increase leverage was possible because of the lack of regulations governing stock-exchange operations. However, it is also clear that in the first half of the 1980s, there was a pioneering attempt to rationalize and create regulatory frameworks for public utilities to correspond to modern ideology. Furthermore, the process of privatization and economic openness developing in Chile during the mid- and late 1970s made it possible for the private sector to become more involved in the economy, even in areas where strong public sector participation was the norm in the more developed countries.

In 1985, the government started to reprivatize the firms it had 'intervened' with during the financial crisis. Some of these were returned to their former owners, but maintaining the leverage of the holding company at time of intervention. Others were privatized by issuing and auctioning new equity, thus generating two types of shareholders with different privileges with regard to dividend sharing.

During the second stage (1985-89), the government introduced important changes in the divestiture procedure. First, authorities exercised care in order to avoid a concentration of ownership. Prior to the privatization of banks, a new banking law was enacted in 1983 to drastically limit loans to related companies. This law stringently defined conglomerates, and restricted bank lending to related entities. Also, between 1985-87, the government introduced new rules governing the stock exchange, the insurance industry and mutual funds. The regulations sought not only to provide necessary transparency to transactions, but also to ensure adequate portfolio diversification. Furthermore, the government allowed only pre-qualified investors to participate in the bidding process and, if the investor were an economic conglomerate, a 100 per cent cash payment was compulsory.

With the reprivatization of assets in 1985, the government announced its intention to extend privatization to important firms not included in the first round. Some were producers of tradable goods, such as SOQUIMICH (nitrates) and IANSA (sugar refinery). Others were considered traditional natural monopolies as, for instance, ENTEL (telecommunications), CTC (local telephone) and ENDESA (electricity generation and distribution). The conservative goal was highlighted in the first announcement which stated that the government would not relinquish control of these firms. Thus in September 1985, the plan called for 49 per cent of CAP's equity (steel) to be sold to the private sector, and that the state would retain at least 70 per cent of the equity of the remaining 36 companies. Gradually, the initial goals were amended and by 1989, more than half of the firms had been fully (100 per cent) privatized. Finally, a different but substantive innovation in the privatization process occurred when the government allowed the AFPs (pension fund management companies) to buy shares of privatized companies. This was to have additional effects also on the capital markets.

Compared to the first privatization wave, when the state received US$ 1.1 billion (at 1994 prices),[6] the second phase increased total proceeds only slightly to US$ 1.3 billion. However, the characteristics of the firms made this second wave far more significant than the first. Initially privatization in Chile affected firms operating in a competitive environment, where the only possible distributive effect was associated with asset valuation and employment, but not with regulation. During the second round, on the other hand, the main concern was the impact that privatization would have on prices and the quality of services, since the firms involved were considered natural monopolies. Consequently regulation had to play a more relevant role. As stated above, several analysts have argued that the crisis leading to the reversal of the first privatization wave was caused by inadequate regulation, particularly in the financial market.[7] This perception promoted the introduction of important regulations which the government had not considered necessary earlier.

Finally, privatization of public utilities and the notion of promoting competition in areas where public utility firms were operating required additional regulation, so the government introduced in 1982 new legislation on electricity and telecommunications. In addition, the government undertook the restructuring of the firms in order to promote competition in the industry.

3 Welfare effects of privatizing regulated industries

Although the second privatization phase was broader in scope, monopoly regulation can be clearly associated with electricity, telecommunications and water and sewerage. Privatization of this last industry is very recent, and is still evolving in some firms. Therefore, instead of examining the impact of privatization on redistribution in water and sewerage, we use it as a benchmark to analyse the effects of privatization in electricity and telecommunications on the poorest population groups.

3.1 The electricity industry

The electrical industry[8] had a very early start in Chile and the sector remained private from its beginning until 1940. Initially, generation was provided mainly for self-

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6 US$ 690 million for non-financial firms and US$ 425 million for banks.

7 See Harberger (1985); Barandiarán (1983); Edwards and Edwards (1987) for different perspectives of this point.

8 For details on the electric sector in Chile, see Blanlot (1993); Morandé and Sánchez (1991); Spiller and Viana (1991); Phillipi (1988), and Bernstein (1986).

consumption. The geographical conditions of the country dictated this approach as it encouraged interconnection only after demand had increased to justify it. However, government regulation was another contributing factor. The government had promoted private investment and operations in the sector by granting tax exemptions until the early 1930s.[9] In 1931 in the middle of the recession, however, Decree Law 244 increased the government's regulatory power over electric companies. Among other things, this law eliminated the automatic adjustment of tariffs (previously calculated in gold pesos), allowed the government to intervene in labour conflicts (wages, hours worked, etc.) and most important, cancelled the stipulation that tariffs should guarantee a 15 per cent return.[10] In practice, this reduced both real tariffs and the profitability of the companies, subsequently eroding incentives for new firms to enter the market.

As a result, consumption during 1932-40 went up 10 per cent annually, the real tariffs index fell from 220 in 1932 to 80 in 1943 and to less than 30 in 1955. The freezing of tariffs promoted vertical integration, which may also explain why 65 per cent of national electricity consumption was self-generated at the end of the 1920s.

In 1944, the slow growth of the electric industry led to the creation of ENDESA to handle energy generation, transmission and distribution throughout the whole country, except in Santiago, where Chilectra was the sole distributor. The lack of investment in the sector triggered a crisis in 1949 which resulted in the rationing of electricity in Santiago and Valparaiso, the two main cities in Chile. The government responded with an electrification proposal which was entrusted to ENDESA. From 1955 on, ENDESA became responsible for erecting transmission lines and for developing the interconnected central system (ICS) which by 1962 had linked the Continental South, the Central Valley and the so-called 'Norte Chico', from Illapel in the north and Puerto Montt in the south.

Decree Law No. 4 of 1959 changed the tariff-setting arrangement, delegating it to a specialized tariff commission. The objective of the law was to encourage private investment in the sector, which had been declining dramatically. However, in 1966 a new legislation (Law 16,469) was enacted, subjecting increases in rates to approval by the Ministry of Economy. Once again, this hampered investments. Progressive government intervention reached its peak during 1970-73, when the Allende government took office. In 1970 Chilectra was nationalized under Law N 17,323 and CORFO was entrusted with 90.52 per cent ownership.

As mentioned, tariffs were managed, retarding entry of private capital into the development of the sector. This situation is similar with the pattern seen in the electric sector in most LDCs, featuring state-owned, vertically integrated monopolies. This structure has been justified with explanations such as the presence of economies of scale and scope, or more generally, the existence of subadditive cost functions that are generated by these economies because of important sunk costs and uncertainty. In addition to natural monopoly conditions, economic and political uncertainty discourages

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9 In 1925, for example, the 'Electric Services Fund' was established to promote the sector by making loans possible at very low rates of interest.

10 A maximum return of 15 per cent could be incorporated in electric tariffs but firms could apply for an increase in tariffs only if their return was less 10 per cent for three consecutive years.

private-sector investments in projects with high quasi-rents, as these may eventually become targets for government expropriation.[11] However, this structure in Chile was the result of progressive government involvement in tariff setting, and ultimately of the extensive nationalization programme of the early 1970s, which transferred almost all generation, transmission and distribution firms to the public sector.

The Chilean state was strongly involved in the development of the electricity sector until 1978. Its participation in generation, transmission, and distribution was 90 per cent, 100 per cent and 80 per cent, respectively. In the interconnected central system (ICS), ENDESA (the state monopoly) generated 70 per cent and Chilectra the remaining 30 per cent. ENDESA owned—and still owns—100 per cent of the transmission system and also regulated tariffs and set standards for quality until 1978, when the government began to rationalize the electric sector.

The main policies of the rationalization programme were aimed at increasing the efficiency of the sector, increasing rates to make self-financing possible and eliminating entry barriers. The rate adjustment also attempted to change the method of computation, from a system based on the ‘rate of return’ to one based on the long-run marginal costs. In 1982, Decree Law One regulated most aspects of the various stages of electricity production. This decree eliminated discrimination between state-owned and private producers, between incumbent firms and potential entrants, etc. Furthermore, in the 1980s the organization of the sector changed. In 1982 ENDESA was divided into six distribution subsidiaries, two generation subsidiaries[12] and three distributors. Chilectra followed suit, separating generation from distribution and creating one generation subsidiary (Chilgener) and two distribution subsidiaries (Chilmetro and Chilquinta). In addition, to guarantee complete coordination of the system, the Economic Load Dispatch Centre (CEDEC) was created in 1986. CEDEC’s mandate was to ensure continued service, guarantee operations at minimum cost, and facilitate shared transmission costs.

First indications of privatization in the electric sector began to surface in 1983, when Decree Law One enabled electricity companies to expand through appeals for financial contributions from new customers in exchange for company shares. Between 1986-87, ENDESA sold shares of its largest subsidiaries (over 50 MW) to private individuals, while smaller units of less than 50 MW were sold through public bids (Phillipi 1988).

3.2 The telecommunications industry

The telecommunications sector began to operate in Chile in 1879, when the Edison Company installed the first telephone line—only three years after Bell’s invention. In 1930 the International Telephone and Telegraph Company (ITT), which owned leading companies in Spain, Brazil, Argentina, Peru, Cuba and Mexico, bought out Edison and created Compañia de Telefonos de Chile (CTC). The only areas where CTC did not operate were the Tenth and Eleventh Regions in the southern part of the country, which

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[11] Spiller and Viana (1991), for instance, argue that the current structure of the electricity sector in Latin America is responsive to potential expropriations which governments can eventually exert.

[12] In 1986 the subsidiaries Colbun-Machicura and Pehuenche were also included.

were served by Compañia de Telefonos de Valdivia and Compañia de Telefonos de Coyhaique, respectively. Thus, the telecommunications sector was developed from the start by private firms only.

The evolution of the sector's structure was basically guided by a regulatory framework, which became increasingly stringent towards the end of the 1950s. In the next decade, as a consequence of the 1960 earthquake, an ad hoc commission recommended the creation of a state-owned telecommunications company to connect the whole country. This resulted in 1964 in the Empresa Nacional de Telecomunicaciones (Entel), the state's first involvement in the sector. Three years later, a contract between the Chilean government and ITT mapped out segmentation in order to reduce CTC's expansion plans.[13] Since then, however, progressive and erratic government intervention in the sector negatively affected investments, and finally in 1971, the Allende socialist government intervened in CTC. In 1974, shortly after the 1973 military coup, instead of returning the firm to the original owners, as the new government had done with most of the other illegally intervened firms, CORFO bought CTC from ITT. Thus, paradoxically, in the span of only fourteen years, the telecommunications sector became fully state-owned.

The basic structure of the local service industry has remained unchanged over time, that is, CTC being a quasi monopoly with a market share of over 90 per cent. In the long-distance sector, there was a bilateral monopoly in most cities until August 1994 with CTC being Entel's only customer. Consequently, CTC provided services between the customer and the commuting centre and Entel the long-distance connection. Nevertheless, CTC also provided long-distance services between Santiago and Valparaiso, the two cities that account for 50 per cent of Chile's population. Furthermore, Entel may by-pass CTC and provide complete long-distance services for certain market sectors.

Privatization of the telecommunications industry in Chile affected the local company (CTC), which had been privately owned from its inception up to 1970, and the long-distance company (ENTEL), which had always been state-owned. In 1986 CORFO announced its intention to sell 51 per cent of CTC's stock. In March of the following year, CTC employees acquired 6.4 per cent of the stock with 50 per cent withdrawals against their severance pay. In 1987 the AFPs bought 7.6 per cent of the company's stock, and other buyers 11 per cent, so that private-sector participation rose to 25 per cent. Then, in August 1987, when the shares started trading on the stock exchange, CORFO offered 30 per cent of the existing stock in an open bid.

The successful bid was awarded in July 1988 to the Bond Corporation of Australia, and an additional acquisition of stock gave it 50.2 per cent ownership. A year later CORFO sold its remaining shares to public-sector workers and members of the armed forces. In addition to being able to use their severance compensation, workers benefited from government subsidized interest rates on their loans. By 1993, workers owned slightly over 3 per cent.

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[13] In 1960 the government legally monopolized public mail and telegraph services.

3.3 The water sector

Only 5 per cent of water companies were private in 1998, but a year later, more than half had been privatized. Experience is, therefore, limited, making it difficult to evaluate the impact of privatization on the poorest groups. However, it is precisely this fact that makes the water sector so useful in comparing the performance of other privatized sectors. Moreover, regulation in the water sector was set up in 1990, nine years before privatization. In particular, the price of water was, until 1990, geared to financing only operative costs. Investment was explicitly excluded.

After this benchmark year, water tariffs started to reflect investments. The new law specified that tariffs to consumers would gradually include investment costs, a fact that significantly increased the price of water between 1990-95. In 1990, a programme to subsidize water consumption for the poorest groups was also introduced.

3.4 Efficiency evaluation of privatized sectors

Even though Chile has had a relatively long-term experience with privatization, Galal (1991) and Lüders (1993) are the only studies analysing its effects on welfare. The fact that so little has been done is, in part, due to data limitations, as well as the fact that assuming given counterfactuals is always subject to criticism and that these two works are quite serious. Some differences between the Galal and Lüders studies exist, and they hinge precisely on counterfactuals. Galal projects historical figures to define counterfactuals, on the basis of which he finds that in a sample of twelve firms privatized in Chile, Malaysia, Mexico and the UK, eleven had, in effect, increased social welfare. On the other hand, Lüders analyses the short-run effect of privatization based on the assumption that the firms would continue to operate in a regulated environment.[14] Specifically, Lüders compares productivity and financial indicators on the assumption of the same regulatory framework, and arrives at a conclusion similar to Vickers and Yarrow's (1988), i.e., main efficiency gains can be promoted by deregulating firms and providing a competitive environment, but this does not necessarily imply privatization. In other words, while counterfactuals for Galal are basically historic figures, for Lüders they are state-owned companies operating in a relatively more competitive environment with highly motivated managers and with profit maximization as the sole objective.

Since Galal provides estimates of the welfare effects of privatization, including changes in the consumer surplus, we use his results as the measure of true efficiencies. However, a caveat is necessary; while the government may impose precise tasks on public-sector managers in order to restructure labour, to reassign tasks, etc., it is likely that political pressures and the general structure of the public sector make it almost impossible to maintain efficiency over time. Any attempt to restructure public-sector firms so as to improve their performance should expect the results to be short-lived.[15] If this is the case, Galal's estimated welfare gains associated with privatization will be

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[14] Deregulation and new laws preceded privatization in Chile.

[15] This idea is implicit in many recommendations about the convenience of privatization. See also, Paredes and Ramamurti (1995) regarding Chilean Airlines privatization.

under-estimated, since public firms were restructured already prior to privatization, and were achieving significant gains in efficiency. On the other hand, even though welfare can be improved through privatization, it is always possible to question whether circumstances could have been better. In particular, an emerging literature associated with regulation suggests that the lack of a proper regulatory environment increases uncertainty, and the expost negotiation process reduces the scope to have an efficient regulatory framework. In other words, rapid privatization is associated with poor regulatory practices (or bad regulation), that clearly produces a cost.

The estimated amount accruing to Chileans from the privatization of local telephony was US$ 2.3 billion which, as perpetual annuity equivalent, is 145 per cent higher than the sales of the company in 1987. In the case of Chilgener (the electric generator) profits before taxes, or public profits, were US$ 35.6 million in 1982, US$ 25.9 million in 1986 (the year of the divestiture), and US$ 27.4 million, US$ 32.1 million, US$ 32.5 million and US$ 33.1 million in the four consecutive years.[16] The increase in public profits is, however, primarily explained by a price effect: productivity rose by about 6 per cent annually.[17] But the increase in productivity should not be attributed entirely to an efficiency gain associated with privatization. It may also have been caused by the productive cycle of Chilgener's thermoelectric plants.

Galal's findings suggest that Chilgener sharply increased its investments after privatization. However, had it remained in the public sector, Chilgener's investments probably would have been of a similar magnitude. In fact, the Alfalfal project—the only one undertaken immediately after privatization—had been planned and initiated before the divestiture. The effect of privatization on consumer welfare assumed that Chilgener was a price taker. Since the counterfactual implied that the same regulatory setting would have prevailed, the effect on welfare was explicitly related to the evolution of the company's profits. Under these assumptions, the social welfare gain at present value was US$ 18.2 million, which represents 21 per cent of Chilgener's 1987 market value.

Also in the electric sector but specifically in distribution, the analysis of Enersis, the sole distributor in Santiago, shows that the firm did not experience any significant change in profits in the divestiture year. In 1985 profits were US$ 26 million (at 1993 US$ rate) and there was no change one year later. Even though profits in 1990 had increased to US$ 57 million, the trend indicating a profit increase had been evident already in 1982 when Enersis was created. Profits at that time totalled US$ 18.1 million. Therefore, even though profits and privatization are in this case correlated, there is no clear causality between them. The main basis for cost reductions—namely, smaller losses from technical causes or pilferage and non-invoicing—can, however, be assimilated to the change in ownership. These losses accounted for 22.4 per cent of purchases in 1983 but only 14.2 per cent in 1989. There is an additional element which facilitated the reduction, namely, the political support to the company. In fact, an Enersis subsidiary operating in Argentina today has not been able to reduce losses, because the country's government has not provided the means to enforce the law.

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16 The explanation for this fall in profits in 1987 is the landslide that destroyed Alfalfal, causing a US$ 3.4 million loss.

17 The relationship between percentage changes in profits ($d\%\pi$) and price, quantity and productivity effect is given by: $d\%\pi = (Sales/\pi)[d\%p + d\%q] - d\%TC[TC/\pi]$, where TC is total cost.

The methodology used to evaluate the welfare effect of Enersis' privatization examines the change in consumer welfare because, as the firm was subject to price regulation, increases in efficiency were to be reflected in price reductions. The change in consumer's welfare was approximated by price fluctuations, corrected to reflect the welfare changes of consumers who had not initially paid for electricity, but who later were charged for it. Galal concludes that consumers improved their welfare, mainly because regular customers were much better off than those who started to pay (i.e., those who had previously been 'hooked up' but not charged). In short, the increase in social welfare resulting from Enersis' divestiture is estimated at US$ 84.3 million (at 1993 US$ rate), or 31 per cent of its private value at the time of privatization.[18]

Paredes (1995) compares the welfare gains estimated by Galal and the costs associated with specific bad regulation policies. On an overall basis, the conclusion is clear. The welfare effects associated with regulation are much larger than the eventual cost of specific regulations. To cite an example, which is also valid for the rest of the cases, the efficiency increase of local telephony that can be attributed to privatization is estimated to be US$ 2.1 billion, which is much more significant than the value of US$ 230 million in efficiency losses associated to some problems the regulatory framework could present.

4 Distribution effects associated with privatization

There are three main ways through which privatization can affect different groups. The first is through taxes and inflation tax in particular. Privatization reduced public-sector deficit because some public firms had contributed directly to the deficit or because the proceeds were larger than the profits accruing to the government. Second, privatization also creates a second similar transfer process: whether firms are sold at subsidized prices or through special mechanisms, it affects wealth distribution. Finally, prices and coverage policies, closely linked, are the most direct measures through which utilities are expected to influence consumers and hence, wealth distribution. Since we have no way to estimate counterfactuals for imputing the effect of deficit reduction on inflation or on the tax structure in general, we focus only the last two mechanisms.

4.1 Popular capitalism and redistribution

The first privatization round of public utilities was criticized on the grounds that it created substantial wealth transfers. In the second round, which is more important for policy purposes and to politically support the reprivatization process, the government sold firms with special incentives to enable workers to acquire and hold shares. This policy of 'popular capitalism' was also aimed at reducing ownership concentration. Within this scheme, workers were able to draw advances against their future severance payment to buy shares of the would-be privatized firm. In addition, they were to be compensated, should the final value of the shares be lower at retirement than the original price. In essence, the objective was to attract the workers, offset losses, if any,

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18 The changes in welfare can be decomposed as follows: (i) consumers +Ch$7.7 billion; (ii) producers +Ch$14.4 and (iii) government -Ch$5.6.

and avoid diminishing their retirement benefits. These were considered necessary to at least avoid the appearance of the privatization process causing a concentration of ownership.

By way of an example, we can cite the divestiture of Chilgener in the electricity sector in October 1985. Workers were offered the option of buying into the firm, as employees hired before 1980 were entitled, in case of dismissal, to receive one month's salary for each year served, and this benefit could be exchanged for an equivalent value of company shares.[19] Apart from encouraging employee participation in the privatization process, the plan reduced the privatized company's eventual liabilities because, on the one hand, there would be no workers with 'seniority' and, on the other, a different policy, which limited the redundancy payment to a maximum of five months' wages, was applied to employees hired after 1980.

Consequently, by the end of 1986, a vast majority of workers had participated, bringing their ownership to 5.2 per cent. The same plan was used with ENERSIS and by the end of 1990, workers had bought 32 per cent of the company stock. Arrangements with ENDESA were somewhat similar, with the exception that in a pre-privatization move, US$ 500 million of the company's debt was capitalized and Colbun-Machicura was set up as a separate company immediately before the transfer. In 1987, the government offered preferential shares to employees, who responded by purchasing 6.1 per cent of the company against advances on their severance pay. ENDESA's shares were widely offered in October 1987, and a few months later at year-end, over 15,000 small investors had acquired almost 9 per cent of the company. Shares were offered to public-sector workers and members of the armed forces only after 30 per cent of ENDESA had been sold. Thus, by 1988, 53.9 per cent of ENDESA had been transferred to the various groups.

The Pension Funds Law was amended in 1985, allowing the pension funds management companies (AFPs) to invest in private corporations. These new institutional investors were crucial to the electric-sector privatization, as they purchased a significant part of the stock. By the end of 1986, AFPs had acquired 13 per cent of Chilgener; likewise, by the end of 1990 they owned 33 per cent of Enersis and 10.6 per cent of ENDESA.

Furthermore, with the adoption of popular capitalism, the government had solved another difficulty it had faced during the first privatization period—the correct valuation of assets. With popular capitalism, valuation was less important because if a subsidy existed, it was distributed among many workers. In any event, this process also triggered a debate concerning an implicit subsidy in the process. Thus, Marcel (1989) compares the price effectively paid for the firms and their economic value. To measure this value, Marcel uses three methods on twelve firms privatized between 1986-87: (i) book value, (ii) market value, and (iii) net present value. Basically, Marcel concludes that there was an implicit subsidy between 27 per cent (market value) and 69 per cent (book value). This observation is challenged by Lüders and Hachette (1993) who, by projecting the present value of dividends, conclude that no generalized subsidy existed.

[19] Workers could use 80 per cent of the severance benefit to buy shares and receive the rest in cash.

4.2 Service coverage

Coverage is the most direct way of estimating the provision of services. Due to limited data, we are unable to compare the coverage of different services for each year, however, we do have information on the telecommunication and electricity sector for 1988, the pre-privatization year, and for 1998, a decade after privatization. The privatization process in the case of water is more recent and its effects would not to be reflected in the 1998 figures. Consequently, a comparison of the evolution of sectors privatized in the late 1980s and the water sector (the latter used as a counterfactual) allows us to impute the pure effect of privatization.

Table 1 shows the percentage of households lacking basic services in the greater Santiago area, for each income decile. As Table 1 shows, the ten-year period has brought improvement for the poorest. Coverage in electricity and telecommunications increased dramatically and this improvement can, in part, be attributed to privatization. This observation seems to be supported by the fact that coverage in water and sewerage does not show any similar, marked increase for the same period.

Needless to say, the increase in coverage has been particularly important for the non-urban areas, where an important share of the poorest people are concentrated. Figure 1 shows the evolution of the coverage of electricity in urban and rural areas.

The same situation applies to telecommunications. A special programme launched by the Under-Secretary of Telecommunications granted huge subsidies to rural areas to encourage private companies to compete in the provision of telephony services to these regions on a minimum-cost basis. Thus, the programme combines private provision and a government subsidy. The overall coverage of telecommunications in Chile has increased dramatically due to competition of telecommunications companies, and to the successful introduction of mobile telephones (Figure 2). By year-end 2000, there are more mobile than fixed phones.

Table 1
Per cent of households without specific basic services

	Households without electricity		Households without telephone		Households without water		Households without sewerage outlet	
	1988	1998	1988	1998	1987	1998	1987	1998
1	29.4	7.0	98.8	68.9	8.64	6.3	10.39	29.3
2	19.9	4.0	96.2	53.2	11.18	4.02	14.66	21.1
3	12.0	2.7	91.3	43.6	9.6	3.98	13.06	16.94
4	11.3	3.1	87.4	35.3	4.93	2.16	10.51	11.98
5	7.7	2.4	84.5	24.6	5.28	0.89	9.82	7.01
6	5.9	2.3	72.8	22.2	4.97	0.93	10.44	5.88
7	5.1	1.3	63.9	14.9	2.79	1.09	9.21	4.8
8	2.8	2.5	45.5	9.8	3.22	1.13	8.59	2.4
9	1.6	1.1	29.5	6.8	1.08	0.42	6.4	1.25
10	0.9	0.7	12.0	4.4	0.39	0.68	3.03	0.16

Not surprisingly, a similar situation has existed in the sanitation sector since 1990. Before privatization, a plan to subsidize the poorest groups was formulated. In essence, the price below a given consumption level was paid by the government. Information on this plan is provided in Figure 3.

Figure 1
Coverage in electricity

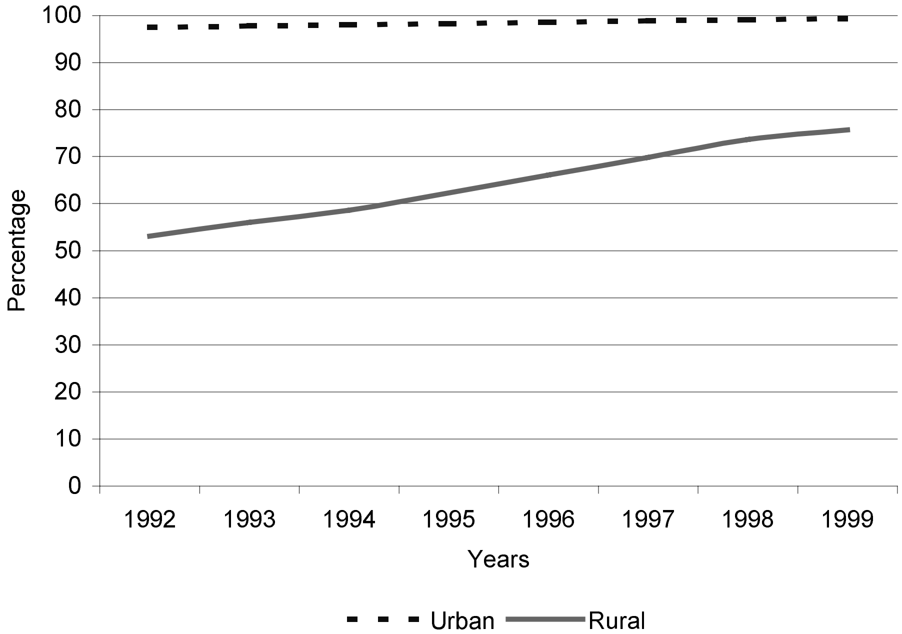


Figure 2
Coverage indicators in telecommunication

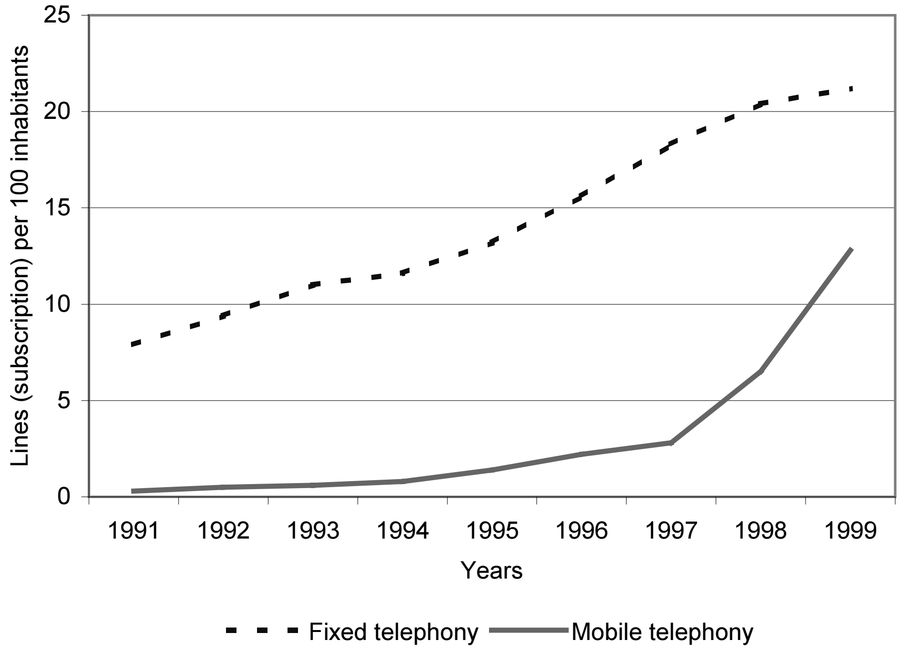
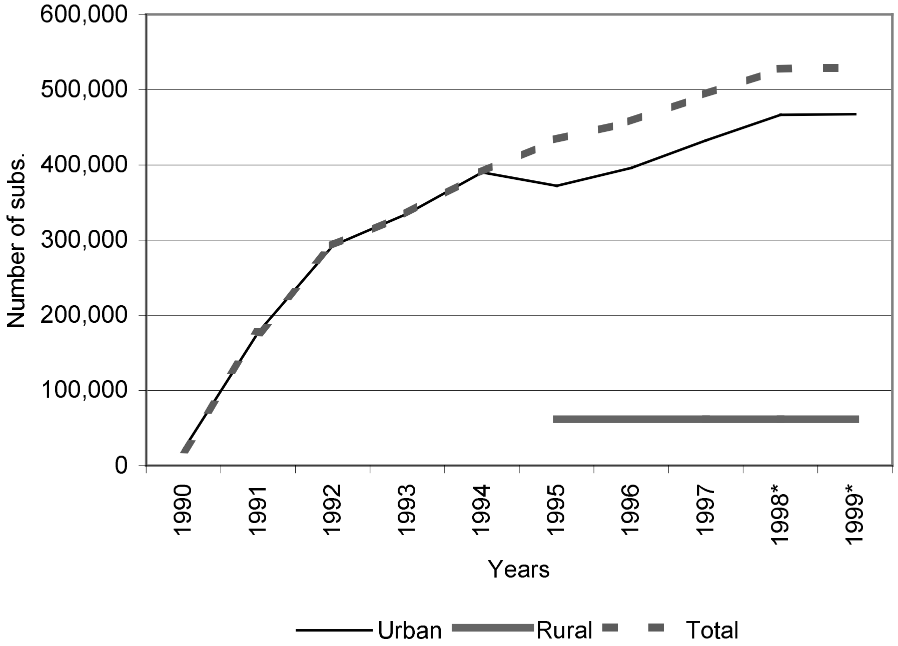


Figure 3
Drinkable water, and sanitation payment of consumption subsidy



4.3 Prices

Service shortages and waiting periods were a major manifestation of the inefficiencies in utilities before privatization. To reduce such inefficiencies increases in the prices paid by consumers is a natural mechanism. However, price increases, like in the case of telecommunications, can negatively affect wealth distribution. That is why we do not associate (and include) the effect of price increases on firms gains and welfare gains. From Figure 4, however, no increase can be associated with privatization. On the contrary, the investments made in the sector after privatization—and which also sustained economic growth during the 1990s—enabled significant reductions to in prices.

In the case of telecommunications, the prices show a different trend. After privatization tariffs in local telephony increased as the regulator gradually transferred subsidies from long-distance calls to local users. In addition, a temporary charge was applied to reduce the period waiting to get a line (Figure 5).

Finally, with regard to the water sector, the most important price increase took place in the early 1990s, almost a decade after privatization. No significant increase in prices has occurred since, except when tariffs started to reflect in the year 2000 investments for water treatment plants.

Figure 4
Annual evolution of the price of electricity

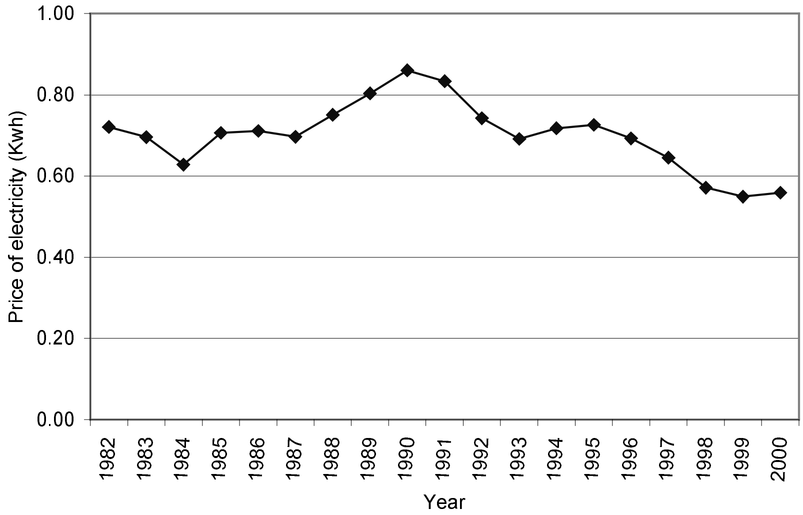


Figure 5
Annual evolution of telephone rates

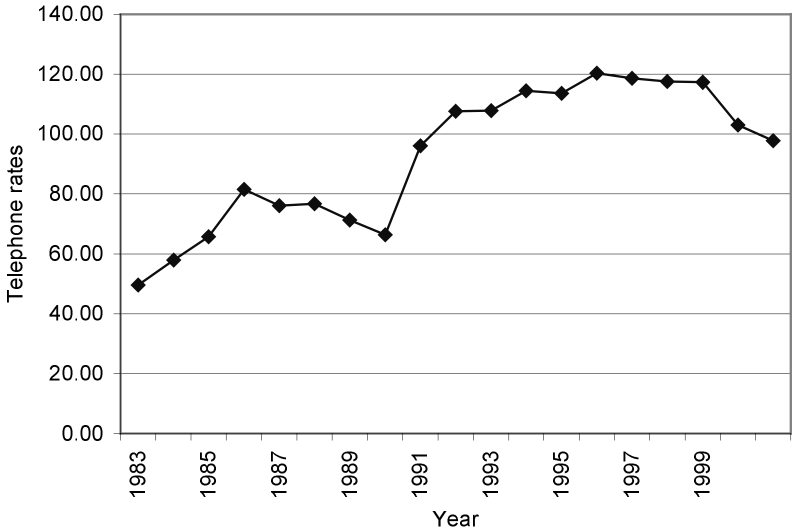
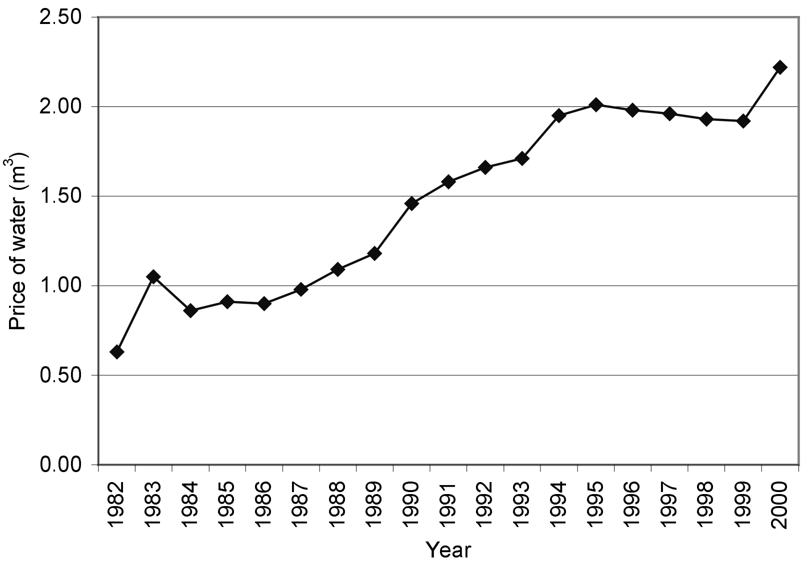


Figure 5
Annual evolution of the price of water



5 Concluding remarks

The evidence for Chile shows that regulatory problems did not offset the important gains achieved through cost reductions and efficiency. Likewise, the effect of privatization on coverage is impressive, particularly with regard to the poorest segments of the population.

But the most obvious conclusion of this study is that policies targeted specifically to the poorest groups can be effective, regardless of ownership, as exemplified by the programme of subsidies focused on the poor to make sanitation services affordable. These subsides were initiated in the pre-privatization era and continued until after privatization. Likewise, programmes aimed at increasing telephone coverage in rural areas utilized private firms to implement subsidies to the demand.

The explanation why further privatization is resisted by specific groups on the grounds that they protect the interest of minorities is once again consistent with the fact that the poorest are not the sectors of the population who undertake strong lobbying.

References

Barandiarán, E. (1983). 'Nuestra Crisis Financiera'. *Estudios Públicos*, Primavera. Santiago, Chile.

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

Bitran, E., and E. Saavedra (1993). 'Algunas Reflexiones en Torno al Rol Regulador y Empresarial del Estado', in O. Muñoz (ed.), *Después de las Privatizaciones: Hacia el Estado Regulador*. Santiago, Chile: CIEPLAN.

Blanlot, V. (1993). 'La Regulación del Sector Eléctrico: La Experiencia Chilena', in O. Muñoz (ed.), *Después de las Privatizaciones: Hacia el Estado Regulador*. Santiago, Chile: CIEPLAN.

The Economist (1995). 'How to Privatize'. 11 March.

Edwards, S., and A. C. Edwards (1987). *Monetarism and Liberalization: The Chilean Experiment*. London: Ballinger Publishing Company

Estache, A., A. Gomez-Lobo, and D. Leipziger (2000). 'Utility Privatization and the Needs of the Poor in Latin America: Have We Learnt Enough to Get It Right?' WB Policy Research Working Paper 2407. Washington, DC: World Bank.

Galal, A. (1991). 'Public Enterprise Reform: Lessons from the Past and Issues for the Future'. WB Paper 119. Washington, DC: World Bank.

Galal, A. (1994). 'The Role of Regulation and Commitment in the Development of Telecommunications in Chile'. WB Policy Research Working Paper 1278. Washington, DC: World Bank.

Harberger, A. (1985). 'Observations on the Chilean Economy, 1973-1983'. *Economic Development and Cultural Change,* 33 (April).

Lüders, R. (1993). 'Success and Failure of State-Owned Enterprise Divestiture in a Developing Country: The Case of Chile'. *Columbia Journal of World Business*, 28 (Spring).

Lüders, R., and D. Hachette (1993). 'Privatizing the Economy: Lessons from the Experience of Chile'. Washington, DC: International Centre for Economic Growth.

Marcel, M. (1989). 'La Privatización de Empresas Públicas en Chile: 1985-1988'. *Notas Técnicas CIEPLAN* No 125. January.

Muñoz, O. (ed.) (1993). *Después de las Privatizaciones: Hacia el Estado Regulador*. Santiago, Chile: CIEPLAN.

Paredes, R. (1995). 'Evaluating the Cost of Regulation in Newly Privatized Sectors: The Chilean Case'. *Revista de Análisis Económico*, 10 (2): Special Issue.

Paredes, R., and R. Ramamurti (1995). 'Ownership and Competition in Chile's Airline Industry', in R. Ramamurti (ed.), *Privatizing Monopolies in Developing Countries: Lessons from the Telecommunications and Transport Sectors in Latin America*. Baltimore, MD: Johns Hopkins University Press.

Phillipi, B. (1988). 'Estrategia Energética Chilena y la Organización del Sector'. Santiago, Chile: NCE. Mimeo.

Sáez, S. (1988). 'La Economía Chilena en la Decada del Treina: Ruotura, Continuidad y Cambio'. Rio de Janeiro: PUC. MA Thesis.

Spiller, P., and L. Viana (1991). 'How Should It Be Done? Electricity Regulation in Argentina, Brazil, Uruguay and Chile'. Paper presented at the CERES Workshop on the Electricity Regulation in the Southern Cone, 17 May. Montevideo.

Vickers, J. S., and G. K. Yarrow (1988). *Privatization: An Economic Analysis*. Cambridge, MA: MIT Press.

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