Institutional Change in the Electricity Industry:
A Comparison of Four Latin American Cases

Carlos Rufín
Ph.D, Candidate in Public Policy
John F. Kennedy School of Government
Harvard University

Abstract
By means of a comparison of the process of restructuring of the electricity industry in Argentina, Bolivia, Brazil, and Chile, I examine the validity of three hypotheses about the determinants of institutional change in this industry. The case studies show that ideology plays a major role in shaping the outcomes of the institutional change process; distributional conflict, or the conflict over the economic rents that can be extracted from the electricity industry, also has a significant influence on institutional change, although somewhat weaker than ideology; finally, the degree of judicial independence in a country can affect institutional transformation with regard to property rights, but not with regard to the degree of reliance on competitive mechanisms of resource allocation.
1. Introduction. The research questions.

The last decade has witnessed the emergence of great interest among all the social sciences in the study of institutions. More specifically, economists and political scientists like Douglass North have begun to explore the impact of key economic institutions, such as property rights and market exchange, on economic growth and development. This trend has been paralleled by an unprecedented amount of institutional experimentation and innovation throughout the world. Privatization and deregulation, including the large-scale changes occurring in the former socialist economies, have dramatically highlighted the role of institutions in fostering investment in human and physical capital. These changes have also exposed, however, our limited knowledge about the design of such institutions and even more about the forces that shape institutions over time.

This paper seeks to shed some light on the process of institutional change by examining two key economic institutions, property rights and competition, in a particular industry (the electricity supply industry, or ESI) where they are embodied in formal rules and organizations, but where new organizational possibilities are rapidly emerging. By looking at such an industry through a limited set of cases, our understanding of actual institutional dynamics should be enhanced.

The key institutional design challenges of the ESI originate in the physical and technological characteristics of electricity production, transmission/distribution and use, together with electricity’s role as a key input in modern industrial economies. Electricity generation, transmission and distribution facilities are highly capital-intensive, durable, and immovable. In the cases of transmission and distribution, economies of scale and high sunk costs create conditions of natural monopoly, where a single network of facilities can provide transmission or distribution services more efficiently than duplicative systems. Furthermore, electricity is nonstorable and there are important network externalities in its use, which reinforce the advantages of monopoly and vertical integration over competition and contractual transactions. As a result, the institutional framework of the ESI revolves around two paramount matters: the problem of organizing investment in electricity supply when, once carried out, such investment can be appropriated by others without loss of its economic value; and the problem of limiting the allocative inefficiencies arising from monopoly power. This study therefore aims to answer two fundamental questions about the restructuring of the ESI’s institutional setting:

1. What explains the degree of reliance on public versus private property in the reorganization of the ESI in countries where ESI restructuring has taken place?

2. What explains the choice of mechanisms used to allocate resources (competition vs. monopoly) in the ESI in countries that have restructured this industry?

Three variables are proposed in this paper to answer the two research questions: judicial independence, ideology, and distributional conflict. The explanatory power of the hypothesized answers is assessed through the comparison of four ESI restructuring cases: Argentina, Bolivia, Brazil, and Chile. The next section provides an overview of existing and
current research on institutional change, including the specific case of the ESI. This is followed by a presentation of the analytical framework and the research hypotheses, as well as the translation of these hypotheses into empirically testable statements. Another section discusses the research design. Then, the four cases are presented, first focusing on the dependent variables, then tying them to the hypothesized causes. The final section concludes.

2. Current research on institutional change

An important set of theories of institutional change fall under the label of the “new institutionalism,” although often their only common characteristic is the interest in the emergence, reproduction, and modification of institutions. While exact definitions of “institution” vary among the scholars included above, the meaning of this term corresponds in general to the following definition, which is the one used in this paper (from North, 1990): the formal and informal arrangements setting out the rules of economic and political exchange in a society, such as constitutions and parliamentary rules, norms of business conduct, or private organizations created to address collective action problems.

This paper builds on several perspectives within the new institutionalism. From the neoclassical view of institutions, in which institutions are seen as emerging from competition among states or autonomous political entities for power and territory, institutional change is influenced by competition among rational actors for political office and for economic resources. From sociological formulations of institutional dynamics, the role of ideologies is taken into account as a powerful determinant of institutional choices.

The theory of repeated noncooperative games has led to the emergence of “positive political economy” models of institutional outcomes. Spiller has developed (e.g., Spiller, 1996) specific models of institutional change in the ESI and similar industries such as telecommunications. The major limitation of this approach is that, having originated in reference to the U.S. political system, it is often naïvely extended to other political systems where behavioral patterns are very different. Closely related to the positive political economy perspective is transaction cost economics (e.g., Williamson, 1985), which points attention to the role of asset specificity, bounded rationality and opportunism in the emergence of economic institutions. But transaction cost economics offers little insight into how are actual outcomes shaped, at least where several alternatives are available. This paper seeks go beyond the narrow framework of US political structures and also to examine the bargaining processes that affect transaction costs.

Empirical studies of restructuring do not abound, in part because of the still nascent experience of electric sector restructuring throughout the world. Likewise, the political economy of judicial and quasi-judicial institutions—a key element of the U.S. regulatory system—lies largely unexplored for other countries. On the other hand, extensive attention has been given to macroeconomic adjustment, since these processes have affected a large number of countries over the last fifteen years (Suleiman and Waterbury, 1990; Haggard and Kaufman, 1992). These studies are useful because they deal with similar problems, such as structuring coalitions of political actors that can overcome resistance by entrenched interests,
and this paper borrows from the analytical perspectives and research insights of this rich literature.

3. Analytical framework and research hypotheses

Existing research on the process of institutional change suggests modeling it as a game in which groups of actors with different interests or preferences vie for their preferred institutional makeup for the ESI: politicians who aspire to rule and who have their own ideological preferences; voters who make electoral choices on the basis of their own ideologies and the personal benefits they may derive from the platforms promised by competing candidates; suppliers of inputs to the ESI who cannot vote, but who can make valuable contributions to the politicians; and lastly, the investors in the ESI whenever industry assets are privately owned. Restructuring outcomes result from the interplay among these actors, where each group can reasonably anticipate others’ responses and therefore take interdependence into account for purposes of deciding on courses of action. The following paragraphs explain how each one of the causal variables identified in the model affects the institutional outcomes for ownership and competition in the ESI.

Ownership

Public ownership enhances the ability of politicians to extract rents from the ESI, and the ability of consumers to obtain lower prices, since public firms are not subject to hard budget constraints and can therefore subsidize prices. There are therefore strong distributional pressures in favor of public ownership, which means that private ownership can only be sustained by favorable ideological preferences of voters or politicians, and by an independent judiciary or constitutional arrangements, like the division of powers between the executive and the legislature, that make policy reversals less likely (Spiller, 1996). The need for such guarantees is particularly strong in the ESI, because the highly capital-intensive and illiquid nature of ESI assets subject investment in the industry to potentially large expropriation risks. Since judicial independence is the main mechanism through which property rights have historically been protected, we can focus the analysis of institutional change on the degree of independence of the judiciary, together with consideration of voter and policymaker ideological preferences, and of the degree of distributional conflict. Where competition among interest groups for economic rents is more intense, the higher value of patronage will increase politicians’ interest in controlling sources of rents. Adverse distributional impacts of privatization on suppliers of inputs (labor, equipment and materials) and on consumers (who may experience price increases as subsidies are eliminated, or as the new owners exercise monopoly power), will also hamper privatization.

1Note that my hypothesis is more concrete than Spiller’s (1996) concerning political conflict. I refer to a specific type of political conflict, conflict over the distribution of economic resources.
Competition

A viable competitive market structure promises consumers low prices without present or future tax liabilities, but it decreases the ability of politicians or private firms to extract rents from consumers, or of consumers to obtain subsidies, since competing firms earn no rents and cannot recover the cost of subsidies from other types of consumers. Distributionally, there are thus potentially important pressures in favor of monopoly. As with private ownership, the implementation of competition may require that the distributional pressures in favor of monopoly be reversed by ideological preferences in favor of competition as a superior mechanism for allocating resources and stimulating economic growth. But the implementation of competition does not end with the relationship between distributional interests and ideology. Sustaining competition in a capital-intensive industry like the ESI requires that abuses of market power and oligopolistic tendencies be monitored and checked. In turn, this necessitates technically competent enforcement entities that cannot be easily captured by parties interested in altering the dictates of economic efficiency. Traditionally, these objectives have been pursued through the creation of independent regulatory agencies, so a country’s record of creation and respect for such entities, which is most clearly reflected in the record of judicial independence, will matter in making competition viable.

Application of this framework therefore yields the following hypotheses:

i. Privatization will be more likely to occur, other things being equal, where any one of the following conditions holds true:

(a) there exists a tradition of judicial independence from the executive or legislative powers; or
(b) voter and policymaker preferences favor private ownership; or
(c) distributional conflict is less intense, or parties adversely affected by privatization are less influential.

ii. Deregulation will be more likely to occur, other things being equal, where any one of the following conditions is present:

(a) there exists a tradition of judicial independence from the executive or legislative powers; or
(b) voter and policymaker preferences favor competition; or
(c) distributional conflict is less intense, or parties adversely affected by competition are less influential.

4. Research design

The complexity of the political bargaining game outlined above, and the difficulty of measuring the hypothesized causal variables, call for a case-oriented empirical test.

---

2 If competition is to remain viable, public enterprises cannot subsidize final prices, or else private firms would eventually exit and competition would disappear. Hence, viable competition is only possible with hard budget constraints for public firms if any such entities participate in the market.
Furthermore, by being necessarily restricted to a small number of observations, the case approach skirts the sample size limitations imposed by the relatively small universe of electricity restructuring experiences (which is restricted at best to the number of political jurisdictions within which restructuring may occur—essentially, nation-states and subnational jurisdictions in a few highly decentralized countries).

Since the sampling constraints mentioned above make random selection of cases undesirable, I have relied on a “most similar cases” selection criterion, subject to the constraint of minimizing selection bias. In practice, this criterion has meant choosing cases that display sufficient variation in the outcomes (the structures of property rights and monopoly power regulation in the restructured ESIs), yet contain sufficient commonality in other dimensions so as to allow controlling other factors. Latin America meets these criteria, since electric sector restructuring is already displaying significant outcome variability in the region. At the same time, the region’s mixture of common cultural and colonial traits with diverse political and historical trajectories can yield enough controls to test the proposed hypotheses. Within Latin America, the comparison of Argentina, Chile, Bolivia, and Brazil is particularly appealing because, as shown in the following section of the paper, it provides significant contrasts in the outcomes of the ESI restructuring process while keeping the number of cases at a manageable level.

Having chosen the methodology and empirical observations, the final step in the research design is the operationalization of dependent and explanatory variables. The former must refer to the specific context of the ESI to ensure the validity of the analysis, since the research question is about the institutions of the ESI. The ESI has technological characteristics that set it apart from other productive activities, namely great capital intensity (leading in some cases to natural monopoly, or at least to oligopoly), nonstorability of electrical energy, and the use of electrical networks to deliver the main output, electrical energy.

*Property* refers to the control over productive assets, where control includes several dimensions—operation, modification, disposition, exchange for money or other valuables, and control over the output produced with the assets (particularly the freedom to set prices). Also, the ESI has three major types of assets according to the function they perform in the electricity supply chain: generation, transmission and distribution. Since the technology of control may bias ownership towards either of the two possibilities in different ways for each type of asset, it may be necessary to examine property for each type separately.

*Competition* refers to the conditions that affect economic freedom of participants in a market, particularly the pricing (or production) and entry/exit decisions. Although in the ESI the possibilities for full competition are limited to the generation side, a number of mechanisms can be deployed in the other segments of the industry to stimulate competitive behavior.

In contrast to the dependent variables, the explanatory variables posited by the hypotheses are of a general nature within a given polity, affecting the process of ESI restructuring as well as other political and economic outcomes. The key empirical evidence to be sought in
the case studies concerns the specific manifestations of the explanatory variables in the ESI restructuring process.

**Judicial independence (or autonomy)** can be defined at two different levels: formally, independence refers to the mechanisms for the appointment and removal of judges, the financial means of the court system, the common or code basis of law, and the career paths of judges; in practice, independence concerns the means for the implementation of the formal mechanisms listed above and for the enforcement of court decisions, together with the degree of actual compliance; finally, an indirect indicator of judicial independence is the degree of autonomy granted to public enterprises and other governmental entities by the executive or the legislature, as a measure of the willingness of political elites to give up control over decisions and resources.

**Ideology** is a set of ideas about (i) what is desirable for a society or community to attain (hence it can be distinct from “interests,” which would refer to desirable goals for a narrower group or the individual) and (ii) how to get there. The logic of the hypotheses refers primarily to the second part, i.e. how to organize the ESI in order to maximize its benefits to society. We can safely assume substantial agreement on (i) for the ESI, at least in a developing-country context, as the widespread availability of electricity (both in terms of price and physical access to the network), which is commonly understood to be essential for economic development because electricity is a key input for many productive processes and for many welfare-improving household items like lighting, heating or cooking.\(^3\)

**Distributional conflict** is taken, according to the logic of the hypotheses, to be broadly synonymous to the level of rent-seeking activity in a society—in other words, the attempt to use the coercive power of the state to alter the distribution of income produced by the economic system, and the reaction against such attempts by negatively affected actors. Two major phenomena are covered by this concept: explicit income and wealth redistribution conflicts, like bargaining over wages or over ownership of productive assets such as land; and patronage-related pressure on distribution of income (the use of public resources to buy the loyalty of political clients, who are not otherwise politically mobilized and hence would not register in the explicit measures considered above). This variable thus aims to measure the incentives that policymakers may face to maintain control over resources in order to derive political benefits.

5. **Dependent variable observations**

This section provides some summary descriptions of the ESI restructuring outcomes in Argentina, Bolivia, Brazil, and Chile regarding the allocation of property rights on ESI assets and the degree of competition introduced in the industry.

---

\(^3\) The only significant critical perspectives about (i) are those of environmentalists, but they are arguably less influential in developing countries.
5.1 Ownership

A summary of the distribution of property rights in the ESI of each country is shown in Table 5.1 below. The table provides information on the major components of property rights identified in the preceding section: the right to operate assets, to modify them, to dispose of them, to exchange them (buy or sell), and rights over the outputs produced with such assets (in the case of the ESI, electrical energy as well as transmission and distribution of electricity, plus related services such as billing and meter reading).

Table 5.1. Distribution of ESI property rights at completion of restructuring process

<table>
<thead>
<tr>
<th>Country</th>
<th>operation</th>
<th>modification</th>
<th>disposition</th>
<th>exchange</th>
<th>output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>100% private</td>
<td>same</td>
<td>same</td>
<td>same</td>
<td>same</td>
</tr>
<tr>
<td></td>
<td>1986-1998 (a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>G: 100% private</td>
<td>same</td>
<td>G: same</td>
<td>G: 100% private (b)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T: 100% private</td>
<td></td>
<td>T: all public (c)</td>
<td>T: 100% private</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D: mostly private (b)</td>
<td></td>
<td>D: all public (c)</td>
<td>D: mostly private (b)</td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>G: majority private (d)</td>
<td>same</td>
<td>G: mostly public (c)</td>
<td>G: majority private (d)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T: mostly private (d)</td>
<td></td>
<td>T: all public (c)</td>
<td>T: mostly private (d)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D: mostly private (e)</td>
<td></td>
<td>D: all public (c)</td>
<td>D: mostly private (e)</td>
<td></td>
</tr>
<tr>
<td>Bolivia</td>
<td>G: 100% private (f)</td>
<td>G: 60% private (f)</td>
<td>G: 60% private (f)</td>
<td>G: 60% private (f)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T: 100% private (f)</td>
<td>T: 100% private (f)</td>
<td>T: 100% private (f)</td>
<td>T: 100% private (f)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D: 70% private (f)</td>
<td>D: all public (f)</td>
<td>D: all public (f)</td>
<td>D: all public (f)</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
(a) By the end of the Pinochet regime in 1990, all major generation, transmission and distribution assets in Chile’s Central Interconnected System (the main generation, transmission and load system in the country) had been privatized. Originally (ESI privatizations were announced in 1985), only sales of minority stakes in ESI firms were envisaged (Hachette and Lüders, 1993, Table 3.1). Concessions are required in Chile to distribute electricity, but only for purposes of acquiring rights of way, and they are awarded for an indefinite period of time (DFL 1, Art.30).
(b) As of end 1998, the Yaciretá binational dam and two nuclear stations remained in government hands, but the government intends to sell them. Concessions for the largest distribution companies in terms of load and number of customers (Edenor, Edesur and Edelap in Buenos Aires), as well as many provincial distributors (which had owned the provincial distribution utilities since 1979), had been awarded by end 1998 (in 1996, about 60% of energy was distributed to final users by private sector concessionaires, according to the Argentine government).
(c) Hydroelectric plants and T&D assets under long-term concessions.
(d) At end 1998, only Gerasul (8% of total installed capacity in the south-central system) and scattered projects under completion were in private hands. The two nuclear plants (Angra I and II) and the Itaipu binational dam (totalling some 33% of the south-central system) will remain in the public sector. Contracts between independent power producers and distributors subject to regulatory approval.
(e) Concessions for most distribution companies awarded by end 1998. Major exceptions are CEMIG (Minas Gerais) and COPEL (Paraná).
All government-owned generation and distribution companies were capitalized starting in 1994 (50% of equity sold to private investors with rights of operation); COBEE (owner of a generation company and two distribution companies) remained in private hands, as it had been since its founding in 1927.

Source: various, elaborated by author.

The table shows a clear ranking of the cases, from greatest reliance on private property rights in Chile to least in Bolivia. In Chile, all dimensions of ownership were allocated to private actors. Although the privatization process was not complete by the end of the Pinochet regime in 1990, the main entities in the country had already been transferred to the private sector, and the process continued until its completion in 1998, when the last assets in public hands were privatized.

Argentina and Brazil have chosen to rely on concessions rather than outright property transfers for transmission and distribution companies. Under concessional agreements, the assets of these utilities remain under the property of the state, so only the right to operate, modify and sell outputs is transferred to non-governmental entities. In Brazil, the process has proceeded far more slowly and reticently than in Argentina. Whereas the Argentine government is proceeding with its intention to privatize its nuclear plants, the Brazilian government has no intention of doing so. Also, Brazilian unwillingness to pursue means of privatizing its share of Itaipu dam (jointly owned with Paraguay) will leave a major generation asset (25% of total capacity in the south-central interconnected system) in public hands.² (GPR, 5 February 1999).

Bolivia has been the most reluctant privatizer of the four cases. Instead of opting to fully privatize its ESI assets, it chose to “capitalize” them through the sale of a 50% stake of each firm to a strategic investor in exchange for investment targets in each capitalized company, as well as the award of operating control to the strategic investor. Although the public stake in the capitalized utilities has been transferred to pension funds for financial management purposes, the pension system remains a public assistance program rather than a true old-age savings scheme. The benefits provided by the funds are not linked to prior contributions to the funds, but are instead universally defined for any Bolivian citizen that reaches the age of 60. Such a disconnection between contributions and benefits, and governmental definition of pension benefits, is typical of public social security systems rather than private pension funds. It is therefore fair to characterize the Bolivian capitalization process as retaining a significant component of public ownership of ESI assets.³

As pointed out in the preceding section, even when assets are in private hands, they may be subject to restrictions that limit the freedom of decision over the assets and hence the owners’ property rights. The following table summarizes the major such restrictions applied to privatized ESI assets in the four cases. Restrictions relating to mitigation of monopoly power have been excluded, since they can be fairly justified by a concern for the negative welfare

---

² Argentina faces a similar situation with the joint Argentina-Paraguay Yaciretá dam, but unlike the Brazilian government in Itaipu, Argentina appears to be set on privatizing its share of Yaciretá.

³ In the worlds of Bolivia’s then president, G. Sánchez de Lozada: “When you read their [the capitalization investors’] press release, they make it sound like they simply bought 50% of the company from the Bolivian government. (…) No. It’s a capital contribution” (Hendrix, 1995: A15).
effects of monopoly, which is the subject of the next subsection dealing with competition outcomes.

Table 5.2. Restrictions on property rights conferred to private owners (other than related to mitigation or prevention of market power)

<table>
<thead>
<tr>
<th></th>
<th>foreign investment share</th>
<th>ownership share</th>
<th>output price</th>
<th>public service obligations</th>
<th>investment obligations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>none</td>
<td>none</td>
<td>no control over hydro dispatch</td>
<td>G, T: none D: obligation to serve</td>
<td>none</td>
</tr>
<tr>
<td>Argentina</td>
<td>none</td>
<td>none</td>
<td>limitations on hydro dispatch</td>
<td>G, T: none D: obligation to serve</td>
<td>indirect, for D only (quality standards)</td>
</tr>
<tr>
<td>Brazil</td>
<td>none</td>
<td>none</td>
<td>no control over hydro dispatch (a); undefined regulatory framework</td>
<td>G, T, D: obligation to serve</td>
<td>yes (D and concessions of unfinished hydro plants)</td>
</tr>
<tr>
<td>Bolivia</td>
<td>none</td>
<td>ownership of capitalized companies restricted to 50% of equity</td>
<td>no control over hydro dispatch</td>
<td>G: none T: obligation to meet plans D: obligation to serve</td>
<td>acquisition amount to be fully invested in physical and service assets</td>
</tr>
</tbody>
</table>

Notes: (a) Also, hydrology risk is pooled among all hydro generators.  
Source: various, elaborated by author.

Again, the interpretation of the table’s information is that, in general, Chile imposed the least restrictions on the rights of private owners, with the exception of hydroelectric dispatch, which is freer in Argentina than in Chile. Moreover, in the Argentine case investment considerations were much more explicit than in Chile for distribution companies. In Argentina, the regulatory framework includes a detailed set of quality of service parameters that, at the time the distribution concessions were awarded, implied a substantial investment requirement since existing quality of service levels were far below the standards defined in the concession agreements and sectoral regulations.

With regard to Brazil, it is essential to note the impact of centralized hydroelectric dispatch. Since 91% of Brazilian generation capacity is hydroelectric, compared with 64% in Chile, 46% in Bolivia, and 37% in Argentina, restricting control over hydro dispatch implies a very significant curtailment of property rights in the generation sector and of the positive dynamic efficiency effects of competition among generators. This restriction, combined with the lack of a well-defined ratemaking system for distribution and transmission systems, and the investment obligations imposed on distribution concessionaires, means that Brazil can be characterized as more restrictive of private property rights than Argentina and Chile for the dimensions used in Table 5.2. As for Bolivia, the limitations on ownership shares, hydro

---

No transmission concessions have been awarded yet. As for distribution, at the time of the concession auctions only temporary rate conditions were defined for an initial 5- or 7-year period.
dispatch, and investment levels makes this case equally or more restrictive than the Brazilian case.

Another instance of manipulation of property rights by policymakers is the provision of subsidies and giveaways on ESI property rights to particular groups, i.e. the creation of special claims on assets during the privatization process (in the sense that such claims are not acquired through fair trades in financial markets, but by government fiat). Table 5.3 shows the various groups to whom ESI property rights were allocated in the four cases in the course of their respective restructuring processes.

Table 5.3. Ownership composition of privatized or capitalized electric utilities

<table>
<thead>
<tr>
<th></th>
<th>pension funds</th>
<th>foreign investors</th>
<th>employees</th>
<th>other dom. investors</th>
<th>central government</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>yes</td>
<td>yes</td>
<td>yes (at below market prices)</td>
<td>yes, esp. military and civil servants</td>
<td>government assumption of &quot;stranded assets&quot;</td>
</tr>
<tr>
<td>Argentina</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes, incl. some transfers to provinces</td>
<td>government assumption of &quot;stranded assets&quot;</td>
</tr>
<tr>
<td>Brazil</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>government assumption of &quot;stranded assets&quot;; see also (a)</td>
</tr>
<tr>
<td>Bolivia</td>
<td>public pension fund system (b)</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>government assumption of &quot;stranded assets&quot;; see also (b)</td>
</tr>
</tbody>
</table>

Notes:
(a) The Brazilian Development Bank, BNDES, has taken equity positions in some privatizations to stimulate private participation and guarantee the success of the share auctions. For Rio Light, for instance, "the government continued to be the largest shareholder of Light. Adding the shares which were not offered and remaining in the hands of the government electricity holding company, Eletrobrás, and the shares bought by BNDES (through its subsidiary BNDESPar), the government retained a total of 39.1% of Light’s shares" (Baer and McDonald, 1998: fn.42).
(b) Bolivian pension funds are not true pension funds in that they do not distribute pensions according to accumulated obligations, but according to universal benefits defined in advance by the government.

Source: various, elaborated by author.

Table 5.3 reveals a more complex picture than the previous tables. In Chile, members of the military and the civil service were in some cases given subsidies for the purchase of shares in the privatized companies. Additionally, as in all other cases, the government absorbed differences between accounting and market valuations of the assets, such as accounts receivable (mainly unpaid customer electricity bills) of the Santiago distribution company, Chillectra Metropolitana, that were in practice uncollectible because of the low incomes and lack of assets of the residential customers in arrears. In Argentina, certain generation, transmission and distribution assets owned by the federal government before privatization
Institutional change  C. Rufín  p.12

were transferred to the provinces. In Brazil, the government development bank (BNDES) has invested in privatized utilities (Hinchberger, 1996).

Finally, an examination of the mechanisms for the protection of the property rights of private investors shows Chile to offer the least protection with regard to the structure of the Chilean regulatory system, which is of a purely political nature. However, the greater risk of political intervention faced by Chilean investors has as a counterweight a more explicit reliance on judicial and para-judicial mechanisms7 (mandatory arbitration), while in the other countries the regulatory entity or even the government is the first instance of appeal against regulatory decisions, which may reduce the protection of investors against adverse regulatory actions.

Table 5.4. Protection of investors from arbitrary regulatory action or regulatory capture

<table>
<thead>
<tr>
<th></th>
<th>staggered regulator terms</th>
<th>regulator appointment/removal</th>
<th>funding of regulatory commission</th>
<th>commission on budget approval</th>
<th>judicial recourse</th>
<th>public hearings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>no; commissioners are cabinet ministers</td>
<td>no restrictions</td>
<td>general budget</td>
<td>legislature</td>
<td>yes, including arbitration</td>
<td>no</td>
</tr>
<tr>
<td>Argentina</td>
<td>yes</td>
<td>legislative approval (a); “justified” removal only</td>
<td>power market tax</td>
<td>effectively executive (b)</td>
<td>indirect (1st instance is executive agency)</td>
<td>yes</td>
</tr>
<tr>
<td>Brazil</td>
<td>yes</td>
<td>legislative approval/ for criminal or similar reasons</td>
<td>power market tax</td>
<td>legislature</td>
<td>indirect (1st instance is regulator)</td>
<td>under consideration</td>
</tr>
<tr>
<td>Bolivia</td>
<td>yes</td>
<td>legislative selection (c)/ for criminal or similar reasons</td>
<td>power market tax</td>
<td>legislature</td>
<td>indirect (1st instance is general regulator)</td>
<td>no</td>
</tr>
</tbody>
</table>

Notes: (a) Two commissioners proposed by Federal Electric Energy Council, a joint federal-provincial entity; another three directly designated by the federal executive; all approved by the legislature.

(b) Legislative approval of budget, but in case of a budget shortfall, the executive can approve an extraordinary charge on electricity transactions to raise the extra funds.

(c) President selects general regulator from a list of three candidates chosen by two-thirds of senators.

Source: various, elaborated by author.

5.2 Competition

As the primary determinant of competitive behavior, the market structures that emerged in each country after the restructuring process (or in Brazil, that are envisaged by the government) are the most important indicators of the decisions made by the respective governments concerning the choice of competition vs. monopolistic systems for the production and allocation of electrical energy.

7 “Chile has highly detailed benchmark regulation with explicit mechanisms for resolving disputes between the regulator and the utility, with the judiciary as final arbiter. These restraints are credible because the country has a long tradition of judicial independence that has restrained government discretion in areas of property rights and contracts” (Bitrán and Serra, 1995: 3).
Table 5.5. ESI market structure in the four cases

<table>
<thead>
<tr>
<th>Case</th>
<th>vertical integration</th>
<th>generation market structure</th>
<th>transmission market structure</th>
<th>distribution market structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>yes; Endesa owns most transmission lines in SIC, affiliated w/ largest distr. (Chilectra)</td>
<td>concentrated; Endesa owns 59% of capacity in main system (SIC)</td>
<td>one major transmission company in each system (SIC, SING)</td>
<td>several companies, but dominated by Santiago metro utility (Chilectra, 37% of SIC cust.)</td>
</tr>
<tr>
<td>Argentina</td>
<td>no</td>
<td>very fragmented; largest units in public sector</td>
<td>one major transmission company, several regional ones</td>
<td>several companies, capital metro area split into two companies</td>
</tr>
<tr>
<td>Brazil</td>
<td>partial (generation and distribution)</td>
<td>concentrated, although largest units in public sector</td>
<td>undecided, probably single entity</td>
<td>several companies, 2 largest urban areas each split into several companies</td>
</tr>
<tr>
<td>Bolivia</td>
<td>no</td>
<td>five generators only due to small market size</td>
<td>one major transmission company</td>
<td>several companies, no asymmetry</td>
</tr>
</tbody>
</table>

**Note**: the Chilean Central Interconnected System (SIC in Spanish) comprises about 75% of generation capacity in Chile; rest is mostly in the Great Northern System (SING in Spanish).

**Source**: various, elaborated by author.

Chile presents the most monopolistic market structure among the four cases. A single investor group controls Endesa, which owns 59% of installed capacity, 82% of the transmission line mileage, and provides distribution service to 37% of customers—through control of Santiago’s only distribution utility—in Chile’s main interconnected system.\(^8\) By contrast, the Argentine generation sector was sold to a large number of separate entities, and the major metropolitan areas of Argentina and Brazil are served by several distribution concessionaires, which facilitates comparisons of performance and hence stimulates efficiency in distribution services.

While the Argentine case lies at the opposite end of the market structure from Chile, with fragmentation at all three ESI levels (generation, transmission and distribution), Brazil and Bolivia represent intermediate situations, with Bolivia being more competition-oriented than Brazil. The reason for such a characterization is that while in Bolivia competition in the generation sector is limited by the small size of the country’s interconnected system, in Brazil a very limited splitting of control over generation assets is planned relative to the very large size of Brazil’s main interconnected network,\(^9\) although public ownership of Itaipu, by far the largest single generation asset, may limit market power.

---

\(^8\) For evidence of self-dealing between Chilectra, the distribution company, and Pehuenche, a generation affiliate, see Blanlot (1993).

\(^9\) While it is true that the large size of many of the generation assets themselves (mainly large dams) is an obstacle to splitting ownership of generation assets in Brazil, the size of the ownership packages proposed by the government is substantially larger than that of any individual generation station in the main interconnected system other than Itaipu.
From a dynamic perspective, the existence of barriers to entry and exit is also an important determinant of the strength of competition, at least in the long run. As shown by Table 5.6, Chile presents a substantial number of barriers to entry and exit. The major generator in the country, Endesa, controls water rights and transmission in the central system, and there is no prohibition against vertical integration in the country. This contrasts with the rest of the cases, where there exist explicit prohibitions or limitations on both vertical and horizontal market power. Further differences among the cases of Argentina, Brazil and Bolivia are unclear, for each has different limitations to entry and exit. Argentina did not impose service expansion obligations on its transmission concessionaires, which together with a deficient system for identifying expansion beneficiaries has created bottlenecks in the transmission system; in Brazil, the ongoing Petrobrás monopoly on wholesale gas and oil production and distribution is hindering entry of thermal generators; and in Bolivia, small market size limits efforts to mitigate horizontal market power.

Table 5.6. Barriers to entry and exit

<table>
<thead>
<tr>
<th>Country</th>
<th>Access to fin., phys. capital</th>
<th>Access to fuel sources</th>
<th>Access to transmission</th>
<th>Barriers to exit</th>
<th>Vertical integration constraints</th>
<th>Horizontal concentration limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>none</td>
<td>water rights in SIC controlled by Endesa</td>
<td>restricted: no obligation for service provider</td>
<td>none</td>
<td>none recently (a)</td>
<td>none</td>
</tr>
<tr>
<td>Argentina</td>
<td>none</td>
<td>none</td>
<td>restricted: no obligation for service provider</td>
<td>none</td>
<td>G&amp;D allowed without physical integration</td>
<td>yes, 10% of capacity control limit</td>
</tr>
<tr>
<td>Brazil</td>
<td>none</td>
<td>access to gas hindered by Petrobrás monopoly</td>
<td>restricted: rules not yet defined</td>
<td>none</td>
<td>allowed in G and D, subj. to overall limits</td>
<td>yes, 20% of cap. or load nationwide limit</td>
</tr>
<tr>
<td>Bolivia</td>
<td>none</td>
<td>none; extensive gas reserves in country</td>
<td>rate base incentive but unstable tolls</td>
<td>small capital market</td>
<td>vertical integration limited (b)</td>
<td>yes, 35% of capacity control limit</td>
</tr>
</tbody>
</table>

Notes: (a) After a recent antitrust case against Endesa, it had been ordered to maintain separate accounts for its generation and transmission operations.
(b) Distribution companies may own up to 15% of their generation capacity needs.
Source: various, elaborated by author.

A look at the antitrust enforcement mechanisms in each country leads to similar conclusions. In Chile, the lack of legal limitations to horizontal and vertical market power prevents the regulator from taking actions to change the market structure created during the restructuring process and its aftermath. At most, the regulator could intervene through the rate-setting process to mitigate market power, but the authority of the regulator to do so is not clearly delineated in the acts that regulate the ESI, which deal mainly with regulation of the
distribution component of electricity rates. As a result, mitigation of market power falls mostly on the general antitrust system.

Brazil suffers from significant limitations too because the regulatory framework of the ESI has not been fully defined yet, thus creating substantial ambiguity about the powers of the regulator to mitigate market power. On the other hand, the limitations on ownership included in Brazil’s Electricity Act do provide Brazilian authorities with greater legal grounds for antitrust interventions than in Chile. In Bolivia, the control of market power is once again limited by market size, but the regulator is equipped by the Bolivian Electricity Act with powers to check abuses of market power. Finally, Argentine regulators are in the best position to enforce antitrust policies, because the law imposes strict limits on the control over generation resources, and also because the executive power (through the Secretaría de Energía) has the capacity to alter the rules of the wholesale market and the regulator can terminate concessions in extreme cases.

<table>
<thead>
<tr>
<th>antitrust agency</th>
<th>instruments or mechanisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>regulatory commission (CNE) and competition commission limited, since Electricity Decree does not set limits, and existing structure is concentrated; CNE has limited freedom to alter regulated rates; antitrust commissions can order divestitures, penalize abuse of market power</td>
</tr>
<tr>
<td>Argentina</td>
<td>regulatory commission (ENRE) extensive, due to rate-setting and antitrust powers of ENRE, and to concession conditions</td>
</tr>
<tr>
<td>Brazil</td>
<td>regulatory commission (ANEEL) and competition commission moderate; rate-setting power limited by privatization contracts and lack of clear ratemaking framework; concessions can be revoked for public interest reasons; ANEEL empowered to penalize abuses in coordination with general antitrust commission</td>
</tr>
<tr>
<td>Bolivia</td>
<td>regulatory commission (Superintendencia de Electricidad) extensive power of regulator to terminate concessions in case of market power abuses and general antitrust powers of regulator, but conflict between market size and legal limits</td>
</tr>
</tbody>
</table>

Source: various, elaborated by author.

With regard to the governance structure of the ISOs in each country, which are summarized in Table 5.8, Chilean disregard for potential market power abuses is also evident.

---

10 Distribution concessions can be terminated by the President of Chile for quality of service reasons DFL 1, Art. 40), but quality standards are not clearly defined, unlike in Argentina.

11 To be sure, there is no a priori reason why such an approach should be less able than sectoral regulation to prevent or correct market power abuses. In fact, “light handed regulation,” as this approach is known, is used in some countries, such as Germany, New Zealand and Australia.
Table 5.8. ISO governance

<table>
<thead>
<tr>
<th>ISO name</th>
<th>board composition</th>
<th>decision making</th>
<th>staff</th>
<th>regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>CDEC</td>
<td>1 director for each generator of more than 62 MW</td>
<td>unanimity, Min. of Econ. arbitrates in case of conflict</td>
<td>no staff of its own; relies on member resources</td>
</tr>
<tr>
<td>Argentina</td>
<td>CAMMESA</td>
<td>2 gov’t, 2 gen., 2 transm., 2 distr., 2 large users</td>
<td>majority, Secretary of Energy has veto power</td>
<td>own staff</td>
</tr>
<tr>
<td>Brazil</td>
<td>ONS</td>
<td>concessionaire formed by market participants</td>
<td>not known</td>
<td>not known</td>
</tr>
<tr>
<td>Bolivia</td>
<td>CNDC</td>
<td>1 regulator, 1 gen., 1 transm., 1 distr., 1 large users</td>
<td>majority, regulator can only vote to break ties</td>
<td>own staff</td>
</tr>
</tbody>
</table>


Unlike the rest of the ISOs, the Chilean CDEC is a “generators’ club” and as such is much more subject to manipulation by existing club members to exclude new members or otherwise manipulate the rules of the game. In contrast, the Argentine and Bolivian ISOs include in their boards representatives from the major stakeholders in the ESI, use majority decision rules, and have their own staff, traits which are more likely to give them the impartiality that competitive power markets require. In Argentina, the government has veto power over ISO board decisions, while in Bolivia the public sector is only present through the regulator, and then only in a tie-breaking role. While public sector involvement in ISO governance need not stimulate competition, it is unlikely to be as favorable to the exercise of market power as a generators’ club. Chile can therefore be classified as having the least pro-competitive ISO governance structure.

At a greater level of detail, restrictions to bidding into the electricity spot market that are not justified by the objective of curtailing market power decrease the scope of competition and may thus be regarded as indicative of lower commitment to competition. On the other hand, requiring cost-based bids for thermal plant bids and central dispatch of hydro units can limit market power when structural conditions for competition are not present, as in the Chilean case, so they cannot be taken as necessarily anticompetitive under these circumstances.

Table 5.9. Regulation of spot market bids by generators

<table>
<thead>
<tr>
<th></th>
<th>bidding by thermal plants</th>
<th>bidding by hydroelectric plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>actual auditable cost of production</td>
<td>centrally dispatched using linear program</td>
</tr>
<tr>
<td>Argentina</td>
<td>essentially free</td>
<td>essentially free</td>
</tr>
<tr>
<td>Brazil</td>
<td>free, but only uncontracted portion</td>
<td>centrally dispatched using linear program</td>
</tr>
<tr>
<td>Bolivia</td>
<td>reference fuel prices</td>
<td>centrally dispatched using linear program</td>
</tr>
</tbody>
</table>

The format of thermal plant bidding across the four cases does not reveal any particular ordering with respect to competition, since each case appears to be tailored to its specific conditions: a less competitive market structure in Chile, a very competitive market structure in Argentina, or a potentially competitive market in Bolivia that only requires partial restrictions on bids. The same can be said about hydro for Chile and Argentina. But it is not at all justified for Brazil and Bolivia, where hydroelectric plants could perfectly well be allowed to bid freely. In fact, the extreme reliance on hydrogeneration in Brazil means that central dispatch of hydro plants, together with the restriction of thermal plant bidding to uncontracted capacity, effectively eliminates competition from Brazilian generation markets (Coopers & Lybrand, n.d.: 11).

In the ESI (as in telecoms and gas), metering and other costs limit but do not impede access to direct trading in wholesale markets by small users. The absence of minimum size limitations for market access can therefore be interpreted as indicative of the desire to maximize the scope of competition. The limitations to market access by users in the four cases are as follows:

- Chile: 2 MW
- Argentina: 100 kW, to be eliminated by 2002
- Brazil: 10 MW to 2000, 3 MW to 2003, then at regulator’s discretion
- Bolivia: 2 MW

Thus by this measure Argentina is the most pro-competitive of the four cases, with Brazil the least favorable to competition.

Distributor purchasing regulations limit the freedom of action of these utilities and may thus reduce market efficiency, although if combined with a lack of clear quality standards, purchasing freedom confers additional monopoly power to distributors over captive customers. The pattern here is similar to most of the other competition indicators examined so far: the Chilean case displays a favorable bias towards the incumbent suppliers of distribution services, which are not subject to any clear or indirect purchasing standards; in Argentina, the recourse to quality of service standards (whereby penalties are applied to distributors for service interruptions) strikes a balance between direct intervention and potential abuse of monopoly by the distributor; and in Brazil and Bolivia, a heavy-handed approach of mandatory minimum contract coverage levels mitigates monopoly power but at the cost of stifling distributors’ initiative in meeting service obligations:

- Chile: no regulations
- Argentina: no direct regulations, but quality of service standards and penalties, as well as price regulations limiting passthrough of purchase costs; transitional contracts

---

12 In Brazil, it has been argued that the location of dams along only three major river basins (Amazon, São Francisco, and Paraná) creates too strong interdependencies (externalities) among dams to make a free market workable. But the hierarchical position of the dams in any given basin (from upriver to downriver, which means that decisions by dam operators are not simultaneously affected by hydrology), and the possibility of creating markets for water rights, makes such an objection untenable.
for the three Buenos Aires distribution utilities formerly owned by the federal government with nearby thermal plants, for about 55% of total needs and a term of eight years

- Brazil: distributors required to purchase 85% of load under long-term contracts
- Bolivia: distributors required to purchase 80% of load under long-term contracts

The last indicator of reliance on competitive mechanisms considers the recourse by policymakers to various ways of replicating market forces for the ESI segments operating under natural monopoly conditions. Under the umbrella of “performance-based regulation” we can include the following elements of the regulatory framework in each of the four cases:

- Argentina: use of productivity improvement factors (“X factors”) to adjust rates over time; quality standards based on industry experience
- Chile: use of “model company” to determine distribution rates, and of X factors in distribution rates; return on rate base fixed, but subject to benchmarking per average rate of return of all distribution companies in Chile
- Brazil: no specific mechanisms—regulator decides level of rate indexing
- Bolivia: X-factors in distribution rates; return on rate base taken from actual returns of US utilities

The list shows that Argentina, Bolivia and Chile rely on “market-like” mechanisms to induce competitive behavior in the monopoly segments of the ESI. The most comprehensive approach is the Argentine one, which uses both productivity factors and quality standards to induce increasing efficiency and productivity improvements in the concessionaires, and to pass these improvements to ratepayers through lower rates and improved quality of service. The Chilean and Bolivian frameworks are more limited, particularly in the Chilean case where the model company results must be reconciled (by law) with the parameters estimated by the distributors. Brazil differs from the other cases in lacking any market emulation mechanisms.

Among the substitutes for actual competition, “competition for the market” through franchise bidding deserves special attention because it has received extensive attention since it was originally suggested by Demsetz (1968). The degree of recourse to this method in the four countries is as follows:

- Chile: no franchise bidding under Pinochet
- Argentina: most competition-oriented system
  T and D concessions periodically retendered for bids
- Brazil: D concessions tendered for bids
- Bolivia: all capitalized/privatized utilities tendered for bids

We can observe yet again that in this regard Chilean policymakers relied the least on this substitute for competition, while Argentina’s used the most sophisticated design, by requiring the periodic rebidding of concessions (with the possibility of bidding by the concessionaire

13 X-factor adjustment proposed by Coopers & Lybrand.
itself) to avoid the incentive problems that can occur when the end of the concession period nears (Williamson, 1985). Brazil and Bolivia are intermediate cases.

To conclude, it is clear that Chile has relied most extensively on private property, while the greatest reliance on public property occurs in Bolivia, where even the word “privatization” has been replaced by the term “capitalization” to convey the idea of a different arrangement. Argentina and Brazil are intermediate cases, with Argentina closer to Chile in reliance on private property and Brazil closer to Bolivia, since it plans to retain a set of large generation assets in public hands. Concerning competition, the pattern that emerges from most of the estimators of this variable is fairly clear. The Chilean restructuring process has in general neglected market power issues, facilitating in effect the emergence of private oligopolies. Close to this end lies Brazil, where public sector interventionism remains in the form of centralized dispatch of hydro resources and extensive restrictions on the actions of distribution companies. Bolivia displays a greater reliance on competition, being limited more by a small electricity market size than by policy choices that lessen the scope of competition. Finally, in Argentina reliance on competitive or “para-competitive” arrangements is most extensive.

To provide a visual summary of the four cases, we can place them in a simple 2x2 matrix for each dependent variable:

Table 5.10. Classification of cases by dependent variable

<table>
<thead>
<tr>
<th>↑ private property</th>
<th>↓ public property</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>Argentina</td>
</tr>
<tr>
<td>Brazil</td>
<td>Bolivia</td>
</tr>
</tbody>
</table>

6. Putting the pieces together: ESI restructuring in Argentina, Bolivia, Brazil and Chile

This section traces out how the posited explanatory variables affected restructuring outcomes in each case. Although the section is organized by each explanatory variable separately, the interaction between the explanatory variables is pointed out where necessary.

6.1 Effect of judicial independence

Recall the mechanism through which judicial independence affects outcomes. Judicial independence decreases uncertainty about the future actions of regulators and politicians because it limits their freedom of action in accordance with previously promulgated statutes. In particular, arrangements based on private property and competition will face lower chances of reversal when judicial independence is greater, thereby eliciting the commitment of private investors and hence the success of the arrangements. In testing the effect of this variable, we should look then for specific elements of ESI restructuring outcomes that rely on
judicial enforcement in countries with higher judicial independence, or conversely that keep enforcement in the hands of the executive or the legislature in cases of low judicial independence.

Chile

There are several elements of the Chilean ESI restructuring that imply a substantial degree of reliance on judicial enforcement. First comes the vagueness of the legal texts regulating the restructured ESI. In general, greater vagueness of legal statutes requires greater judicial interpretation to clarify specific instances of the law. While the basic Chilean ESI restructuring act, DFL No.1, is fairly detailed about the various aspects of rate-setting and other matters, implementing regulations were never written, which increases the possibility of disagreements between regulators and utilities over the least defined aspects of the decree. For instance, disputes over distribution rates between the regulatory commission and the utilities are to be solved by means of a “Salomonic” weighted average of the rate-setting parameters obtained by each side, rather than through more specific ratemaking instructions. This has invited, of course, high cost of service claims by the utilities, sometimes even 50% higher than the CNE numbers, which has in turn increased mistrust between the CNE and the utilities and led to numerous requests by the utilities for court injunctions against the CNE (Blanlot, 1993). This would seem to indicate that the drafters of the decree were confident of the ability of Chilean courts to inspire trust in ESI investors, a confidence which was proven correct in the investors’ willingness to go to the courts rather than to attempt to circumvent them (of which there is no evidence whatever).14

Even more strikingly, the Chilean ESI reform eschewed entirely the attempt to create a quasi-judicial independent regulatory entity and simply relied on the courts and quasi-judicial mechanisms like arbitration to protect the rights of investors and other stakeholders. Faced with a regulatory commission (the CNE) entirely formed by government ministers (three of whom head “political” ministries) and thus devoid of any semblance of independence, the subsequent privatization of utilities could have failed if private investors did not have the confidence that arbitration and the courts would protect their interests adequately. Investor confidence in the courts is demonstrated by the fact that acrimonious fights between utilities and the CNE over issues such as the passthrough of productivity improvements to ratepayers have been solved through the courts rather than through political expedients such as lobbying the government to obtain preferential treatment (which has not prevented the government, after the resolution of some of these disputes, from acknowledging imperfections in the law and making amendments to correct the flaws).

The promotion of competition also displays extensive reliance on the independence of judicial and quasi-judicial bodies. The antitrust system, created in 1973, consists of a series of antitrust commissions organized along the same pyramidal structure of the courts. As explained in the next subsection, the ideology of the Pinochet regime’s decisionmakers, the “Chicago boys,” led them to create a highly concentrated ESI market structure. When subsequent governments and competitors hurt by ENDESA’s market power sought to reverse

14The regulatory framework for telecommunications is similarly ambiguous, and disputes about regulatory ambiguities have also been taken to the courts (Galal, 1996: 136).
the situation, they made use of the antitrust system rather than seeking to sidestep it through new legal acts or even extralegal measures.

The fact that decisionmakers under Pinochet chose to rely on a fairly independent judiciary might seem puzzling, since authoritarian regimes are by definition interested in controlling all levers of power. However, it is less puzzling when we consider the avowed objectives of the regime and its allies, such as the “Chicago boys.” Pinochet and the “boys” saw their tenure in power as a transformational period, in which they would radically alter the economic and social structures of Chile to prevent the future recurrence of the pre-coup political and social conflict. They were thus keenly interested in creating or strengthening institutions that would preserve their policies after the end of the Pinochet regime. As Horn (1995) has pointed out, the usual channel for ensuring the permanence of institutional transformations is to delegate decisions and policies to independent bodies, so that future executives and legislatures will find it harder to reverse such transformations. The existence of a relatively independent court system in Chile offered the Pinochet regime a useful commitment mechanism for its project of economic and social transformation.

Argentina

Argentina has a history of political manipulation of the courts. Even the creation of the independent ESI regulatory commission, ENRE, was plagued by problems over the appointment of commissioners. The entity representing provincial interests, CFEE, wished to follow its own selection procedure for its allotted commissioner appointments, which conflicted with the government’s attempt to control the appointment process; Menem further strained the spirit of the Electricity Act by imposing a candidate without congressional consensus (Bastos and Abdala, 1993: 264). Even in the Act itself and its regulations, the executive asserted its will to intervene in the regulatory process by making the sectoral executive agency (the Secretariat of Energy) the first instance for appeals of regulatory decisions, with judicial review only at higher instances. The executive also retained veto powers over decisions by the ISO (CAMMESA), which has been a cause of concern among ESI stakeholders (Bastos and Abdala, 1993: 274). The fact that such a context offers fewer assurances to ESI stakeholders than Chile’s is not, however, reflected in either the ownership or competition choices made in the restructuring process.

Despite the fact that a high level of political intervention in the regulatory system diminished the degree of protection of investors’ interests, the government chose to privatize its ESI holdings to the greatest extent possible. Likewise, a highly competitive market structure was created, together with extensive reliance on mechanisms to emulate competition wherever possible, even when the regulatory commission (ENRE), which is also the primary antitrust agency for the ESI, had been the object of political manipulation.

But if there was little assurance that their property rights would be respected and competition would be fair, why did private investors accept to participate in the Argentine market? The interaction between the explanatory variables can answer this question. As shown in the preceding section, the architect of Argentina’s economic reform, Cavallo, was fully committed to privatization and competition. His determination to privatize and introduce
competition in spite of the lack of judicial independence would have sent a strong signal about the strength of his ideological commitment, which to some extent could substitute for the lack of judicial independence. Investors would not mind a certain potential for government influence on regulation (and hence on property rights) and on competition if they were reasonably assured that the government would take a position in favor of private property and competition, and if future changes in government would not affect risk very much (either because the opposition party shared a similar ideology, or because investment was expected to be recouped quickly).\(^{15}\) This possibility is also supported by the observed lack of lobbying of the executive by ESI participants since restructuring was undertaken. A government with a strong ideological position in favor of property rights and competition is unlikely to overturn judicial and regulatory decisions because judicial and regulatory independence is needed to support private property and competition. Thus market participants are unlikely to lobby the government if they perceive it to be ideologically committed to private property and competitive forces.

**Brazil**

Stakeholders in Brazil’s ESI have ample precedent not only of political influence on the courts but more directly on the deleterious effects of political control over ESI regulation. DNAEE,\(^{16}\) the predecessor of the current regulatory agency, was perceived as highly politicized;\(^{17}\) of special importance was the meddling of the Ministry of the Economy to try to control inflation during the 1980s, because it decreased electricity rates in real terms so much that by the mid-1990s most electricity distribution utilities were practically bankrupt (Kirkman, 1997), which in turn motivated subsequent ESI restructuring efforts.

To deal with such precedent and the absence to this day of a regulatory framework that sets minimal ratemaking and other criteria (such as, for instance, the statutes enacted in Argentina, Bolivia and Chile), the Brazilian government has relied instead on concession contracts that offer very generous margins and limit regulatory intervention during a transitional period, so as to allow concessionaires to recover their investment quickly. Although contract enforcement falls under the responsibility of the courts, reliance on contracts is actually a *stronger* form of governmental commitment than regulation by commission. The reason is that the concession contracts executed by the Brazilian government are in principle far less discretionary than regulatory supervision (as allowed in Chile, Argentina, Bolivia or even Brazil after the transitional period), and therefore limit the potential need for court interpretation substantially. Rather than stating general principles of ratemaking, for instance, that are then interpreted by a regulatory commission and overseen if need be by the courts, the Brazilian concession contracts specify rigid pricing formulas based

\(^{15}\) By contrast, it would not have made sense to privatize with a competitive market structure if all the government wanted was to maximize privatization revenue due to budget deficit pressures. And an anti-inflationary goal could have been met more simply through a monopoly concession with a price cap.

\(^{16}\)Departamento Nacional de Águas e Energia Elétrica.

\(^{17}\)“Many [of DNAEE’s] decisions were based not on improving operations or on making efficiency gains, but on alleviating political situations or repaying political favors” (Kirkman, 1997: B2).
on official price indices,\(^{18}\) and offer few ratemaking guidelines after the end of contract terms.

The restriction of competition in Brazil’s restructured ESI matches the fact that Brazil’s courts are not as autonomous as Chile’s. While the major reason for such a choice is ideological, weak judicial institutions may have also played a role. Brazil’s generation asset structure would require greater market power monitoring than that of the other cases, thereby making the need for judicial independence potentially greater too. Brazil’s generation structure is almost unique in the world: it is dominated by a relatively small number of huge dams, including the largest dam in the world, Itaipu, which at 13,000 MW of capacity constitutes one-fourth of installed capacity in Brazil’s main interconnected system; and the dams are located on three river basins and have relatively little storage capacity. This creates greater potential for market power than in Argentina or Chile (Bolivia faces other difficulties due to small market size), where the role of thermal generation is greater\(^{19}\) and (in Chile only) hydro plants are less concentrated in a few basins. Dams like Itaipu could affect market prices due to their sheer size, while upstream dams can affect the behavior of downstream units. While a competitive market appears to be feasible in such a system, an aggressive antitrust stance may be part of the formula needed to make such a market work. The relatively low historical levels of judicial independence in Brazil may simply be insufficient to guarantee the impartial resolution of antitrust disputes to make a competitive market workable.

**Bolivia**

In Bolivia even more than in Brazil or Argentina, the regulatory system began its life already politicized, as Sánchez de Lozada filled regulatory commissioner positions with his own appointees (Bowen, 1997). The consequences were soon evident: transmission rates were increased without a proper regulatory process prior to the privatization of the transmission company, to make it more attractive. Moreover, as shown in the preceding section the politicization of the regulatory system was not limited to electricity but was even worse for telecoms and banking regulators.

Given the magnitude of political meddling in the judiciary and in regulatory commissions, capitalization may result not only from ideological and distributive opposition to privatization, but also from the need to provide additional safeguards to private investors about the future governmental behavior towards the utilities. Recall that capitalization involved not simply keeping 50% of utility shares in public hands, but using them to fund a pension plan for all Bolivians. By putting at stake the ability of the government to deliver on its pension promises—promises, because the pension plan is based on defined benefits, not on past contributions—the Bolivian government created a powerful commitment to respect the property rights of investors in the capitalized utilities, which included effectively all Bolivians. Therefore the creation of a formally independent regulatory commission, which by itself would have been rightly regarded with skepticism by private investors, was

---

18 Hence a macroeconomic anti-inflationary goal cannot explain the choice of the concession terms, since indexing would defeat such a purpose.

19 Hydro plants account respectively for 60%, 44% and 93% of capacity in Chile, Argentina and Brazil.
powerfully supplemented by a mechanism that put the future pensions of all Bolivians at stake.

Bolivia chose to promote competition in generation through a diversified ownership structure, and in distribution through yardstick competition. Keeping competition vigorous in a small market like Bolivia’s requires, moreover, aggressive monitoring and sanctioning by the regulator of any signs of market power abuse or collusion, as it would in Brazil although for different reasons. The choice of competition is thus hardly compatible with the very low judicial independence tradition of Bolivia. Also, ideology is a less powerful predictor for Bolivia than for Argentina, so interaction with other explanatory variables cannot be argued in the Bolivian case.

Other predictions of the analytical framework are, however, borne out by the evidence, indicating that the failure of the Bolivian case to conform to the competition hypothesis does not lie in the theory behind the hypothesis but in a miscalculation on the part of Bolivian policymakers (note that “miscalculation” does not imply lack of rationality, but simply inadequate information about the perceptions of private investors concerning judicial independence in Bolivia). As the analytical framework predicts, generators have protested adverse regulatory decisions directly to the government rather than to the judicial channels specified in the regulatory commission statute (GPR 98/06/13: 16-17), since undertaking litigation under a politicized judiciary is less efficient than trying to influence the government directly. In contrast to the Argentine case, the lower ideological commitment to private property and competition of Bolivian policymakers encourages lobbying by private actors to obtain favorable outcomes in disputes with other participants or with regulators.

To conclude, three of the four cases confirm the hypothesis about the relationship between judicial independence and ownership choices, while competition and judicial independence are more weakly related. The relationship between judicial independence and competition is affected by ideology to a greater extent than judicial independence and ownership, perhaps reflecting the smaller role of the judiciary in protecting competition.

6.2 Effects of ideology

Countries with a stronger influence of orthodox economic ideas should show a greater reliance on private property and competition, while greater influence of nationalism or economically unorthodox ideas, such as structuralism or socialism, should be more inclined toward public ownership and monopoly.

20 “Small” in relation to the typical scale of efficient generation plants. Total installed capacity in Bolivia’s interconnected system is about 600 MW, the size of a high-efficiency coal plant or of a single gas-fired cogeneration plant, although the minimum efficient scale for the latter can be as low as 50 MW.
21 For the same reasons as in Argentina, it is also incompatible with macroeconomic goals of deficit and debt reduction, or of inflation reduction.
Chile

The key ESI restructuring act (DFL No.1 of 1982) was issued at peak of radical orthodox influence, as shown by E. Silva’s analysis of policymakers’ backgrounds and decision structures in the Pinochet regime (1996, ch.6). Since a major hallmark in the law is the introduction of the competition in the activity of generation, and the use of a theoretical benchmark or “ideal company” for distribution ratemaking, issuance of DFL No.1 clearly confirms the hypothesis linking ideology and choices. The result is further confirmed by the fact that in 1982, deregulation of generation activities was still a purely theoretical possibility, since no country in the world had tried it yet. The willingness of Chilean policymakers to test uncharted waters adds further evidence about the strength of their pro-competition ideology.

Likewise, ESI privatization took place in 1985 and beyond, confirming also the relationship between property choices and policymaker ideologies. In Chile, however, belief in the superiority of private property was not the only motivating ideology behind ESI privatization: nationalism also played an important role. Among the forces that opposed ESI restructuring were the military, who saw a strategic role for utilities (Bernstein, 1995; see also Allende, 1988, for “national security” opposition to privatization). The major ESI privatization decisions made under Pinochet were carried out in 1985-88 by a commission (formed by ministers of finance economy, planning, the development bank CORFO, and a representative of Pinochet), in which “the only civilians were the ministers of finance and economy” (E. Silva, 1996: 195). There is thus a very explicit linkage between the major privatization push under Pinochet and the influence of nationalist ideology during this period. The heavy presence of the military, most likely imbued with nationalism, in the privatization commission may explain the low participation of foreign investors in this process as implemented under Pinochet, and shows that although privatization was carried out after the outset of Chile’s debt crisis (which began in 1983 with the government’s assumption of much of the foreign debt of domestic firms), the macroeconomic objective of debt reduction was not a primary motivator for privatization.

As the data in section 2 made clear, privatization created an oligopolistic market structure. This raises the puzzle of why would an orthodox, pro-competition regime produce such a skewed market structure. To solve this paradox, we need to recall from section 3 that the antitrust thought emanating from the University of Chicago has always been consistent with the rest of “Chicago” economic doctrine, which is notoriously libertarian. Chicago school economics is suspicious of natural monopoly arguments, and even more suspicious of the effectiveness of monopoly regulation and antitrust interventionism. As a result, in this school there is far less concern for market concentration and vertical integration than in other streaks of neoclassical economics. This would explain why were the “Chicago boys” impervious to the privileged position given to the post-privatization ENDESA. An alternative explanation, of course, would be that ENDESA was sold to regime insiders or

---

22 Stakes by foreign pension funds only appear in Enersis in 1989, and in Endesa in 1990 (Moguillansky, 1997: Tables 2 and 3).
clients as part of a political exchange. Such a possibility will be explored in the next subsection.\footnote{At the very least, such a market structure choice is inconsistent with a macroeconomic goal of inflation reduction, since greater market power would in principle make it easier for generators to pass general price increases on to their customers.}

**Argentina**

That ESI restructuring in Argentina bears the stamp of Cavallo is clearly shown by the sequence of events that led to the restructuring program. As the discussion of ideology in Argentina showed, policies favoring privatization and deregulation (that is, to increase competition) were not implemented immediately upon accession of the Peronists to the presidency in 1989. State interventionism and public monopoly, or tolerance of private oligopoly if a consequence of import substitution, were still popular ideas in the Peronist party. Menem’s own preferences appeared to lie with such ideas so long as they proved effective. The Menem administration was therefore reluctant to accept ESI privatization and deregulation for more than a year, until there were few alternatives left. In 1990, a first reform attempt was undertaken along the lines of the French state monopoly model: there would be a single wholesale price for the entire country, with differences only in distribution charges, since they were provincially controlled, there would be no privatization, but instead creation of a holding SOE, run through management contracts. This reform attempt failed because public finances were too weak to provide the required physical capital and retain the managerial expertise of the reform due to lack of capital for new investment, while there were few incentives for the efficient use of electricity (Bastos and Abdala, 1993: 81).

The new restructuring program, as described in section 5, was implemented upon Cavallo’s accession and under his close supervision as Minister of Economy, Public Works and Services (Rausch, 1994), with the assistance of his appointee, Secretary of Energy Carlos Bastos, an academic and longtime associate of Cavallo from the think tank IEERAL (Friedland and Holden, 1996). Other domestic influences in the program were minimal. Although the program was carried out under the special powers delegated to the executive under the Emergency Act, and as such it was subject to congressional approval (Emergency Act, Arts. 8 and 9), federally-owned electric utilities had already been pre-approved for restructuring (including privatization if necessary) in the Emergency Act (Annex I). A subsequent requirement for legislative approval of the privatization process that had been included in the Electricity Act (Art.93) was eliminated in the Electricity Act’s implementing regulations (Decree 1398/92).

**Brazil**

The Brazilian ESI restructuring process appears to be under substantial influence from technocrats in the former public monopoly Eletrobrás and in the state development bank, BNDES, which is in charge of the privatization side. The old regulatory agency, DNAEE, and the new one, ANEEL, have had a limited impact, because they have not—so far, at least—been equipped with the level of technical expertise needed to provide a credible input into restructuring initiatives. The highly technical nature of some of the issues raised by
restructuring in Brazil, such as the possibility of competition among large hydroelectric generators sited on a common hydrological basin, have kept the number of ideologically influential actors small.

The only other major participant in the restructuring debate has been a foreign consulting firm, Coopers & Lybrand (now Pricewaterhousecoopers or PWC), which was commissioned by the Ministry of Energy and Mines to draw a restructuring blueprint for the ESI in 1995. But the role of Coopers & Lybrand is itself debatable, for it amended its original report recommending an English-style structure in order to please the anti-competition stance of Eletrobrás’ staff and management (Thomas and Tiomno, 1997). Whatever the reasons of Coopers & Lybrand for doing so, its willingness to accept Eletrobrás’ views diminished very substantially its ability to make an independent ideological contribution to restructuring in Brazil.

The ideology of the técnicos (technocrats) of Eletrobrás and BNDES was mentioned above. Eletrobrás is opposed to competition and privatization, while BNDES favors private property but is cooler to competition, since greater competition will make it more difficult for BNDES to get high prices for the assets put on the block. As an example of the tension between the two agencies, Eletrobrás is trying to keep transmission under its control, against wishes of BNDES (Dyer, 1997b; Friedland, 1997a). Also, in a privatization advertisement published in 1998, Eletrobrás’ Chief Operating Officer Mário Santos was quoted as stating: “The strategy for expanding production must be kept under government control from the outset” (Government of Brazil, 1998a). The result of having left the major restructuring initiatives to Eletrobrás and BNDES is thus determined by the juxtaposition of the ideological interests of the two entities: in the area of privatization, where ideologies conflict, overall objectives have been muddied, while competition has been significantly restricted because the ideologies of the two entities in this regard are quite similar.

**Bolivia**

Bolivia’s restructuring blueprint—and particularly the capitalization program—emerged as a compromise between a strongly nationalistic and collectivist ideology, still present in sections of the MNR and the main labor unions, and the market-oriented ideas of foreign-trained officials with international backing as well as Bolivian business associations. Although by 1989 a consensus had emerged among the major parties favoring orthodox ideas, preferences for public monopoly or concentrations of private ownership in import-substituting sectors were still common in the government party and especially in the union movement. As the urgency of new reforms diminished, the value of compromise increased, given the high political costs of direct confrontation in a fragile democracy. ESI restructuring is thus the product of compromise, introducing competition but leaving a element of public ownership through the capitalization program. And even in the case of competition, some restrictions were introduced to appease ideological opponents: the utilities

---

24 In 1991, the British government privatized the ESI in England and Wales and created a competitive electricity pool with mandatory participation for all generators and distribution utilities, as well as voluntary participation by large consumers.
were given a three-year initial monopoly in order to boost privatization revenues and preempt accusations of “selling cheap” (Hendrix, 1995).

The existing evidence points to Sánchez de Lozada as the undisputed originator of the idea of capitalization, rooted (according to his own statements in published interviews) on the traditions of kinship-based exchange of Bolivian society and dissatisfaction with the various methods of privatization in use around the world, especially in former socialist economies (Yergin and Stanislaw, 1998; Government of Bolivia, n.d.; The Economist, 1997). The social democratic credo of Sánchez de Lozada would make him comfortable with the compromise of capitalization; at the same time, Sánchez de Lozada’s international background, and extensive international connections with foreign and multilateral institutions gained as finance minister, make it possible for him to accept foreign investment as part of the capitalization program, and to promote competition in the ESI following the models of Argentina and Chile, which had already been implemented at the time of restructuring in 1995.25

The effects of ideology on ESI restructuring are therefore strong: in all cases, there exists a documented connection between the ideology of the main actors involved in the restructuring process, and the outcomes of the process.

6.3 Effects of distributional conflict

In countries with higher levels of distributional conflict, a higher level of public ownership and monopoly organization should be present at the end of the ESI restructuring process. Distributional conflict induces policymakers to preserve higher levels of public ownership and higher levels of monopoly, since they facilitate the extraction of rents to appease the parties involved in the conflicts.

Chile

Since political repression under the Pinochet regime kept levels of distributional conflict low relative to its previous history and to the other cases in the study, the allocation of subsidized utility shares to employees and other domestic interests during the ESI privatization process of 1985-89 would seem to contradict the hypothesis regarding distributional conflict and ownership. To some extent, this is the case: the onset of debt crisis in 1982 forced a sharp contraction in public spending and led to a rise in political and labor contestation, thereby inducing the government to increase redistribution in order to ensure that its reforms would not be reversed after the end of the regime (P. Silva, 1993; E. Silva, 1996: 183). Chilean utility privatizations did have the distributional objective of making the new ownership

25 Unfortunately, there is no direct evidence about the decision-making process that led to the competitive choice for the Bolivian ESI. Note, however, that creating several competitive generation and distribution entities weakens the position of their respective foreign investors relative to the government and is therefore consistent with the wish to placate nationalists.
structure politically irreversible, by widely distributing the property and by buying employees off\textsuperscript{26} (Maloney, 1994).

But distributional objectives were not the only objective, or even the main one, of the Pinochet regime in the mid-1980s (many other unpopular measures, particularly of macroeconomic stabilization, were also implemented). The relatively broad allocation of shares was also carried out to avoid the concentrations that led to widespread business failures in 1982 (when dollar interest rates shot up and Chile devaluated its currency) and the subsequent assumption by the government of one of the heaviest foreign debt burdens in Latin America (Hachette, Lüders and Tagle, 1993; Maloney, 1994). Allowing workers and other Chilean citizens to acquire shares responded as well to the nationalist ideology discussed in the preceding subsection. Since at the time of the privatizations Chilean stock markets were small (pension fund reform was still recent) and had been adversely affected by the debt crisis (which wiped out important financial intermediaries and dried foreign portfolio investment up), the most practical way of keeping ownership in domestic hands while avoiding undue concentrations of ownership was through the special allocation programs used by the government, rather than through direct offerings in the stock market.

The design of the share allocation policy casts further doubt about the importance of distributional objectives for the government. The policy’s effects on the distribution of income were actually rather limited. Preferential sales to employees favored mainly white-collar and management employees because the fragmentation of ownership into many shareholders with small holdings allowed the existing management teams to consolidate their control over the privatized firms in at least one major case\textsuperscript{27} (Bitrán and Serra, 1996). The “popular capitalism” program of subsidized sale of shares to the population had even more modest effects on the share of the adult population owning stock. Only the most indirect means of ESI share distribution, the sale of shares to the privatized pension funds, did probably have a significant income redistribution effect. But even in this case, it is worth noting that in the Chilean case, pension scheme participants comprise only persons with legal employment contracts and thus many individuals who are not particularly poor—in a typical Latin American economy the poorer segment of the working population is comprised of persons working in the informal sector without legally mandated benefits\textsuperscript{28} (Maloney, 1994).

Furthermore, ameliorating the negative distributional effects of privatization could not have been a major governmental objective, because prior fiscal restraint had forced public enterprises to adjust their prices and costs to become self-sustaining, so when they were privatized after 1982 the impact on consumers and employees was very limited. A study of the welfare effect of the privatization of Chilgener found modest gains for the domestic population in its “most likely” case. Only for Chilectra (the distribution company for the city of Santiago), did the same study find that privatization was distributionally regressive, since

\textsuperscript{26} By contrast, there were no egalitarian intentions \textit{per se}: “In Chile, however, there is simply no mention in any discussions of the [share distribution] program as a means of distributing wealth within society.” (Maloney, 1994: 140). Also, survey data show little fear of employers about labor militancy (Payne, 1995).

\textsuperscript{27} In fact, there is a possibility that the allocation of shares was distributionally motivated, but as a case of “cronyism” rather than as an attempt to buy potential opposition off. This possibility is discussed below.

\textsuperscript{28} By contrast, the Bolivian “bonosol” program (discussed below) provides defined benefits to all persons 65 years old and older, which makes it more obviously redistributive.
in this case the substantial reduction in theft of electricity that occurred after privatization hurt the poor (Galal et al., 1994: 219, 240, 242, 248, 289).

Finally, it is possible that ESI restructuring in Chile might have had elements of “cronyism” because the privatization of Chilcetra Metropolitana gave its control to regime “insiders,” who were then allowed to take over ENDESA in 1989, turning these entities into a vertically-integrated conglomerate that dominates Chile’s central electric system (Bitrán and Sáez, 1994; Friedland, 1996b; Moguillansky, 1997). Yet such a corruption story does not fit with the agile performance of Enersis-ENDESA after privatization, when energy losses in the distribution networks were cut from 23% to 9% and the conglomerate became a major regional force (Bitrán and Serra, 1995), which points to the competence of the management team.29 The corruption story does not match the chronology either, since ENDESA began to be privatized as a vertically integrated (G and T) utility with a dominant position in the generation market two years before the Enersis takeover.

Argentina

ESI restructuring in Argentina faced actual or potential opposition by strong unions, by provincial authorities, and by utility customers and suppliers. The potential for these forces to derail the restructuring effort was serious enough to influence the manner in which privatization took place.

Utility employees faced substantial losses under restructuring. Under public ownership, the utilities had offered very favorable employment conditions (Murillo, 1997), and not surprisingly utility employees had opposed privatization when the subject was brought up under the Alfonsín administration (González Fraga, 1991). In fact, privatization was marred by union opposition in several provinces well after the election of Menem and the passage of ESI restructuring legislation. In Río Negro, the privatization of the provincial distribution utility, Energía de Río Negro SA (ERSA), was contested by the local union for fear of job losses, despite the reservation of 10% of shares for the employees (GPR 96/08/23). Union opposition is also documented in Misiones, Córdoba, Mendoza and Santa Fe (GPR 97/04/18), and in Eseba’s case in Buenos Aires province (GPR 97/05/02). Workers’ concern was justified: just in SEGBA30 (the metropolitan Buenos Aires utility), almost 5,000 jobs (out of the starting workforce of 17,000) were shed in the first year after privatization.

To defuse the threat of industrial conflict, which could have adversely affected the success of the privatization auctions, the government used a “carrot and stick” strategy. For the privatization of SEGBA (the first one to take place), it reached an agreement with the company union on 29 September 1989, including a provision to set 10% of the shares for the

---

29 Further evidence of the standing of Yuraszek and his associates was revealed by the fact part of the strategic value attached by ENDESA Spain to the partial takeover of Enersis-ENDESA (see previous footnote) lay in keeping him and his team in charge of the conglomerate. Such value could not be derived from political connections, since Chile was under the democratic rule of a center-left government, and since ENDESA Spain’s strategy concerned not just Chile but Latin America as a whole (GPR, various issues).

30 Servicios Eléctricos del Gran Buenos Aires.
employees\textsuperscript{31} (González Fraga, 1991). The unions, and particularly the major sectoral union FATLyF,\textsuperscript{32} were subsequently able to negotiate other favorable deals as other utilities were privatized. For instance, FATLyF was able to acquire between 20\% and 40\% of the shares of fourteen generating plants throughout Argentina and participation in partnerships that own another three generators and a provincial distribution utility (Murillo, 1997). For the recalcitrant unions, the “stick” was the enforcement of decrees passed by the Menem administration that restricted strikes and wage increases (Murillo, 1997; McGuire, 1997: 224-240; Acuña, 1994).

A major problem of the Argentine ESI prior to restructuring was the arrears or even nonpayment of wholesale power purchases by the provincial distribution utilities, which contributed significantly to the cash flow problems of the federally-owned generators and through them, to poor maintenance, equipment degradation, and ultimately a burden on the national treasury. In effect, the distribution utilities enjoyed a “soft budget constraint” because the federal government was unwilling to cut off supply to recalcitrant provincial utilities. But to make restructuring successful, the federal government needed the cooperation of the provinces to impose hard budget constraints on the purchases of electricity of the provincial utilities (thereby avoiding the disruptive potential of higher credit risk and bankruptcies on the wholesale electricity market) and ultimately to privatize the distribution segment in full, as well as privatizing most of the hydroelectric units, which perform important flood control, irrigation and potable water supply functions in the provinces where they are located. In order to compensate the provinces for the need to pay for power purchases, the government created a number of tax and subsidy schemes meant to counteract the most adverse effects of competition for the provinces while preserving the viability of a nationwide wholesale power market.

Another set of interests adversely affected by ESI restructuring were the private subcontractors and suppliers of the public sector utilities, who due to lax audits of the utilities’ books, poor managerial practices, and sheer corruption, were able to overcharge the SOEs. Logically enough, they opposed restructuring and lobbied the legislature to derail restructuring. In contrast with Chile (which was at the time of ESI privatization the only case of deregulation in Latin America and one of the few cases in the world), large users were allowed to participate in the wholesale electricity market, and competition was vigorously pursued through fragmentation of control over the privatized generation assets and other means. Also, the government’s macroeconomic goal of price stability worked in favor of the interests of utility ratepayers, since the government preferred not to increase rates to get higher bids.

Brazil

The effects of distributional conflict in Brazil have been most clearly reflected in the severe restrictions to competition in the wholesale power market, rather than on ownership

\textsuperscript{31} Other measures, of a more general nature that did not affect ownership or competition, included severance payments and voluntary retirement programs funded by the government and the World Bank (Harteneck and McMahon, 1996).

\textsuperscript{32} Federación Argentina de Trabajadores de Luz y Fuerza.
outcomes. The highly territorial orientation of Brazilian politics, together with a pre-existing ownership structure of the distribution utilities organized on a state-by-state basis, came together to force the government to maximize the rents obtained from privatization by restricting competition and granting generous concession contracts. The economic and lobbying weight of business conglomerates has also pushed the government in a similar direction, inducing it to sell to the conglomerates the attractive shares of utilities operating in conditions of minimal competition.

In the ESI, union opposition has been minimal, despite the substantial layoffs that have followed the process. Union mobilization did not increase after the massive layoffs of utility employees that followed the first privatizations, such as Light’s. In the first 18 months after privatization, Light’s workforce was reduced by 40%, a loss of 4,500 jobs (Dyer, 1998), but union opposition never materialized—in fact, Light management’s fears of personal harm from disgruntled ex-workers turned out to be unfounded (Moffett, 1998). The result of low labor opposition to restructuring has been that a reduction in the scale of the ESOPs in at least one major privatization. The employees of Rio Light, one of the first and major privatizations of distribution companies in the country, were only able to obtain 4% of shares at a subsidy, instead of the 10% that had originally been promised by the government (Kirkman, 1997).

The many political benefits of control over electric utilities at the state level have forced the Cardoso administration to negotiate with reluctant legislators in order to pass ESI restructuring laws in a highly territorialized legislature, and with the state governors to privatize the distribution utilities, which are mainly organized on a statewide basis. The need to provide favors in exchange for supporting votes has increased pressure on federal and state governments to provide generous concession contracts to the potential buyers, since favorable terms translate into higher sale prices which can then be used to alleviate the fiscal impact of buying off opponents of privatization.

The government was able to gather business support for restructuring by dangling the possibility of acquiring ownership stakes in the privatized utilities. Although the conditions of purchase were the same of foreign investors, as suppliers to the public sector and thus government creditors, the domestic business conglomerates would have had large amounts of government paper that they could redeem at face value to acquire ESI assets. Since government paper sold in financial markets at a substantial discount, the cost of acquisition was discounted as well. Diversified groups like Votorantim (with a basis in the production of concrete) or Camargo Correa (construction) are as a result becoming significant ESI shareholders.

Bolivia

As explained in section 5, Bolivian politics are also driven to a large extent by patronage. The design of the capitalization pension payoff, the bonosol, seems undoubtedly linked to the intention of dispelling public opposition to the restructuring of the ESI and other capitalized sectors. The first distribution of dividends was made two months before the 1997 presidential election (The Economist, 1997), although it failed to win Sánchez de Lozada a
second presidential term. Large customers or suppliers, on the other hand, do not appear to have influenced restructuring outcomes in a particularistic sense as they did in Brazil or Argentina, probably because Bolivia’s industrial interests are far more limited due to the country’s lower level of industrial development.

Given the recent history of militant labor opposition closely experienced by Sánchez de Lozada as finance minister of Paz Estenssoro, he wished to avoid “the way of doing politics in the dictatorship years, based on confrontations and unnegotiable positions” (Morales 1996: 32). To mollify union opposition, the government reserved a package of shares in each capitalization for its sale at book value to company employees for a year prior to the capitalization auction and in a second stage after the auction, still at the original price.

To conclude this subsection, distributional conflict has also played a large role in shaping the choices made by policymakers during the restructuring of the ESI in the four cases, either by limiting such choices or by imposing the need for compensatory payments that have in turn affected the shape of the restructuring programs.

7. Conclusions.

The four cases examined above provide substantial evidence about the impact of the hypothesized explanatory variables on the institutional transformation of the ESI. Empirical confirmation is more extensive for ownership outcomes than for competition outcomes. Of the three hypothesized causal variables, ideology has the greatest explanatory power. In particular, ideological considerations appear to play a leading role in determining competition outcomes. The poor explanatory power of the other two causal variables for competition outcomes may be the result of a lower public policy salience of competition decisions, which would give policymakers greater freedom to follow their own policy preferences. While ownership involves politically charged issues like foreign control and capital flows, competition is a technically more complex problem, particularly in the ESI where technological constraints are very significant. This is exacerbated in developing countries by many decades of import substitution, which accustomed consumers to highly concentrated domestic markets.

Distributional conflict also plays an important role in shaping institutional change, most often in the form of side payments to influential groups that alter the post-restructuring ownership structures. This may contrast with political economy models of interest group competition, in which greater competition leads to the mutual cancellation of the influence of opposing interest groups just like greater competition among firms erodes economic rents. The reality of politics is that greater competition can lead to paralysis and even chaos, as opposing groups resort to strikes, lock-outs, and other forms of protest and mutual punishment. Under these conditions, politicians may prefer to buy off any interest groups that have the potential to disrupt policy making and implementation.

Judicial independence has the weakest effect on either ownership or competition. This may be due to the transformational nature of the institutional changes that have been examined above. The reform of the ESI and similar infrastructural sectors entails the creation of
entities and forms of public sector behavior *ex novo*, that is without precedent in the country’s political and legal history. Policymakers may therefore disregard institutional precedents, such as the country’s prior record of judicial subservience, as providing a poor guide for shaping the new institutions, or even as providing an example of what *not* to do.

The perspective followed above is limited in important ways, however. First, the analysis is limited to how are new institutions created, not to the actual impact of these institutions on economic performance, which has already received enormous attention in debates over privatization. Second, the forces identified and evaluated here may be of greater applicability in developing countries than in developed ones, where judicial independence is generally high, ideological consensus more prevalent, and the distribution of resources more egalitarian. Lastly, the analysis presented has a limited temporal scope. Institutional change is obviously not a one-way process, since institutions influence the distribution of resources, the ideological map of policymakers, and the independence of the judicial system. But analytical tractability requires the imposition of limits on the scope of research questions, while the low frequency and recent chronology of major institutional transformations in the ESI justifies treating ESI institutions as dependent variables.
Bibliography


C.M. Bastos and M.A. Abdala, Transformación del sector eléctrico argentino (Antártica, 1993).


Coopers & Lybrand, Brazil Electricity Sector Restructuring Study, Draft Report IV-1, n.d.


The Economist, “Privatisation, it’s fairly wonderful,” January 5, 1994: 42.


Global Power Report [GPR, formerly Independent Power Report], various issues.


Government of Bolivia, Capitalization Program Brochure, n.d.


Republic of Bolivia, Law No. 1600 of 28 October 1994, of Sectoral Regulation.


Republic of Bolivia, Decree No. 24,043 of 28 June 1995, with implementing regulations for Electricity Act’s rate provisions.

Republic of Brazil, Law No. 8,897 of 13 February 1995, of Concessions and Permits for the Provision of Public Services.

Republic of Brazil, Law No. 9,074 of 7 July 1995, of Concession Awards.

Republic of Brazil, Law No. 9,427 of 26 December 1996, Instituting the Nacional Electric Energy Agency [ANEEL].
Republic of Brazil, Decree No. 2,335 of 6 October 1997, with implementing regulations for the creation of ANEEL.


