Regulation and Contractual Adaptation in Public Utilities: The Case of Argentina

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Abstract

We evaluate a set of contractual adjustments, renegotiations and disputes that have recently taken place in different public utility industries in Argentina, considering:

- whether the decisions analyzed are inside the initial contract or represent a modification of it;
- whether they were motivated by unexpected shocks, by "loopholes" in the initial contracts, or just responded to a contractual failure (holdup by one of the parties);
- the actors involved in the disputes and "production" of these innovations; and
- how these disputes were resolved.

The evaluation distinguishes three dimensions: i) the degree of respect to the letter and spirit of the existing contract; ii) the effect on static and dynamic efficiency (in terms of welfare); and, iii) the transfers between users and regulated firms, on the one hand, and among different types of users, on the other.

The lessons from the twelve cases observed are the following:

- a deficient design of contracts sets up the way to very likely renegotiations, putting more pressure on the regulatory task;
- similar effects emerge from poorly designed (automatic) cross-subsidies or insufficient competition in the award process;
- highly visible sectors (in which consumers feel the impact of the regulatory measure immediately) present an environment in which regulatory adjustment of the contract is more equilibrated; and
- considering federal regulation, the solutions to these conflicts appear to be biased towards the objectives of the regulated firms (except mainly for the more autonomous regulatory agencies in the energy sectors), whereas the two cases with provincial regulation show an opposite bias.

Public Utilities Regulation in Argentina

Since 1990 Argentina has experienced an unprecedented process of transfer of services and publicly owned firms to the private sector, both by selling assets and by contractual agreements (concessions) with or without exclusivity. In general, but not always, the sectors involved have been characterized to some degree by economies of scale and scope, which, in turn, required the direct regulation of the private firms. According to the weak reputation and institutional background of public policy in Argentina, contracts intended to be very specific about the way in which tariffs, quality, investment, exclusivity, etc., would have to evolve over time. Yet, some discretion was left to the newly created regulatory bodies to adjust those contracts according to unforeseen developments. Nevertheless, the economic context in which the initial privatizations were carried out did not allow the time to refine terms and many loopholes remained. Naturally, those unforeseen events have come to pass, and regulatory agencies have had to use their discretionary powers. In some cases, the alleged modifications in the environment have given place to renegotiations regarding the method of adjustment of tariffs, the extent of exclusivity, and the character of investment and expansion, beyond the authority of the regulatory agencies, causing the intervention of public officials.

In this paper we evaluate a set of contractual adjustments, renegotiations and disputes that have taken place in Argentina since 1991. Our approach covers different aspects. First, we consider whether the decisions analyzed are inside the initial contract or represent a modification of it (i.e., are outside the initial contract). Second, we discuss whether they were motivated by unexpected shocks (which were very difficult or even impossible to foresee), by loopholes in the initial contracts (ambiguities) which shouldn't have existed, or just responded to a contractual failure (holdup by one of the parties) to respect the initial contract. Third, we describe briefly the actors involved in the disputes and "production" of these innovations, i.e., the regulatory agencies, the ministries involved, the legislators, the industry associations and regulated firms, the consumer representatives and advocates, etc. Fourth, we describe how these disputes were resolved. Fifth, we evaluate the solutions in three dimensions: i) the degree of respect to the letter and spirit of the existing contract; ii) their effect on static and dynamic efficiency (in terms of welfare); and iii) the transfers between users and regulated firms, on the one hand, and among different types of users, on the other hand.

Table 1 shows a summary of the twelve cases included in the paper. While not all the cases constitute renegotiations of the original contracts (i.e., some represent contractual interpretations by the regulatory bodies), the common feature of all of them is that the decisions analyzed could have been different and therefore some discretion was used, calling for an evaluation and explanation regarding their characteristics. Also, since they differ in terms of the sectors and technical characteristics involved, the impact and visibility in the press, the direction of the final decisions, the reactions by the owners of the regulated firms, the jurisdictional level of the authorities involved, etc., some lessons can be expected from their comparison.

Table 1: The Twelve Cases Studied

	Tariff Structure and Adjustment	*Required Investment and Expansion*	*Competition and Exclusivity*	*Global Renegotiation*
Energy: Natural Gas	1. Retained gas 2. Pass-through of gas costs 3. Use of TFP in the setting of X in '97		3. Pass-through of gas purchased from different basins	
Energy: Electricity		5. Expansion in transmission		
Water and Sewerage	6. Buenos Aires: Acceleration of expansion in '94 7. Determination of infrastructure charges	6. Buenos Aires: Acceleration of expansion in '94 8. Corrientes: Exit (sale to local investors) in '95		9. Renegotiation and cancellation of contract in Tucumán, '97
Telecom	10. Tariff rebalancing in '97		10. Tariff rebalancing in '97	
Railways				11. Renegotiation of freight concessions in '97
Maritime Ports			12. Renegotiation in the Port of Buenos Aires due to strong competition	

The Natural Gas Sector

Following the privatization of *Gas del Estado S.A.* in 1993, natural gas in Argentina is provided through eight private distribution companies,[1] all of which are supplied from the three main production areas in the country (Norte, Neuquina and Austral) by two different pipelines (North and South). The economic actors in those segments are different, i.e., the industry was vertically separated to favor the development of competition wherever it was technologically and economically feasible. In particular, large industrial users may buy gas directly (through brokers) from producers, bypassing the DCs, either commercially or physically.

Despite this regional separation at the distribution level, regulation of transportation and distribution is centralized at the federal level, and it is carried out by the *Ente Nacional Regulador del Gas* (ENARGAS), an autarkic entity created at the time of privatization. ENARGAS' decisions are constrained and guided by the regulatory framework and operation licenses. Upstream, i.e., at the production fields, prices are set competitively by various producers, although the most important one—YPF—has more than 50 percent of the market, raising some concerns about the degree of actual competition taking place.[2] In accordance with Law 24.076 and Presidential Decree 1732/92, ENAR-GAS is responsible for approving tariffs (i.e., margins) for transportation, tariffs for final users, and the pass-through of gas costs. It also verifies safety and quality requirements, environmental conditions, etc. Upstream activities are regulated by other federal and provincial agencies. The Executive grants transportation and distribution licenses for 35 years, renewable for 10 additional years, at the end of which a new auction will have to be carried out to determine which private entities will continue to provide transportation and distribution services.

CASE 1: RETAINED GAS

Retained gas is the percentage of transported fluid used as an input to transport the gas from the fields to the city limits.[3] Since 1994, the market price of natural gas in the fields in Argentina increased faster than the index of international prices used as a reference to adjust the price cap for DCs.[4] As a result, the DCs have asked ENARGAS for an increase in tariffs to final users in order to compensate them for the higher-than-expected cost of the retained gas. The percentage of retained gas in total gas transported has admittedly remained constant, and thus the claim is only due to the change in relative prices. It could also be argued that given initial conditions in the production fields at the time *Gas del Estado* was privatized, when prices were set

[1] DCs, which soon will expand to nine, as provision of natural gas will be available also in the Mesopotamia region.

[2] Two of the cases of regulatory conflict analyzed in this paper relate to this issue. The first was the rejection by ENARGAS of the request made by the DCs in January 1995 to pass the increase in the wellhead cost of gas to consumers. The second was a dispute, also in 1995, over the proportion of gas bought from different basins, implying different cost of gas to be passed through, as the DCs reported that the cheaper gas was being sold to unregulated activities. Thus, the first conflict deals with an issue of tariff structure and adjustment, while the second has an element of competition and the interaction between regulated and unregulated segments. See cases 2 and 3.

[3] That is, transportation companies rent their pipelines to DCs. Only 97.5 percent of the natural gas purchased from producers is actually sold to final users, the difference being computed as a cost of transportation. The DCs pay for this cost. Therefore, the transportation companies are not affected by the percentage of "retained gas" or by its price.

[4] DCs buy most of their gas on a long-term basis and therefore the significance of the spot market is only relative. Nevertheless, we refer to the market price of gas in order to simplify the exposition of the problem.

by public authorities and were judged to be too low, the faster increase in the price of gas had to be anticipated at the time of the privatization. The case has been managed so far within the scope of bilateral relations between the DCs and the regulator, without the involvement of "external parties to the sector" (such as the ombudsman, political representatives, consumer groups, etc.), mainly because of ENARGAS' rejection of the DCs' petition.

The conflict in this case arises from a difference between the DCs and the regulator regarding an issue which is not explicit in the regulatory framework, i.e., the decision analyzed was part of the initial contract but there was a dispute about its interpretation. In effect, the contract has no mention of the index to be used in order to adjust the cost of retained gas, even though the transportation licenses establish explicitly that the tariff for transportation will be adjusted according to changes in the U.S. Producer Price Index (PPI). The DCs demanded that the price of retained gas be adjusted by the actual price paid for this input, and ENARGAS authorized only an increase equivalent to observed changes in the PPI (which were smaller).

Whether retained gas is a transportation input and should be adjusted by the PPI, or a commercialized gas which should be adjusted according to changes in its own prices, is a debatable issue. The regulatory framework supports both alternatives. The DCs highlight the second paragraph of article 41 of Law 24.076 which says that "transportation and distribution companies will be allowed to reduce totally or partially the profitability contemplated in their maximum tariffs, but they have to recover their costs in any case." This, in turn, allows them to ask for tariff adjustments due to objective, justified, not repeating and not previously anticipated reasons (following article 46 of Law 24.076 and accompanying legislation).[5]

On the other hand, Law 24.076 (article 37) also specifies that tariffs for gas consumed by final users are the sum of the price of gas paid to producers, the transportation margin and the distribution margin, whereas the application of this legislation (by Decree 1738/92) defines the transportation margin as the remuneration of that service in its different alternatives and regardless who contracts it (i.e., it includes the DCs). In turn, the licenses for transportation indicate that these tariffs will be adjusted every six months according to observed changes in the PPI, and every five years according to efficiency and investment parameters. However, in no case is it established that the price of gas is an element of judgment to be considered in such an adjustment. In other words, the cost of transportation is defined as independent of the price of natural gas in the fields. Finally, the distribution licenses establish that adjustments for the variation in the price of gas purchased have to be computed in relation to the number of cubic meters consumed (point 9.2.2.2). Accordingly, changes in the cost of the gas purchased by the DCs are passed through to the final tariffs only on the basis of the final consumption of it. This leads to the conclusion that the difference between the volumes of gas purchased and sold is implicitly defined as a transportation input[6] whose periodic adjustment responds to changes in the PPI and not to changes in the price of gas in the fields, thus supporting the position adopted by the ENARGAS.

Thus, in principle, there are conflicting arguments which demand an analysis. However, the position defended by the DCs has an important weakness: if an index other than PPI is used for a transportation input, then it would be possible to question whether other inputs (different from gas) should be effectively adjusted by the PPI. For example, it would be admissible to adjust the cost of some materials of construction by the price of steel, the cost of labor by a wage index, etc. This would be a violation of the price-cap rules. Since the contract opted for the adjustment of tariffs according to the

[5] It could be argued that, since the problem could emerge in following periods, it would be repetitive and therefore the DCs would not have the right to petition for an adjustment in tariffs. However, it should be understood that once this decision is made, there would be no further need to modify the (conceptual) regulation in the future, and then it should be considered as non-repetitive.

[6] Even though the transportation companies do not intervene by purchasing gas from producers to use it in the transportation process as retained gas.

PPI (avoiding information and incentive problems of cost of service regulation), without distinguishing among the different inputs to the process, it is not appropriate to differentiate among them when this proves to be convenient for one of the parties. Furthermore, regarding the second paragraph of article 41 of Law 24.076 previously mentioned, it has not been established that tariffs have to allow for item by item cost coverage. Therefore it can be interpreted as a requirement over global costs. Thus, economic arguments support ENARGAS' rejection of the DC's petition.

Summing up, from the regulatory point of view it is admissible for the distribution companies to petition for an adjustment in the regulatory practice, but the economic arguments do not support their position. In that sense the decision adopted by ENARGAS (namely, to refuse the change in the formulas for adjustment of the final tariffs by indexing retained gas to the price of gas in the fields) was correct, both because it respected the existing contract, while avoiding undue transfers from users to regulated firms or among different users, and because it respected the price-cap spirit of the contract, at the same time that it reduced the scope for future demands of contract renegotiations when market conditions are unfavorable to the regulated firms.

This decision can be explained by three factors. First, the relative (economic) magnitude of the conflict since the adjustment clause refers to an input that represents approximately 2.5 percent of total gas costs, which prevented strong participation of interest groups. Second, the opposite decision would have meant a change in existing practices which was not supported by economic considerations. Third, the characteristics of the industry and the design of the regulatory agency, as described in Urbiztondo, Artana and Navajas (1997), do not introduce incentives for ENARGAS to bias its objectives toward those of the regulated firms.

CASE 2: PASS-THROUGH OF GAS COSTS

After the price at the wellhead was deregulated in January 1994, there was a slow but perceptive upward adjustment in prices, as YPF started to raise its quoted price at the Neuquina basin. The DCs reacted as if the pass-through mechanism were in place and, as contracts were renewed, they considered the new prices at the wellhead in their request for adjustment in the tariffs to final users.

The conflict took some time to arise due to the timing of natural gas price adjustments. The regulatory framework in Argentina has a seasonal adjustment scheme of prices according to the winter/summer pattern of consumption. These changes in prices are first proposed by the DCs, and then go through a public hearing mechanism in which different agents (consumer associations representing industrial and residential customers, the ombudsman, etc.) express their views and ENARGAS makes a final decision.

The DCs waited until evidence of new, more expensive contracts was enough, presumably expecting some opposition from ENARGAS. In September 1994 (summer) revision, the DCs asked for increases in the end-user price of gas at a time of the year when it was expected to be reduced because of seasonal factors. ENARGAS rejected the request arguing that prices could not rise during the summer. Later, in the May 1995 (winter) revision, ENARGAS started to accept, albeit partially, the request for increases. But in September 1995, again in a summer revision, ENARGAS rejected further increases arguing that similar increases had been rejected during a previous summer hearing. In this case, the audience at the hearing was more hostile toward the adjustment and ENARGAS (in its revision of the hearing) mentioned the problem, suggested by many participants, of the excessive concentration and market power exercised in the upstream segment of the industry. YPF, a participant in the hearings, simply denied those allegations. Finally, in the winter 1996 revision, ENARGAS again allowed the increases asked for by the companies. The DCs claimed compensation for the late recognition of pass-through costs, but this was

denied.

The decision of ENARGAS to interfere with or delay the adjustment of costs that were outside the control of the DCs had a different impact on each (of the eight) distribution companies. In a previous paper, we estimated that between 1993 and 1995 the allocation of gross margins in the industry (among producers, transport companies and DCs) was changing against the DCs, presumably due to the incomplete pass-through episode of 1995 and other reasons.[7] However, some firms like Metrogas (serving the main metropolitan area of Buenos Aires) were observing a heavy fall in gross margins, while for others the losses were very small. This difference had to do with previous decisions by companies to enter into pay or take contracts in order to secure supplies. Thus, it is not surprising that the conflict between ENARGAS and the DCs was not generalized, some of the firms tended to accept (under protest) the regulator's decision, while others (like Metrogas) presented a strong legal case against it.

On the other hand, the transportation companies were relatively immune to this regulatory dispute as they simply transport more gas at a regulated rate and pass-through issues are not relevant (except regarding the elasticity of demand in the end-users market, as higher final tariffs mean less consumption and transportation). In fact, as the demand for natural gas was growing along with the fast economic performance of the country, the financial performance of the transportation companies improved.

Analysis of the Case

Starting from the analysis of the regulatory framework in Argentina it becomes clear that the referred dispute is not one due to a problem of vagueness of procedures as the Law as well as complementary Decrees are quite unambiguous on the issue of pass-through.

Article 38 of law 24.076 states in its clause a) that the tariff must provide transport and distribution companies sufficient revenues to cover all reasonable operating costs, as well as taxes, depreciation, and a reasonable profitability (even though this is not guaranteed). In its clause c) it states that ENARGAS can limit the pass-through of the costs of acquisition of natural gas if the prices obtained by one company exceed those negotiated by other companies in similar conditions according to ENARGAS' judgment. Further, in the clause d) it states that tariffs will provide the minimum cost for consumers compatible with security of supply.

Article 37, clause 5 of Decree 1738/92 (establishing the operative rules of the law) states that variations in the price of gas will be passed to the customer's tariff in such a way that they do not result in losses or gains to the distribution or transport companies. Finally, clause 7 states that ENARGAS can not suspend, limit or reject tariff adjustments except when there are errors in estimates of increases, errors in the procedures applied or in the case contemplated in Art. 38 (noted above) of the law. However, according to this article ENARGAS will not follow an automatic procedure of minimum cost when it applies clause c) of Art. 38 of the law, but it rather will look at all the circumstances of the case, including observed market prices for similar volumes and conditions.

Summing up, limitations to pass-through costs are restricted to a single case: when the DC is paying more than what is being obtained by another company under similar buying conditions. No clause, section or part of the legislation mentions summer or winter periods or that the concentration of supplies at the basins could be used to reject increases in the cost of gas.

The regulatory framework allows ENARGAS to reject pass-through of gas costs only if it can prove

[7] See Artana, Navajas and Urbiztondo (1997). Between 1993 and 1995 the unitary gross margins (estimated as sales net of gas and transport costs, per cubic meter) of the DCs (taken as a group) reduced by almost 12 percent. In total gross value, the DCs revenues were reduced by almost 43 million dollars, representing 5.5 percent of the 1993 gross total margin of the DCs. But not all the DCs experienced a reduction between 1993 and 1995. The bulk of this reduction was concentrated in Metrogas, whose unitary gross margins dropped by 27 percent.

that the gas is being bought at prices higher than other offers. The legislation makes clear that the burden of the proof lies with ENARGAS. On the contrary, in the resolutions taken by the ENARGAS to restrict the increases, there is no reference to any price differential.

It is clear that in this case ENARGAS interpreted the regulatory framework so as to signal a policy of no automatic pass-through. This is consistent with other regulatory experiences and with the economic incentive problems associated with automatic passthrough.[8] But it is also clear that in so doing it was moving beyond the written legislation, which in Argentina—with high costs in the use of judicial procedures—plays an important role of limiting regulators from behaving in an opportunistic way. Regulatory agencies in the United States and Canada allow automatic pass-through of gas costs but in many cases require a previous hearing. According to information provided by NARUC (1995), there are automatic pass-through mechanisms in 49 out of 51 districts, even though 16 districts require evidence to be presented before a public hearing.

The difference between the US (and also the UK) and Argentine cases lies in the existence and development of a wholesale market that can provide information on spot prices. Thus, proposals to abandon auditing of contracts and instead relying on spot market information (e.g. Sutherland (1993)) are still difficult to implement in Argentina.

In fact, this is one reason to explain why the executive power in Argentina issued a presidential decree (1020/95) to promote the creation of a spot wholesale market. The decree provided DCs with an optional mechanism whereby they can accede to an automatic pass-through of gas costs regarding a "reference" price quoted in the *Mercado de Corto Plazo de Gas Natural* (MCPGN). This reference price is set for each basin by ENARGAS according to observed transactions and is different from the so-called average basin price (which is a weighted average of existing, old and new contracts). The proposed scheme operates in the following way: if the firms buy gas above the basin average price only 50 percent of the difference is recognized in their tariff, while if firms buy below the reference price they can hold 50 percent of the difference. Prices (both reference and average basin) to be incorporated in the automatic pass-through are made public in between seasonal adjustment hearings. As can be seen, the decree attempted to incorporate the pass-through mechanism into the seasonal adjustment hearing so as to avoid increasing the number of hearings beyond the two normally contemplated in the regulatory process.

In October 1995 ENARGAS passed resolution NE207 and started implementing the mechanism and setting the reference and average basin prices that could be used between October 1995 and May 1996. For instance, reference prices at the Neuquina basin were set around 2 percent below average basin prices in order to give the DCs incentives to seek price reductions. However, the decree 1020/95 mechanism was not chosen by the firms and, as a result, was seen as a failed attempt to create a wholesale spot market. In the meantime the presence of YPF as a price setter remained unquestioned.

Two other actors were involved in this dispute, consumer groups pressing for no tariff increases and upstream firms like YPF whose decisions to adjust

[8] Arguments in favor of allowing an automatic 100 percent pass-through are examined, for example, in Armstrong et al. (1994) and are based on the desirability of avoiding excessive exposure of firms to fluctuations in the cost of gas. This argument can be reversed if one considers that consumers, particularly residential ones, are more risk averse than DCs. On the other hand, arguments against allowing automatic 100 percent pass-through rest on weak incentives to minimize costs or search for lower prices, or to consider alternatives that smoothen the seasonal fluctuation of prices (known as peak-shaving) that involve investment expen-ditures (see Price, 1995). Finally, a different argument against an automatic 100 percent pass-through, explored in the next case, is based on the anti-competitive bias that the mechanism can have if used by the firm to price products outside the regulated segment. In particular, the higher cost of gas to supply the regulated market might allow a lower cost of gas to sell in the competitive market, cross-subsidizing entry-deterrence by the regulated firm. From a positive viewpoint concerning the actual behavior of regulators, there is the Joskow's asymmetric hypothesis whereby regulators are reluctant to authorize price increases and are less concerned with price reductions (see Joskow, 1974; and Hollas, 1994).

the wellhead price at the Neuquina basin was the starting point of the conflict.

The evidence shows for Argentina that natural gas prices for different customers are reasonable both in historical and international terms. Strong subsidies to residential customers were eliminated before privatization and, therefore, there was no issue of rate rebalancing (as in telecommunications). Consumer interest groups were relatively quiet given that the increase in tariffs since privatization was due to factors outside the regulated part of the industry (regulated margins in distribution had adjusted downwards), such as the VAT rate increase of 1995 and, to a lesser extent, to the cost of gas at the wellheads.

Additionally, as Table 2 indicates, international comparisons of tariffs look favorable. Both final prices and gross margins (for transport and distribution taken together) show reasonable values when compared to similar figures available for the US.[9] It is therefore not surprising that there has been no serious criticism of the level and structure of gas tariffs and that ENARGAS has managed to sustain the current situation by not allowing changes (even when they were due to a legitimate claim to apply pass-through clauses). However, Table 2 also shows that the tariff configuration in Argentina is based on a lower wellhead price. Perhaps this was the point observed by YPF to pressure for an increase. While in the hearings and resolutions ENARGAS has indirectly admitted the existence of a price setter upstream, it has decided not to accommodate increases at the cost of creating regulatory conflicts. Given that gas production was supposed to be a competitive activity and remains outside the regulatory framework, the real conflict or lack of coordination seems to be between downstream regulation and upstream gas-to-gas competition. The case shows that perhaps there is need for an interplay between regulatory and competition policy institutions (represented in Argentina by the *Comisión Nacional de Defensa de la Competencia*) that has not taken place yet.

CASE 3: DIFFERENT SOURCES OF GAS FOR DIFFERENT USERS

Each DC buys gas from different basins and uses the available transport capacity that can be contracted in advance in order to serve both regulated and unregulated markets. The DCs have to inform ENARGAS which gas (i.e. coming from which basin through which pipeline) they sell to which segment. A problem may arise regarding what value or cost of gas the regulator will accept for controlled or regulated markets. Since the supply of gas is constrained by the capacity of the pipelines, the DCs buy gas and declare a certain allocation or use of the transport capacity. Thus, the gas they buy depends on the price at the basin (given the absence or incompleteness of gas to gas arbitrage) and the transport component (including the conditions of supply which define the price of capacity).

The problem for the regulator is specifying the acceptable gas cost for the regulated segment.[10] ENARGAS decided to tackle the issue by fixing the cost of transport and the cost of gas that can be charged in the regulated segment depending on the proportions effectively contracted and bought from the different basins. This rule of "variable weights" approximates a cost-plus regulation, extending to this case the pass-through mechanism contemplated in the licenses.

[9] The figures are even more favorable when prices in Europe (UK, France and Germany) are included in the comparison

[10] The case of DCs operating in regulated and unregulated market segments and the existence of incentive problems in the allocation of gas costs has been discussed for other countries. See, for example, Davies and Flanders (1995), Phillips (1993), Sutherland (1993) and Yarrow (1991).

Table 2: Prices and Margins of Natural Gas in Argentina and USA
National Averages, 1995 (US$ per m^3)

	Argentina		United States	
Final End User Prices				
Residential	.1677		.2113	
Commercial	.1351		.1802	
Industrial	.0758		.0958	
Elect. Utilities	.0758		.0710	
Wellhead Price	.0406		.0555	
Citigate	.0645		.0975	
Gross Margin (Transport+Distribution)				
Residential	.1271		.1558	
Commercial	.0945		.1247	
Industrial	.0352		.0403	
Elect. Utilities	.0352		.0155	
Relative Prices & Margins	**Prices**	**Margins**	**Prices**	**Margins**
Residential/Industrial	2.21	3.61	2.21	3.87
Commercial/Industrial	1.78	2.68	1.88	3.09

Source: Navajas (1995), ENARGAS (1996) and AA & CERA (1996).

The conflict evaluated in this case was between the DC that supplies southern Argentina (covering two distribution areas, Pampeana and Sur)[11] and ENARGAS on the effective proportions of gas allocated in regulated and unregulated markets in the southern city of Bahía Blanca. This conflict became apparent in 1995 with the increase in the price of gas at the Neuquina basin, but it has to do with events that go back to 1993. Since its (already difficult) explanation and understanding requires some historical background we explain below relevant 1993 events.

At the beginning of 1993 (i.e. at the time of privatization) the area of Bahía Blanca had a firm or noninterruptible peak demand for natural gas of 1.1 million cubic meters (m^3) per day for the residential and commercial segments plus around 0.7 million m^3 per day for the big industrial user (petrochemical pole). Firm transport capacity allocated to the DC at the time of privatization was 1.24 million m^3 per day from the Neuquina basin and around 0.7 million m^3 per day from the Austral basin, both under a ten year contract.[12] Thus, allocated transport capacity was enough to satisfy interruptible demand at that moment. The original proportions of transport contracted from both basins were 64 percent (Neuquina) and 36 percent (Austral).

This firm peak demand was expected to rise due to already existing projects: an electricity utility consuming 1.2 million m^3 per day plus a 0.6 million m^3 per day from a Liquid Petroleum Gas (LPG)

[11] There are two areas of distribution to the south of Buenos Aires. One is called Pampeana (which includes the city of Bahía Blanca) and the other is called Sur (covering Patagonia and Tierra del Fuego). The company referred to won the bid for one of the areas (and had a minority stake in the other) and later took control of the two areas. This is important to understand some events concerning the allocation of transport capacity discussed below.

[12] The length refers to the contract between the distribution and transportation companies. Contracts between the DC and producers at those basins had only one year of maturity.

plant. Both plants were at that time being supplied on an interruptible basis, and the intention of the DC was to offer them a firm service. To accommodate this expected increase in firm demand the DC asked ENARGAS to use transport capacity originally allocated for its parent firm serving the Sur area. In 1993, this company had been granted 3.3 million m^3 per day of transport capacity from the Austral basin when its firm peak demand was only 1.5 million m^3 (and today, almost five years later, it is around 2.2 million m^3). Since the pipeline that transports gas from the Austral basin to Bahía Blanca had no available capacity, the DC asked permission to reallocate to Bahía Blanca the excess capacity in the Sur area.

ENARGAS did not authorize the proposed connection. The DC then attempted to satisfy the new firm demand by buying more capacity (as available) from both the Neuquina and the Austral basins. During the second half of 1993, the DC bought more capacity than it needed, since according to the company, it wanted to secure an adequate supply and took what was available. This was done in two instances. In August 1993, the southern Transco (TGS) offered available capacity (1.5 million m^3 par day) from the Neuquina, and the DC won the bid to rapidly proceed with its offer to the electricity utility. In December 1993, the DC bought 1.2 million m^3 per day of transport capacity from the Austral basin.[13]

It was this later attempt to buy capacity that created a conflict between the DC and the producer company YPF over the right for that Austral basin capacity. In 1993 oil fields were privatized in preparation for the privatization of the oil company, and according to YPF the right to use a given transport capacity from the Austral basin had been secured with the sale of the oil fields. The conflict originated because the government had apparently allocated transport capacity from the Austral basin twice, once when gas was privatized and again with the sale of oil fields.[14]

Even though YPF argued for its right to that capacity, the DC had already bought it. The conflict was solved by an agreement whereby the DC accepted to transport the gas for YPF which would pay for it. In addition, both firms agreed to a joint venture in the development of the LPG plant, which was the final user of that gas.

The DC informed ENARGAS that the change in the original proportions of gas bought in the two basins, which had moved to 59 percent from the Neuquina and 41 percent from the Austral, were not in fact the real ones since a fraction of the capacity of the Austral basin was being used to transport gas for YPF. Subtracting the capacity used for YPF, the proportions changed in favor of the Neuquina basin. When the price in this basin starts to rise (due to pressure from YPF), the DC calculated the cost of gas for the regulated segment in Bahía Blanca using the modified proportions and asked for an increase in tariffs.

The ENARGAS rejected the proposed increase altogether and instead proceeded to compute the cost of gas using the observed proportions (59 percent Neuquina, 41 percent Austral), thus starting a conflict with the DC.

Analysis of the Case

Clearly, ENARGAS acted in the interest of consumers, particularly those whose demand is inelastic, such as residential customers. There are at least three issues surrounding this case that need to be further analyzed.

[13] December 1993 means the end of the one-year contracts between DCs and producers.

[14] YPF was still a public enterprise in 1993 and is one of the main producers at the Austral basin (albeit its market share there is smaller than in the Neuquina basin). It presumably had a point in this dispute over transport capacity since it already had control over it. Apart from allocating rights twice, nobody in the government or the regulatory bodies considered the eventual strategic tool that was being given to YPF to use this capacity to impede arbitrage between gas basins.

The first is ENARGAS' refusal to allow the building of a pipeline to increase transport capacity. This is strange given the problems caused by the capacity-constrained scenario described above, the absence of basin to basin competition in Argentina and the apparent mistakes made in the allocation of transport capacity rights at the time of privatization. It is difficult to understand why residential consumers or the Bahía Blanca market as a whole would have been negatively affected by this decision. Perhaps the regulator's worries were not related to the Bahía Blanca area but to the effect that the construction of the pipeline would have on gas availability in other competing areas (Buenos Aires). This issue is politically more sensitive due to the high concentration of residential customers, and the concern over the availability of winter supplies that regulators had in the first years of privatization.

The second point relates to the refusal to considering subtracting from the purchases and transport of gas, the portion that the DC said it was transporting for YPF. In this case, ENARGAS applied the rules to the letter without considering the general conditions under which the decision was made. In particular, the conflict between the DC and YPF over the rights to use transport capacity from the south. Nevertheless, there were many elements of the case that surely created enough suspicion in the mind of the regulators to react as they did. Perhaps the main one was that the DC and YPF were establishing a partnership for the LPG project to be supplied by the gas in question.

The last is the more general issue related to the rule of "variable weights" (defined as the observed percentage of total "firm" gas bought in each basin) used by ENARGAS to estimate and compute the cost of gas to be passed on to the tariff in the regulated segment of the market. The literature has dealt with similar, albeit not identical, regulatory problems in the United States and the United Kingdom. Phillips (1993), for instance, argues that one of the three regulatory problems to be solved in gas regulation is whether or not to allow the higher cost originated by "take or pay" contracts to be charged only to regulated or "firm" customers. Sutherland (1993) mentions that mistakes in the acquisition of gas by DCs may induce a compensatory "bypass" behavior by large customers and a rebalancing of charges against regulated ones.

Observing UK regulation, Yarrow (1991) shows that a pass-through rule based on the average cost of gas may provide bad incentives, if costs are increasing, for buying gas to be sold in unregulated markets. That is, an increase in the volume sold in the unregulated market raises the average cost of gas and, therefore, the price in the regulated market. This sort of pass-through regulation creates positive spillovers to the unregulated, competitive segments and is deemed to affect competition elsewhere.

In the Argentine case, the decisions to buy in the unregulated or regulated market become interrelated not because of average cost pass-through but because they may change the weights or proportions of "firm" gas bought in different basins. That is, it is a sort of weighted averaging between basins of origin. For instance, if the DC decides to increase the volume sold on a firm basis[15] in the unregulated segment, there may be an increase in the price in the regulated market if that volume raises the proportion allocated to the more expensive basin. One can say, however, that the problem originates in the distortion created by the absence of gas to gas competition and arbitrage between basins. With price equalization, the question of variable weights becomes irrelevant and is equivalent to a fixed-weights rule.

There are three issues related to the variable-weights rule embedded in the Argentine regulation, as opposed to, say, a fixed-weights rule that is fixed beforehand and goes unchanged during all the price-cap period.[16]

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[15] As mentioned before, only "firm" contracts count for the calculation of weights to be included in the cost of gas formula. Recall that in the Bahía Blanca dispute the DC had decided to switch to "firm" gas sold previously as interruptible. This is different from the British case where total gas (both firm and interruptible) could be included in the formula.

[16] The second and third issues discussed below are addressed in Navajas (1997), modeling a simple extension to the Argentine case of the effect studied by Yarrow (1991).

The first is whether the variable-weights rule is more difficult to monitor given the moral hazard problems that arise with costly observation of decisions of the DCs. In fact, the variable-weights rule reacts to changes in the cost of gas in a sort of cost-plus fashion, unlike a fixed-weights variant which would be more coherent with the price-cap regulation that is used in Argentina (and in the gas sector in particular). Of course, price-cap with automatic pass-through means a cost-plus adjustment for the cost of gas acquired. As has been the case elsewhere, this was also the problem in this particular instance. Nevertheless, given the positive costs of monitoring the decisions of the DCs, a fixed-weights rule would have simplified the regulatory process and reduced conflicts dealing with reporting and interpretation observed in the case described above.

The second issue is whether the variable-weights rule provides incentives to purchase gas from relatively more expensive basins. Even though the DCs may benefit from the spillover created by the pass-through formula, it is not clear whether it has incentives to buy at expensive basins when cheaper alternatives are available. In the context evaluated in this case, ENARGAS seemed to react to this potential problem. However, it is not clear that there are incentives for the DCs not to minimize the cost of acquiring gas. It is true that there are spillovers given the pass-through formula, but this is a second order effect when compared to the effect of buying expensive gas.[17]

Finally, the third issue is whether the current variable-weights rule (when compared to a fixed-weights alternative) gives the DCs more incentives to look for new business in the unregulated segment. That is, whether it provides an instrument that has a cost advantage in other competitive segments. Unlike the previous issue, the answer to this question seems to be in the affirmative. The advantage comes from the fact that being in the unregulated segment, the DC benefits from the spillover effect of the pass-through rule. Notice that this is a different issue from the one mentioned before. Under the variable-weights rule, and compared to the fixed-weights alternative, the DC has incentives to minimize acquisition costs (i.e., buy from the cheapest available source) but it has an incentive to buy/sell more gas in the unregulated segment.

In the case described in the previous section, the DC operating in the Bahía Blanca area decided to start a new venture in the unregulated segment and to give to it (and to another unregulated customer) a "firm" status, buying gas from the more expensive basin due to its availability. As the prices between basins started to diverge even more, the DC tried to argue that the gas bought in the cheaper basin (Austral) was in fact owned by a partner (YPF). ENARGAS did not agree, but instead of leaving the shares constant, it adjusted them according to the actual source of gas used (including the volume consumed by YPF). In this sense, the decision should be judged as independent and it combines a good decision criterion (denying YPF's ownership of the gas bought in the Austral basin) with a technically weaker position (choosing a variable-weights over fixed-weights rule), both of which generated lower final tariffs to residential users.

CASE 4: REVISION OF THE PRICE CAP FORMULA FOR THE DISTRIBUTION AND TRANSPORTATION OF NATURAL GAS

Argentina is a country rich in natural gas and the market at the production level is potentially competitive. In 1992, when the natural gas industry was privatized, the margins of transportation and distribution were fixed for a five-year period and were regulated using an RPI-X+Y formula. RPI was defined as the U.S. Producer Price Index, X is an efficiency factor and Y is an investment factor that was supposed to compensate the firms for extraordinary investments (e.g. extension of the service to new neighborhoods). Both X and Y were set equal to zero until 1997.

The privatization law states that X is a factor to

[17] Naturally, if positive effort is needed to obtain the lowest cost of gas, then the variable-weights rule does not allow the firm to capture 100 percent of the benefits of its effort, and therefore cost will not be minimized.

stimulate efficiency and Y has the purpose of stimulating new investments. Distribution and transportation contracts state, on the one hand, that the regulatory agency has to support its estimate of X for each five-year period through specific programs deemed to improve efficiency, but there is a contractual protection to the return on investment. On the other hand, Y has to be calculated based on investment programs (other than those included at the privatization) which cannot be financed from current revenues. The legislation also included a clear schedule for the proposal and discussion of X and Y, and public hearings are required before ENARGAS makes its final decision.

During the 1997 revision of the price cap, ENARGAS proposed an X factor calculated as the average of the reduction in costs that each company may achieve if it introduces specific efficiency programs,[18] and an estimate of overall efficiency gains for the whole industry. Overall efficiency gains were calculated as the difference between the increase in the Total Factor Productivity (TFP) of the gas industry and the increase in the TFP for the economy as a whole. The consulting firm NERA estimated that the TFP difference during 1970-1995 averaged about 2 percent per year.[19]

The distribution and transport companies questioned the fact that the TFP method was not included in their licenses. They also asked FIEL to undertake an economic analysis of the NERA report.[20]

Analysis of the Case

There were two opposite legal views on TFP. ENARGAS looked at the TFP method as an alternative to specific programs for each firm,[21] while the regulated firms maintained that it was not included in the 1992 contracts.

Given that there are information asymmetries between the regulator and the firms, and that the contracts are incomplete, there is an incentive for the regulated companies to consider any investment as if it were additional to the investments included at the time of privatization. This would allow the firms to get a higher average tariff through a positive value for Y. For the same reasons, the specific efficiency programs used in the estimate of X introduce another conflict: the firms will try to underestimate the reduction in costs of each program to achieve a lower value of X.

It is interesting to note that the specific programs are forward looking and based on costs because ENARGAS estimates the reduction in costs for each firm. The TFP method is backward looking because it is based on historical differences in TFP growth (of the gas industry vis-a-vis the economy). According to NERA, the TFP method has the advantage of being independent of the situation of each firm. It tries to mimic the functioning of a competitive market where relative prices are driven by the differences in each sector's productivity growth compared to the average productivity gain of the economy as a whole. A firm will keep for itself any extra cost savings that it might achieve, avoiding the reference to past costs in the calculation of the price caps for the following regulatory period. In fact, ENARGAS used a mix of two contradictory methods: the one clearly allowed by the licenses which looks at each firm's future costs, and the "optimal" method provided by its consultant which is independent of costs (at least it is independent of costs during the previous five-year period of regulation). The estimated TFP of distribution is equal for the eight companies and the same applies to the TFP of transport, which is equal for the two

[18] There are different specific programs. One example is the change in the billing procedures or the reduction in the frequency of consumption metering from six times a year to twice a year. Since the change will create a cost saving, ENARGAS adjusts the average tariff downward by applying a positive X. Cost savings are calculated separately for each distribution company.

[19] The estimate is somewhat higher for transport than for distribution. See National Economic Research Associates (NERA), several reports to ENARGAS (1996 and 1997).

[20] See FIEL (1997a and 1997b).

[21] That is, a firm may improve efficiency according to an "average" potential gain plus an additional factor calculated for each firm based upon specific projects.

pipelines.

The conflict between ENARGAS and the regulated firms was originated in the ambiguity of the initial contract. Consumers and politicians had the opportunity to express their views in the public hearings to discuss the X and Y factors. Both groups pressured for reduced tariffs in a highly politicized environment resulting from the 1997 national elections. Finally, ENARGAS approved X factors for each company that were approximately equal to 50 percent of its initial proposal, but the reduction in prices was applied up front (i.e. a single reduction in January 1998, with no further annual discounts until the next price cap revision due in the year 2003).[22]

There was practically no discussion about the investment programs included in the Y factor. About 70 percent of the programs proposed by the companies were approved by ENARGAS, and tariff increases were approved to pay for their cost.

Evaluation of the Case

This case was very important, not only for the gas industry, but also because it was the first revision to the price caps after the privatization of public utilities in Argentina. In a country considered to have a relatively risky investment climate, it was very important to build a credible regulatory reputation, based on a transparent and acceptable methodology in order to change that perception.

During the price cap revision process, ENARGAS attempted to use a methodology (differences in TFP) that did not rely on the actual costs and profits of the regulated firms.[23] However, the NERA report was seriously flawed as pointed out by FIEL. For example:

- The TFP for the gas industry and the economy were estimated for the period 1970-1995, to be used as the basis of an X factor for the period 1998-2003. NERA did not take into account that the Argentine economy and the gas industry both underwent major changes after 1991 and 1992 (a structural break). Hence, under such circumstances historical data cannot be used to project the future.

- There were serious problems with the database used by NERA that biased their estimates of TFP growth. Moreover, input prices in Argentina did not follow the pattern assumed by NERA in their model of differences in TFP.[24]

- The model of TFP differences was developed for an economy closed to foreign trade. In small open economies the causality is not from costs to prices, because producers of traded goods are price takers. When NERA's model is adapted to an open economy it is necessary to assume that the input shares in total costs of production are equal for the regulated industry and the economy, which is not the case of the capital-intensive gas industry.

- The RPI-X formula uses an index of domestic prices for RPI (usually the GDP deflator or the CPI). In the case of Argentina, the U.S. PPI index was used instead. In an economy like Argentina, whose currency is pegged to the U.S. dollar, the price convergence is likely. But this will never be the case between an index of domestic prices that contains tradable and nontradable goods and the PPI which is an index of the prices of tradable goods alone. Since the U.S. PPI should have a lower growth rate than the Argentine GDP deflator or the CPI, it can be said that part of the X factor attributable to differences in TFP was already included in the price index used in the Argentine RPI-X

[22] The once-and-for-all X factor for the Southern Pipeline was fixed at 6.5 percent, for the Northern Pipeline at 5.2 percent, and for the distribution companies in a range from 4.4 percent to 4.8 percent. All these discounts are applied to the average tariff and became effective on January 1, 1998, for a five-year period.

[23] The convergence of price cap and rate of return regulation when the caps are reviewed is accepted in the literature (see for example, Laffont and Tirole, 1993).

[24] The TFP methodology requires that the gas industry face the same variation in input prices than other sectors of the economy.

formula.

As a result of the foregoing, the difference in TFP growth rates estimated by NERA was neither transparent nor acceptable. It was not clear that it was included in the licenses, and its empirical basis is weak, at least so far as the estimates for Argentina are concerned.

As pointed out by Armstrong et. al. (1994), the value of the X factor will depend on the assumptions made about productivity growth, demand growth and investment. Hence, TFP estimates are one out of several instruments that can be used. However, this instrument has the problem of not allowing for demand shocks specific to only one of the regulated firms. On the other hand, the revision of specific projects gives a lot of discretion to the regulatory agency (which is problematic in a risky country like Argentina), although information asymmetries might compensate for this problem, at least to some extent.

The final solution reached by ENARGAS was the result of a process that, in the end, followed the typical pattern of revisions under rate of return regulation. The X factors were reduced from those originally proposed, introducing differences among the regulated firms. After the public hearings, ENARGAS reached a quick agreement with the firms about the new values for X. During this process the regulated firms highlighted the protection that the law grants to their normal profits.

In the end, the solution respected the letter and spirit of the original contracts, creating an important precedent for future revisions of price caps. Nevertheless, the process was cumbersome and non-transparent.

ENARGAS pleased the politicians and consumer associations by demanding that the reduction in the average tariff be applied up-front, in spite of a clear recommendation in the licenses to soften the changes in prices.[25] This introduces a potential risk for the regulated firms because no further reductions in prices are to be made for four years. Given that regulatory agencies have an asymmetric response to changes in costs (i.e. they try to postpone price increases and compensate the firms by not reducing prices when costs decrease),[26] ENARGAS decided to use all its degrees of freedom in 1998. Therefore, if there are increases in the price of natural gas paid to producers after 1998, residential prices will have to go up.[27] The ENARGAS decision is not surprising given growing political pressures on regulatory agencies observed since 1995. This is reflected by Congress's attempt to create a body to supervise all the regulatory agencies which will have the power to name the directors of all agencies, set tariffs, etc.

ENARGAS did not discussed as an alternative the reduction of the minimum level of consumption to bypass the distribution companies (an alternative adopted by the United Kingdom in 1992). This alternative to a reduction in prices has the advantage of introducing more competition in the future. In addition, ENARGAS did not discuss other possibilities to calculate the X factor that may be more efficient given Argentina's institutional setting. For example, FIEL suggested to offer the regulated firms a menu of options:[28] either they opt for a positive X (set equal for all firms by ENARGAS) with no further regulatory review until the year 2003, or they opt for an X equal to zero with annual revisions of costs. The advantage of this scheme for the firms is that it introduces flexibility that may help them to cope with changes in demand or productivity. For the regulator and consumers it has the advantage of extracting information from the

[25] The role of consumer associations and the People Attorney was minimal compared to other changes in tariffs (e.g. telecom tariff rebalancing).

[26] See Joskow (1974) and Hollas (1994) for theoretical and empirical support of this way by which regulatory agencies cope with political pressures.

[27] The cost of natural gas is about 21 percent of the price paid by a residential consumer (including VAT). Therefore, an X factor of 1 percent per year allows offsetting an increase of the cost of gas of about 5 percent, with no need to change the end price paid by consumers.

[28] Sappington and Weisman (1996) report the use of menus of options in the regulation of access charges in the interstate telecommunications sector in the United States.

regulated firms, at the same time that it obeys the restriction of zero profits.

Although the solution reached by ENARGAS was reasonable, the regulated firms had to lobby actively for it. They demanded a strict use of the procedures included in the licenses. ENARGAS attempted to introduce the TFP methodology that might be theoretically better than the use of specific projects, but failed empirically because the major structural changes that Argentina as a whole, and the gas industry in particular, did not allow using data from years before 1991. By ignoring this basic fact, NERA estimated a difference in TFP growth rates that has no meaning. In future revisions of the price cap there will be at least ten years of homogeneous information that may be used for an estimate of the TFP. This can be one out of several instruments that the regulatory agency may use to calculate future values of X. Moreover, after the long renegotiations that took place it would have been advisable for ENARGAS to approve the new methodology to save on transaction costs at the time of the 2003 revision of the price caps. Finally, the decision to move forward all the reductions in prices of the five-year period to the first year should be excluded in other price cap revisions because it favors the incumbent regulator at the cost of reducing the flexibility that future regulators may need to moderate the impact on residential prices of increases in the cost of natural gas, putting more pressure on the future implementation of the contract.

The Electricity Sector

To take advantage of the potential competition in generation, privatization of Argentina's electrical sector included a ban on vertical integration. Distribution in the greater Buenos Aires metropolitan area (which includes the city of Buenos Aires and fourteen municipalities of the province of Buenos Aires), previously in the hands of the federal government, was awarded to two private concessionaires in 1992. Many provincial governments followed the same strategy when privatizing local distribution companies. Transmission of the interconnected grid was given in concession to a private firm (Transener) also in 1992, under an open access rule.[29]

Transmission represents only about 10 percent of the total value added of the sector, but it is crucial for competition in generation. The costs of transmission included capital costs for the construction of new lines, operation and maintenance costs, and the power losses between exporting and importing points (estimated at 3 percent to 5 percent of the amount of electricity transmitted).

Transmission firm revenues are not clearly related to costs. About 55 percent of Transener's revenues are related to power losses and 45 percent to capacity costs. In fact, Transener does not set the quantity of electricity its sells or the price it charges. It can only decide whether or not it participates in a new project and its effort to operate the grid. Moreover, generators and the distribution companies usually pay for power losses, and as energy losses increase the transmission company receives more income. Although there are penalties for reductions in the quality of the service, asymmetric information between the firm and the regulator introduces an incentive problem.[30]

Problems in financing new investments in transmission lines are a common occurrence in other countries as well. Potential solutions to these problems are vertical integration (used in Argentina when the electrical sector was publicly owned), cooperative agreements (like those used in Scandinavia, only feasible with few participants) and decision rules (used in Argentina, Chile and the UK).

In Argentina, a group of users (generators) or a new transmission company proposes a project for the expansion of the transmission grid. The proposal may be vetoed in a public hearing if more than 30 percent of the users of the system reject it. If it is accepted, the project is auctioned for construction. The firm which bids the lowest construction cost estimate wins the bid. Users pay this investment charges based upon the estimate of the benefits they receive from the new line. Transener supervises the construction and operation of the new line. Electricity generating companies can also agree to pay the capacity cost to a construction company, but given the open access rule they are forced to allow any other user access to the line, paying only the operation and maintenance costs. Therefore, this alternative has an obvious free rider problem regarding who pays for the capacity costs.

[29] There are five regional transmission companies and new firms are allowed to build and operate new transmission lines under the technical supervision of Transener.

[30] Penalties paid by Transener during 1995 increased by US$8.1 million, while its total revenues increased by US$2.6 million. During 1996, penalties paid were US$1.5 million higher than in 1995, while revenues were US$3.1 million higher. This suggests that during 1995 the marginal penalty might have been higher than the marginal revenue from lost energy, but the opposite happened during 1996. Since these penalties might obey a multiplicity of reasons and data available is for revenue from all sources (not only for the 55 percent related to power losses), incentive problems could still be relevant.

There are also problems in financing the expansion of capacity that are exacerbated in the case of an interconnected system with open access. As electricity flows according to the resistance of the line, in interconnected systems there are unintentional power flows that affect users other than those connected through one of the transmission lines (a typical externality). Although open access may have advantages in that it fosters competition, it introduces public good problems.[31] In the Argentine case there are three additional problems: a) Transener has an incentive to postpone new investments if the additional revenues it perceives through an increase in power losses is higher than the penalties it has to pay for a deterioration in the quality of the service; b) not all beneficiaries (especially future ones) are able to participate in the process of deciding to expand capacity; and c) users pay the capacity costs through an estimate of benefits which does not reflect true economic benefits.

Finally, the public hearing process is expected to create delays in the expansion of capacity.[32] Since the investment charge is not proportional to the benefits that each user receives, those users who may be negatively affected in the estimate of benefits are encouraged to veto the project. Some benefits, for instance the improvement in the reliability of the grid when it has less congested lines, are not even counted. Transener may have an incentive to postpone new investments to avoid reductions in power losses that reduce its revenues.

CASE 5: THE CONSTRUCTION OF A NEW ELECTRICITY TRANSMISSION LINE

Transener operates three transmission lines that link the Comahue region (an exporting area rich in natural gas with many power plants, both hydroelectric and thermal) to the city of Buenos Aires. New investment in generation in the Comahue region created an excess supply and led to congestion to the three transmission lines, which would induce a reduction in local prices for final users. When this happens the regulatory framework in Argentina does not allow the price paid by users in the Comahue region to fall. Purchasers of energy continue paying the spot price and energy generators have to place the difference in prices (between the average spot price for the country and the estimated "market" price for the Comahue region) in a special account to raise funds to finance the construction of a new line. Electricity generating companies in Comahue have an incentive to propose a new project to the extent that the investment charges they have to pay are lower than the higher revenues they will obtain when the price they receive is the full spot price.

A group of generating companies in Comahue proposed a project to build a fourth transmission line in 1994, but the project was voted down (some Comahue generating companies were among those who voted against the project).

In 1996 all the region's generating companies proposed a project to build a fourth line. This suggests that they entered negotiations to solve the externalities inside the group. There was also another factor that may have encouraged cooperation: the money raised by the special account was about US$100 million (the cost of the fourth line was estimated at about US$250 million). This created an incentive for opportunistic behavior from the government to use the money for purposes other than construction of the line. There was some opposition at the time of debate,[33] but it represented less than the required 30 percent to force a veto.

[31] For example, a user who did not pay for the construction of a new line may use the open access principle to be served by that line. In Argentina, that user might even be served before those who paid for the construction of the line. This creates an obvious incentive for not revealing true preferences if charges for investments are based on the revealed preference of each firm.

[32] See Gasparini (1997).

[33] ESEBA, at that time a generation and distribution company of the province of Buenos Aires, voted against the project because it had no problems selling its energy but, being a generator, would have to pay for the capacity costs of the fourth line.

After the project was approved by the regulatory agency *Ente Nacional Regulador de la Electricidad* (ENRE) there were further delays caused by debates about the details of the technical and economic conditions for the bid.[34] Finally, in 1997 the bid was called and Transener won with an annual investment charge of US$ 24.5 million for 15 years.[35] It took about three years to complete the process of deciding whether it was necessary to construct a fourth line, where it would be constructed and who was going to be responsible for building it.

Procedures for expanding electricity transmission capacity were included in the regulatory framework but, as was mentioned, they were flawed, encouraging a long negotiation process. The actors involved were the regulatory agency and the users of the system. There was some politicization of the discussion, especially when the constructors had a dispute about their different status concerning the VAT.

The construction of the fourth line was approved and auctioned following the steps included in the regulatory framework, but with long delays as the economic analysis of the rules suggested it would happen.

The solution reached obeyed the letter and spirit of the original contract, but did little to solve the incentive problems that encourage delays in the investment in new capacity. Although there is no way to solve all the incentive problems that arise because of the public good characteristics and the externalities involved in the transmission of electricity, existing regulations can be improved. In fact, ENRE is working on a new regulation to govern private agreements between generators and constructors (i.e. the alternative to the public hearing process) that will assure a privileged access to the line for those generators paying for it. Other generating companies will be allowed to use the line (paying the operation and maintenance costs), only if there is excess capacity.

The public hearing alternative can be improved. For example, it has been suggested that:[36] a) the veto should be abolished; b) the estimate of the benefits of each user should be better matched to economic benefits (this is possible given the information available); c) all beneficiaries should be included (not only those within the region, also recognizing the limitation for new users to be represented); and d) the discussion of more than one project at the same time should be encouraged.

As a general lesson, a poor definition of property rights created more problems than expected. Matters can be improved maintaining the open access rule, although a more flexible application of it would help reduce the free rider problem that appears when decisions have to be made regarding new investments.

[34] For example, the operator of the fourth line will use some facilities owned by Transener. This requires the calculation of an access charge. There was also protest because a newly created society for the construction of the fourth line faces a higher financial cost than pre-existing firms (like Transener and other interested firms) due to a differential tax treatment.

[35] The offers made by the other three participants ranged from US$24.9 million to US$39 million.

[36] See Gasparini (1997).

The Water and Sewerage Sector

Provincial governments are responsible for the provision and regulation of water and sewerage. Provision is still typically in the hands of public companies, although many provinces (Corrientes, Santa Fe, Tucumán, Neuquén, Córdoba, Formosa and Mendoza) have recently awarded the provision to private companies which are subject to provincial regulation. Provincial regulation is sometimes delegated to an autarkic agency created to that effect and in other cases performed by an already existing public agency. In the Buenos Aires metropolitan area the service previously supplied by a federal public enterprise named *Obras Sanitarias de la Nación* (OSN) was given in concession in 1993 to *Aguas Argentinas*, a private firm managed by a French operator. Regulation was delegated to the *Ente Tripartito de Obras y Servicios Sanitarios* (ETOSS), created at the time of the concession, whose Board of Directors includes an equal number of representatives from the national, provincial and municipal government.

Among ETOSS's responsibilities are the approval of tariffs, the supervision and approval of infrastructure and expansion works and supervision of the relationships of the firm with its customers. The tariff structure is very complex, based on several characteristics of the properties served. Metering is mandatory for commercial and industrial users, but optional for residential consumers.[37] When the service is metered, the fixed charge based on the property value is reduced by 50 percent. Furthermore, since the initial coverage was very deficient in the province of Buenos Aires, the concession determined a mandatory expansion plan for the first five years, recalculated every five years until the end of the concession (which is for 30 years).

We present below two cases representative of ETOSS decisions made in 1994 and 1995 which involve the adjustment of tariffs as the result of different motivations; namely, the anticipated expansion plan and the adjustment of relative infrastructure charges to relative costs of the different expansion projects.

CASE 6: ACCELERATING SCHEDULED EXPANSION AND TARIFF ADJUSTMENT IN BUENOS AIRES, 1994

Aguas Argentinas asked for a tariff adjustment because the expansion and quality goals of the concession were reset ahead of schedule. For example, the government of the city of Buenos Aires requested the immediate provision of the service in very poor neighborhoods and the government of the province of Buenos Aires requested that the expansion schedule for one of the fourteen municipalities be moved forward. The estimate of costs increases carried out by the regulated firm was submitted to an external auditor and amended with the authorization of the Ministry of Economy and Public Works (as required in this type of resolutions). The decision by the Board of ETOSS (by Resolution 81/94) was unanimous, and there were no complains by the regulated firm or by the political representatives. When the issue was discussed in the press, company representatives stated that they had to meet these requests because municipal leaders required that they did so immediately, despite the fact that the locations in question had not been included in the expansion plan.[38] No particular importance was given to the (potentially very negative and precedent-setting) fact that this represented a modification of the original contract.

[37] The option to meter a residential property can be requested by any of the parties (at the requesting party's cost), but actual metering in this segment of users is currently very low.

[38] Radio Interview with Gregorio Días Lucero, of Aguas Argentinas, *Ambito Financiero* CD-ROM, August 9th, 1994.

The acceleration of the investment program's schedule required new investments of approximately US$ 122 million over two years, and led to an increase in the number of users of 6 percent. The adjustment of tariffs approved was 13.5 percent for consumption, disconnection and reconnection of the service, and approximately 42 percent for charges of infrastructure and connection of new water and sewerage services.[39]

It should be noted that the readjustment of tariffs was biased against new users (even though initially there was a cross subsidy toward expansion that did not revert completely), and that the tariff adjustment was higher than 13.5 percent (between 15 percent and 16 percent).[40] The public did not notice this change in the contract,[41] due largely to two reasons. First, the 42 percent increase in the charges for connections and infrastructure was difficult to perceive because it affected new users in the future (however, it was noticed when the bill had to be paid, two years later; see *Ambito Financiero*, February 23, 1996, and *Clarín*, April 24, 1996). Second, users already on the network considered the service to be inexpensive (its cost is less than one third of the average tariff for other utilities) and thus accepted quietly an increase which they took as minor.

How was the 15 percent average increase determined? The regulator announced that the new works meant an increase of 13.8 percent in the investment plan for the first 10 years of the concession, and also an increase in costs of US$ 284 million (approximately equal to 15 percent of the previous operating costs) for that period.[42] Thus, an increase of 15 percent in costs generated a tariff increase of also about 15 percent.[43]

Thus, it seems reasonable to conclude that the increase in costs resulting from moving forward the expansion plan generated a tariff adjustment of similar proportion. In that sense, even if this was not the regulator's objective, there are at least two criticisms. First, if economic profits are positive, proportional increases in revenues and costs imply higher benefits. Moreover, there is no reason to remunerate the new capital at the same rate or higher than the existing capital (when the country risk premium actually declined during the first two years of the concession). Indeed, this concession was considered by *The Economist* to be the most profitable in the sector worldwide, with rates of return approaching 40 percent. Second, this method does not take into account the higher revenues attached to the increase in consumption of water and sewerage services by the new users (which would represent an increment of 6 percent, as already noted) which were the cause of the increase in costs that the tariff increase was deemed to finance.

Although our estimates are preliminary, it should be mentioned that the Memory and Balance of the ETOSS is not sufficiently clear about this issue. Moreover, the concession contract refers to the ordinary revisions as those tariff adjustments following changes in the goals and/or investments specified in the 5-year plans (i.e., the *Plan de Mejoras y Expansión Quinquenal*), but says that those revisions could only be applied for the following five years of the concession. Hence, the acceleration of investment and expansion within the

[39] Since there are users already served and users to be served as the net expands, tariffs can be divided into consumption-based (both metered and non-metered, both with a fixed property based fee, for current users) and connection-based (for users new to the service).

[40] According to the management of *Aguas Argentinas* the average increase was about 15 percent. According to the authors' own figures, once account is taken of the fact that more than 10 percent of revenues resulted from the expansion of new service, the average increase was over 16 percent.

[41] According to the information published in *Ambito Financiero* reviewing different media publications (radio, TV and the journal's own articles and interviews), there were no comments about the 42 percent increase in the tariffs at the time of its approval.

[42] Which compared with the initial US$ 122 million presumably includes the adjustment for the 5 percent accumulated inflation which could be passed on to tariffs according to the contract.

[43] In page 49 of the Memory, ETOSS explains that its procedure was to keep constant the level of debt of Aguas Argentinas at the year 10 of the concession. In any case, it does not specify the implicit interest rate used for the new debt (which is a crucial element for this method).

first five years of the concession did not respect the terms of the contract.

A summary evaluation of the decision concludes that: i) it did no respect the letter of the existing contract (i.e., there was supposed to be no modification in the expansion plan during the first five years, and the concession does not have a pure cost-plus spirit, although it has some elements of it); ii) it did not contribute at all to efficiency as it showed that lobbying has high payoffs and that renegotiation was quite easy (the rebalancing had some efficiency aspects reducing the cross-subsidy from old users to new users but it proved to be to hard to implement); and iii) it meant a transfer of resources from users to the regulated firm (the relative transfers from new users to old users could not be fully implemented due to the high rate of evasion for infrastructure charges that exploded in the recession year of 1995).

This case suggests that the tariff structure could be manipulated by the regulated firm because: i) it is difficult to visualize, in a concentrated regulated market, where the users who are most harmed by the decision are not well organized and represented (i.e., the new users in the poorest part of the greater Buenos Aires metropolitan area), ii) it includes a minor cost for the better organized group (the residents of the City of Buenos Aires and better off inhabitants of the Greater Buenos Aires, highly influential through the Ombudsman and other consumer groups), and iii) the episode took place in the booming economy of 1994.

CASE 7: DETERMINATION OF INFRASTRUCTURE CHARGES IN BUENOS AIRES, 1994

The 1993 concession contract set the "referential" infrastructure charges for the expansion of the residential network on both water and sewerage. All new users would have to pay the same tariff for having pipes passing in front of their properties. These values were increased by 42 percent in 1994 as noted in the previous resolution, but still continued to be called "referential." Accordingly, the ETOSS proceeded (Resolution 83/95) to determine definite charges (as opposed to referential ones) for the water service (sewerage charges were not modified as there were no new expansion projects in this service),[44] linking charges directly to the surface of the land owned by the new user and to the degree of improvements in the affected streets and sidewalks. In that sense, the decision could be considered to be inside the initial contract, as the previous tariffs were defined as "referential", and implicitly subject to changes anticipated in the same contract.

The sole formal participant was the regulator, as the Resolution does not mention any previous interaction with other parties. There were no debates to this day in the press (to our knowledge at least) about this issue either, not even a discussion about its justifications.

According to an article appearing in the press (*Clarín*, "Suspenden Intimaciones por la Conexión de Agua," April 24, 1996), after the implementation of the resolution by ETOSS the infrastructure charge ranged between US$400 and US$600, which suggests that it might be higher than the US$450 referential charges set in 1994. Other estimates in the press tend to confirm this when they refer to a 1996 range between $450 and $600. This level looks particularly high following a 10 percent reduction in infrastructure tariffs that *Aguas Argentinas* implemented in 1996, concentrating in this service the reduction of labor taxes which by contractual agreement had to be passed on to consumers (see *Ambito Financiero*, February 23rd, 1996, and November 25th, 1996).[45]

In interviews with *Aguas Argentinas* staff we confirmed that this hypothesis is correct. Each user, on average, and except for the owners of very small

[44] Although the Ministry of the Economy and Public Works must approve tariff adjustments, the resolution by ETOSS apparently did not comply with this mandatory step.

[45] In any case, the following exercise is illustrative. A typical property with 400 m^2 of surface, with the lowest installation cost (unpaved road and no sidewalk improvement), using the smallest connection pipe size, has to pay US$476.7, a higher figure than the previous US$450.

properties, faces a higher charge for infrastructure. *Aguas Argentinas'* position is that the referential value specified in the contract was derived by estimating the cost of the connection for a whole new project, and assumed that the density of properties would be relatively high (say, 40 properties of 250 square meters by hectare), whereas the actual density observed in the expansion zone turned out to be lower (i.e., the typical property turned out to be larger than 250 squared meters). Thus, the higher infrastructure fee levied on each new connection as a consequence of Resolution 83/95 generates the same total revenue to the firm as that anticipated with the referential charge (corresponding to a higher expected density).

When interpreting this fact, it has to be observed that the lower density of properties in the expansion zone should have been foreseen by the firm and then included in the calculations made for bidding on the concession rights. Accordingly, the ETOSS could have argued that the average charge for the new users could not vary. The lower revenues generated by the lower than expected density fall under commercial risk. Clearly, the lack of guidance regarding the principle to apply for the adjustment of the referential charges is a loophole in the initial contract.

Even considering that the new structure of the infrastructure charges promoted efficiency in the sense of linking charges to infrastructure costs, sending better signals and incentives for expansion and reducing the need for monitoring and the tendency to renegotiation,[46] the initial evaluation of the resolution is negative. First, because it did not respond to the spirit of the concession contract (in the sense that the regulatory scheme cannot be defined as cost based),[47] and thus the difference in density from the one expected could be considered a sunk cost for the concessionaire (i.e., a commercial risk). Second, because it keeps a regressive cross-subsidy between properties included in the same expansion project.[48] Third, there is no evidence that any user improved its situation because even those with the lowest costs of new infrastructure have to pay a higher charge than the referential one, representing, in fact, a transfer from new users to the regulated firm.

Thus, as the contract did not foresee any modifications of the referential charge within a given period, and even though we lack additional information necessary for a final judgment (i.e., average surface of properties of new users, average characteristics of the land and improvements in the expansion zone, etc.), the ETOSS decision seems to have unilaterally favored the regulated firm.

As a lesson to be learned from this case it should be noted that this decision might have been facilitated by its low visibility at the time of enactment (together with other factors already explained in the previous case). Its actual application, though, proved to be very troublesome, as it became visible (i.e., the higher infrastructure charges had to be paid by the new users) in a less favorable economic context (i.e., high unemployment in 1995 and 1996, and better organized consumer groups).

CASE 8:
EXIT OF OUTSIDE INVESTORS IN THE PROVINCE OF CORRIENTES, 1990

[46] Even though the elasticity of demand is minimal, reducing the importance of efficiency considerations, the introduction of a direct relationship between charges and costs reduces cross subsidies from properties with no improvements toward users with properties with access to more public infrastructure.

[47] The concession allows for an adjustment of tariffs when input costs increase above 7 percent, but this is not related with the issue considered here or with the general criterion of price-cap regulation governing the contract.

[48] Since the cost of expansion considered for the infrastructure charges is that of the average property in the area included in the expansion project, and assuming that the public infrastructure the properties have access to is positively correlated with the wealth of property owners, then there is a subsidy within the area of expansion from those who do not enjoy public infrastructure to those who do. Note that the infrastructure charge increases with the average cost of expansion in the area of the project.

In 1990 the governor of the province of Corrientes privatized, by concession, the provision of water and sanitation services. It was the first privatization attempt in Argentina's water sector, and took place before the federal government initiated its major program of privatization of public utilities. The bid was competitive and the winner was the firm that offered the lowest tariff. The concessionaire had to comply with specific service targets (e.g., water quality, and percentage of the population with access to water and/or sanitation services).

The concessionaire was responsible for the service in ten of the province's 13 cities. The other 3 cities were supplied by a public agency (AOSC), which was named the provincial regulatory agency for water and sanitation services in Corrientes. The government regulated prices via a price cap, but it allowed the pass-through of unit costs for salaries, electricity and aluminum sulfate if the change in costs was greater than 5 percent.

Two unexpected shocks emerged after privatization. The first was an increase in political instability in a province that used to be governed by a close coalition of two political parties. This instability became more evident when the concessionaire attempted to cut off the service to families who did not pay their bills. The second was an increase in population which raised the coverage targets, hence requiring more investment than originally expected,[49] because the firm had to comply with targets defined as percentages of the population.

The strong political pressure to avoid the application of penalties on consumers in arrears led the outside investors to sell the concession to local investors early in 1996.

Analysis of the Case

The conflicts in this case arose within the initial contract. The firm had a clear right to suspend service to consumers in arrears and had coverage targets that were defined as percentages of the population. Nevertheless, the design of the concession had some shortcomings that increased the likelihood of a contractual failure (Artana, Navajas and Urbiztondo (1997)), as discussed below.

- The regulatory agency was poorly designed. The president of the agency was named and could be easily removed by the governor, which increased the likelihood of politicization of the agency. Moreover, this agency charged with supervising the private supplier for ten cities is, at the same time, the service provider for three other cities. This created a potential conflict of interest, specially if competition is deemed to be helpful. Another design flaw stemmed from the fact that the regulatory agency received a monthly payment from the concessionaire (calculated in cubic meters of water). In addition, the salaries of the agency's staff were also fixed in cubic meters of water. This created a bias in favor of capture by the private supplier.[50]

- The structure of the tariff schedule in Corrientes is better than the one employed in later privatizations of water and sanitation services. There is a fixed component, which is equal for all consumers and is not related to the value of the properties (as is the case in the Buenos Aires concession), and there also is a variable component. However, since the price structure is the same in all cities there is a regional cross-subsidy that favors areas where capital and variable costs are higher (e.g., regions with a low density of houses). This calls for more supervision by the regulatory agency because the firm has a clear incentive to delay investments in some areas, raising the odds of contractual

[49] In Argentina, the Bureau of the Census (INDEC) counts the population every ten years. The population growth rate in between-census years is usually calculated based to historic data. This was the method used by the government of Corrientes and by the firms that participated in the bid. Although the winning firm could not have forecasted the higher population growth rate, the impact of this change on the investment needs of the concession is better considered a commercial risk.

[50] By increasing the regulated price of a cubic meter of water the regulator could increase its budget and the salaries of its staff.

conflicts.[51]

The first dispute arose in July 1993 when the regulatory agency denied a request to pass through increases in salaries and in the price of aluminum sulfate and only accepted the pass-through of higher electricity prices.[52] The agency did not raise economic concerns as reasons for rejecting the pass-through, but rather justified its decision on the basis of a ruling by the state attorney[53] which stated that indexation was abolished in April 1991 when the federal government passed the Convertibility Law. From an economic perspective, the ruling is obviously wrong because the change in input prices clearly implied concomitant changes in relative prices.[54] Therefore, from the standpoint of the new provincial government, which has a clear influence not only on the agency itself but also on the judicial system, the decision of the regulatory agency looks as a hold up.

The second dispute came to a head on September 1994 when a judge ordered the concessionaire to stop withholding service from the families who had not pay their bills. The provincial government publicly announced its intention to respect the contract that allowed suspension of service to consumers in arrears, but noncompliance stood at 20-25 percent of billings, and agencies owned by the provincial government were responsible for about half of the amount owed. During 1995 and early 1996 several politicians questioned the contract, and in 1996 the provincial Congress approved the creation of a commission (formed by congressmen and the concessionaire) to review which suspensions of service could be made.

In 1995 the concessionaire did not meet some of the contractual targets. As was mentioned above, higher-than-expected population growth required higher investments in the midst of contract disputes. A nation-wide recession that increased the unemployment rate from 12 percent to more than 18 percent in a single year eased these problems somewhat. The firm also delayed investments in sewage treatment. The concessionaire argued that the delays were caused by the provincial and municipal governments which had not yet authorized the use of public land, but regulatory officials suggested that the contractual guarantees should be seized.

At the beginning of 1996 the majority shareholder, a firm based in Buenos Aires, sold its shares to local firms. This should allow a better communication with the provincial authorities.[55] The mechanism used to solve the problem was somewhat unusual (the transfer of the majority ownership to a local firm) although there is some theoretical background to support the idea that local investors are in a better position to deal with expropriation risks.[56]

[51] It was relatively easy for the firm to delay investments in some areas because the municipalities had to contribute some of the financing when the service was offered to a whole neighborhood. These were the cases that demanded higher investment costs.

[52] The tariff increase approved was 6.04 percent, while the one requested by the firm was 16.84 percent. The rationale for accepting the pass-through of electricity prices was that the provincial government fixes those prices because the electricity company is publicly owned.

[53] The state attorney is a lawyer who checks the legal validity of the executive branch rulings. He is named by the governor and is a member of the executive branch.

[54] For example, the federal government allows the pass-through of gas costs and electricity generation costs for the distribution and transport of natural gas and the distribution of electricity in the Buenos Aires area (all of them under federal jurisdiction). Moreover, it also accepts the existence of an adjustment clause based on the U.S. inflation rate. The Currency Board of Argentina ties the value of the peso to the U.S. dollar; hence it is reasonable to adjust local prices by changes in U.S. inflation, although this is not a general practice in other contractual economic relations.

[55] At the auction the provincial government demanded a set of requirements that were difficult to fulfill by a local firm (e.g., minimum equity requirements, background in water and sanitation services activities, etc.). Moreover, it was difficult for the interested firms to anticipate the political difficulties that started in 1992, in a province which, until then, had been very stable.

[56] For example, see Kahn and Urbiztondo (1991), who provide some evidence that utilities in the United States prefer to have their stock less concentrated than other types of firms, despite the higher administrative costs of this practice, and argue that the equity of firms in developed countries tends to be

There were many participants in the water and sanitation services dispute in Corrientes (the firm, the regulatory agency, the provincial and municipal governments, the press and congressmen). The labor union also made claims against the concessionaire, but this is not an important interest group in the province because labor unions generally are not very powerful outside Buenos Aires. The discussion followed a pattern typical of the contract politicization process.

The resolution of this dispute according to the contract (the automatic pass-through of three components of costs) created moral hazard problems, aggravated by the fact that the firm was an important source of local demand for aluminum sulfate. The decision by the regulator to restrict the automatic pass-through could have moderated this problem, but at the cost of violating the contract.

The case of Corrientes was moving towards a low-quality equilibrium and the transfer of ownership might have been one way out of this problem. However, there are some potential problems that have not been addressed yet. The regional cross-subsidy creates a potential misallocation of investment. Although the concessionaire faces incentives to invest more quickly in highly populated areas[57] that tend to moderate the regional bias created by a uniform tariff, this might not be enough to lead to an optimal allocation of investment.

The delinquency in the payment of water and sanitation services bills was probably the most important factor leading to the solution explained above. Water is deemed crucial for public health reasons and this might ease the politicization of the process. However, there were other factors that might explain the difficulties in collecting overdue bills. In the case of sanitation services, for example, families have alternatives available (holes in their backyard) that create negative externalities (e.g., pollution of water sources) on their neighbors. The elimination of these externalities through a network had no direct benefit for each particular family. In the case of water and sanitation services, alternatives to network provision (through wells and holes) are not very expensive for each family; this might help to explain why families who paid other utility bills did not pay their water bill.[58]

Another factor worth mentioning in the Corrientes case is the relatively high average tariff during the first 14 years of the concession.[59] This might have been one way to avoid higher sunk investments through a financing obtained from the users in a scenario where there was a need to compensate for decades of low investment.[60] The resulting price could have an impact on the delinquency ratios.[61]

Some interesting lessons can be drawn from an analysis of the privatization of water and sanitation services in Corrientes. In a situation in which the judicial system is not considered independent and lacks experience in handling contractual problems with private utilities, the regulatory framework has to function in such a way as to avoid reliance on the judicial system. This can be achieved through the

concentrated among nationals despite the very strong integration of capital markets and the reduction of transaction costs, both facts consistent with a voting model where ownership by voting agents provides a better defense from opportunism by governments.

[57] Highly populated areas have lower average connection costs.

[58] The distribution of natural gas in the province of Corrientes is the responsibility of a private firm through a concession granted by the federal government. The firm is able to withhold service if there are long arrears. In the case of electricity, a provincial-owned firm handles the distribution. Unfortunately we were unable to obtain information about arrears in the payment of electricity bills.

[59] The average price has to be reduced by 5 percent during the first 14 years and an additional 20 percent in year 15.

[60] Cowan et al (1994) suggest that the higher sunk investments that are characteristic of water services might explain why the British regulatory framework allowed a large fraction of the investment needs to be financed by the firm's own cash flow.

[61] The World Bank estimated a total investment need of US$ 75 million. As of 1996, the firm had invested US$ 32.4 million, suggesting that at the beginning of the concession there were no problems with the pace of investment.

creation of a highly respected regulatory agency able to resolve disputes in a professional way. This was not the case of Corrientes. An alternative would have been to rely on a regulatory agency that supervises contracts in several provinces, thus reducing the chances of a political capture of the agency. This was not possible in Corrientes because it was Argentina's first privatization of water and sanitation services.[62]

The financing of part of the investment out of tariff revenues could have been avoided but that surely would have demanded a contribution from the budget. In a province with serious fiscal problems this was not a viable alternative. The use of cross-subsidies also introduced problems of its own.

There follows from the previous analysis that in the privatization of water and sanitation services it would be better for the firm to share with the government the collection of bills in arrears (beyond a minimum level at least). This would moderate the incentive for the government to encourage delinquency.

CASE 9: CONTRACT TERMINATION IN THE PROVINCE OF TUCUMAN

Water and sewage were privatized in the province of Tucumán in 1995. Only one group, *Compañía de Aguas del Aconquija* (CAA), a joint venture between a French company (*Compagnie Generale des Eaux*) and three Argentine companies (none of them from Tucumán), participated in the August 1994 auction. After the government of Tucumán accepted CAA's technical proposal, it negotiated the economic proposal which was based on the initial increment of the average tariff. CAA reduced its original request of a 94.1 percent increase to the finally approved 67.9 percent increase. In December 1994, a 30-year concession for the provision of water and sewage was granted to CAA, which started operations in July 1995.

There were two "unexpected" events that affected the concession and led to its cancellation on September 1997.

- In October 1995 a new government took office in Tucumán and on December 1995 the provincial Congress passed a resolution to limit the increase in the average tariff to 35 percent, "until a new tariff is negotiated." On January 15, 1996, the public agency that reviews the legal aspects of public decisions in Tucumán decided that the 67.9 percent increase in the average tariff already included provincial and local sales taxes, contrary to CAA's position that any indirect tax should be added to its tariff.

- On January 25, 1996 manganese was found in the main water source for Tucumán. Although the firm had to comply with quality targets that included a maximum level of manganese, and the affected water source was not the responsibility of CAA, public confidence in the company was shaken when the water changed to a dark brown color.[63]

In March 1996, the provincial government threatened CAA with the termination of the contract. The firm's response was to apply under the Argentine-French treaty for the protection of investments. A lengthy negotiation between CAA and the provincial government has been going on since. There was political pressure to reduce tariffs and campaigns not to pay water bills. CAA did not suspend service for "political reasons" (although the contract allowed it to do so), probably part of a negotiation strategy. As a consequence, water bills arrears increased from 38 percent at the beginning of the concession to 75 percent as of December 1997.

In August 1996, CAA, the executive branch of the provincial government, and federal officials agreed to a new contract, with the assistance of the World Bank, but the provincial Congress rejected it. In December 1996, CAA appealed to the Argentine-

[62] Later concessions in other provinces did not make use of this alternative either.

[63] CAA argues that this was not a priority standard because, according to the contract, it had to be measured only once a month.

French treaty, but in March 1997 suspended its request because the government decided to name a commission to negotiate a new contract. The Vice Governor, two legislators and the labor union formed the commission that negotiated a new contract with CAA. But the provincial legislature and the executive introduced some changes. CAA did not accept these changes and again asked for protection under the Argentine-French treaty. The executive sent draft legislation to the legislature with the new contract agreed to between the commission and CAA, but the Congress again rejected it on August 1997. Both CAA and the government of Tucumán asked for the termination of the concession. CAA was forced to continue operating the concession for 18 additional months until the government finds a new supplier (the contract allowed the executive to extend the contract for such a period if needed).

Analysis of the Case

Under the terms of its concession, CAA was responsible for providing water and sewage treatment to the city of Tucumán, 9 other cities and 70 small towns. There was a clear intention to subsidize the provision of the service in some areas (specially the small towns) with higher tariffs in the city of Tucumán. The average tariff was calculated based on several characteristics of the property (as in the Buenos Aires concession), with no formal targets on metering.

A new government took office in 1995 whose electoral campaign was based on several criticisms of the reforms initiated by the previous administration. When manganese appeared in the water in Tucumán, the Ministry of Health announced that it was no longer drinkable and the Minister of Government said, "the provincial government does not negotiate with thieves."

Throughout this episode, CAA's strategy was to negotiate with the government. This was clear even before it started operations because it accepted a lower increase in tariffs than the one included in its original proposal.[64] The strategy was evident on two occasions when CAA agreed to postpone its appeal to the Argentine-French treaty for the protection of investments. Furthermore, although it would have been within its contractual rights, CAA did not withhold the provision of water to families who were in arrears. In doing so, CAA made the problem worse because higher debts would eventually become even more difficult to pay, especially for low-income families.

Since the eventual outcome was the cancellation of the concession, this case was clearly outside the initial contract. The decision was motivated by two events: the change in government that led to a politicization of the contract, and the manganese episode, which was resolved in two days but increased political pressures on the contract.

The contract explicitly mentioned that CAA was responsible for the provision of drinkable water (point 4.3.1.), and not just for compliance with routine controls. More important, point 4.3.1 also said that CAA had to take, at its own cost, any measures necessary to avoid pollution of the treatment plants or the distribution system. But the contract also included specific penalties for an eventual deterioration in quality.[65] There are no cases in which an isolated incident of noncompliance leads to the cancellation of the contract. Furthermore, unexpected events are subject to no sanction (point 14.2 of the contract).[66] The most severe sanction is mentioned in general in article 8 of Law 6529 that approved the privatization. This article allows the

[64] Moreover, the contract provided for an annual 10 percent increase in the average tariff, calculated over the adjusted price.

[65] Point 4.3.2 of the contract mentions that, in any case, deterioration in quality must be considered a danger to the health of the population.

[66] In fact, point 14.10.5 of the contract imposes a penalty of US$10,000 for "…not adopting in due time the necessary measures to prevent polluted water from entering into the facilities for treatment or distribution…", and point 14.10.6 imposes a penalty of US$ 20,000 for "… any noncompliance in the quality targets for water, which has serious consequences...".

regulatory agency to intervene if there is a danger to the population even if the firm is not at major fault. But article 59 of the law states that, in the case of severe noncompliance with the contract, the regulatory agency may demand that the concessionaire resolve the problem. Article 64 states that if there are deficiencies in the quality of the service the concessionaire should pay a penalty calculated as a percentage of the sales of the firm in the area affected by the problem.

One can infer from government threats to cancel the concession without following the steps that were included in the contract for cases of serious deterioration in the quality of water, that there was an intention to politicize the conflict. Political demands were also being made by congressmen and officials, as shown by their pronouncement that the increase in the average tariff already included the impact of indirect taxes. The contract is clear about this issue. Provincial and municipal taxes are not costs to the firm (point 9.2) and they are to be passed on to the consumer (point 12.10.5). Another example is a similar discussion about who has to pay the percentage of the tariff that finances the regulatory agency.

It is interesting to note that the law establishing the privatization of water and sewage in Tucumán required the winner to maintain on the payroll at least 90 percent of the employees of DIPOS (the public firm). Given the traditional overstaffing of public enterprises this requirement leads to a higher average tariff, increasing the hold up potential in the future, for a service that has shown major difficulties in collecting overdue payments.

In addition to political conflict between entrant and departing governments, other factors might explain why the CAA contract was on the spot. First, the increase in tariffs was negotiated between the firm (the only one that participated in the auction) and the former government. There were no other bids. Although the final outcome of that negotiation was an increase in tariffs that was lower than that requested by CAA, there was no benchmark, leading casual observers to believe that the process was not transparent.

Second, a higher tariff was needed to finance CAA's ambitious investment program. This increased the likelihood of customer's noncompliance with payment of their bills. The canon was set to zero in order to offset this risk. In fact, Law 6445 said that the tariff should not include any charges for the depreciation of the existing stock of capital.

The intent of Law 6445 was clearly to penalize consumers who were in arrears, but the change in government in 1995, together with severe macroeconomic conditions in a province that had one of the highest unemployment rates in Argentina, eased the way for the politicization of the collection process.[67]

CAA's renegotiation position with the new government was ambivalent. The company's request for protection under the terms of the Argentine-French treaty was clearly issued as a threat. CAA could have first opted for requesting arbitration included in point 5.4.4. of the contract. Such an option would likely have been ignored by the press outside Tucumán and also the federal government.

It is interesting to note that although CAA employees own 10 percent of the company's stock, this has had no effect on the politicization of the conflict.

The rules that govern the regulatory agency have some positive aspects. For example, sanctions to the firm are included in the budget of the agency, providing an incentive for effective monitoring of the firm (and application of the penalties). Agency directors are named by the Executive with the approval of the provincial Legislature for a period of six years, and they cannot have any contractual relationship with the concessionaire for two years after they leave the agency.[68] However, the municipal governments name two of the five agency directors, introducing some room for politicization.

[67] Law 6445 established a restriction on the regional subsidy of 5 percent of the total revenue of the company, that would be compensated by the government through the budget.

[68] This restriction has not been usual in federal or provincial privatizations in Argentina.

The concentration of ownership in the French company was different from the alternative chosen in the case of Corrientes. Instead of raising the interest of local entrepreneurs, equity became more concentrated in a foreign firm with the treaty's protection of the investment. The treaty was not enough to avoid the cancellation of the contract, however, despite the fact that the firm might end receiving compensation in the future.

The case is very illustrative of the difficult balance between securing ex-ante the financing of important sunk investments and assuring the ex-post sustainability of high tariffs in the presence of a profound change in government and insufficient competition in the award process. In spite of the use of several standard instruments like reserving a fraction of the equity of the firm for employees, a relatively good design of the regulatory agency, or placing a limit on regional cross subsidies, the privatization failed. There were some pitfalls that may have contributed to this failure. The requirement to maintain at least 90 percent of the received personnel implied a higher tariff. Moreover, CAA accepted from the beginning the requirement that it negotiate on a bilateral position with the government. Finally, the fact that the regulatory agency was local may have eased the way for the politicization of the conflict.

The Telecommunications Sector

The telecommunications sector was one of the first and most important privatizations in Argentina. The industry was privatized in 1990, at the beginning of the first term of the current administration, when the country had not yet recovered from the severe macroeconomic conditions of the eighties. The sector was made up of two firms (*Telefónica de Argentina* and *Telecom Argentina*) which provided urban and interurban domestic services. One firm provided service to the northern parts of Argentina, while the other did so for southern Argentina. Both firms shared the Buenos Aires metropolitan area in equal parts. They also shared the provision of international services in a joint enterprise, and owned one of the three main mobile telephone companies. They also owned one of the three (leading) data transmission companies and entered the cable-TV business only recently.

Thus, the situation at the time of privatization was one of a monopoly in the local, short to long distance and international services along with limited competition in the other segments, where both firms have important interests. Competitive pressures were therefore supposed to be negligible during the licensing period which was a seven year concession of exclusivity rights in all voice transmission services (except for the mobile segment) under CPI-X price regulation (with X set at 2 percent per year) along with quantitative targets dealing with the expansion of lines.. The exclusivity of the license could be extended in 1997 for three years, with an increase in X to 4 percent per year, only if the investment targets were met.

The institutional regulatory framework was defined immediately after the bidding process with the creation of the CNT (*Comisión Nacional de Telecomunicaciones*). Commission members were appointed by the executive without an open call or contest for the posts. During the first year the CNT was an autonomous body. This was changed in 1991 when the CNT was intervened by the executive after the creation of the position of Under-Secretary of Telecommunications (within the scope of the Ministry of the Economy and Public Works and Services). Since then, the CNT has remained under the control of the executive,[69] particularly since 1996

[69] Late in 1993 the positions in the Board of Directors were filled by contest, but in 1995 a new intervention changed the Board.

when the Under-Secretary of Telecommunications was removed from the Ministry of the Economy and upgraded to Secretary of State in the office of the President. This summarizes the evolution of the most unstable and politically dependent regulatory agency in Argentina following privatization. The CNT was neither captured by dominant firms nor remained an independent body, and, in fact, became a direct branch of the executive power.

Since it was an early privatization, telecommunication was perhaps affected by many 'imperfections' of institutional design, as just described. However, one of the major or more visible differences between this and later privatizations (such as natural gas and electricity) was that the tariff structure (based on pervasive cross subsidization that had a clear distributional purpose) was transferred to the new setting. In fact, at the time of the privatization, cross subsidies were even more severe than what had been customary in Argentina.[70] This, in turn, transferred into the future institutional setting all the tensions associated with a heavy cross-subsidized price structure. Therefore, it is not surprising that the undoing of this price structure and the administration or governance of the tariff rebalancing process became the central telecommunication regulatory issue in Argentina.

CASE 10: TARIFF ADJUSTMENT, 1991-1997

The time span of this case is the longest of all regulatory conflicts; it started in 1991 and has not yet been resolved and no agreements have been reached. For this reason, we have divided this overview into five parts or phases that correspond to historical developments. It should be noticed from the outset that the modification of the structure of tariffs being discussed (a reduction in the price of long distance calls and an increment in short distance tariffs and rentals) admits both static and dynamic efficiency gains (if properly designed), but that it also means a redistribution of income from residential callers (mostly residents of the Greater Buenos Aires area) to other types of users (residential users in the interior of the country and commercial and industrial users). This second feature makes it politically unappealing (a characteristic which has been singled out as a major cause for the historic cross-subsidies which have existed in this industry in both developed and developing countries).

Phase I: De-indexation and Adjustment of Rates

An almost unique feature of telecoms privatization in Argentina was that it preceded the macroeconomic stabilization of prices. This is particularly important for the contractual conflict analyzed here because in April 1991 Argentina anchored its exchange rate to the dollar in a one-to-one convertibility scheme, and prohibited price indexation in the private sector to ease the adjustment of expectations (influenced by a long history of inflation and unsustainable price freezes) to new macro fundamentals. Following de-indexation, the Ministry of the Economy decided that prices of public services should not be adjusted by the (more than) 20 percent CPI increase registered in February 1991. This was the end of the CPI-X formula as stated in the telecommunications license, and the start of a conflict/negotiation pattern between the government and telecom firms. Under the circumstances, the CNT, which was superseded by the Ministry of the Economy in a regulatory decision, started to lose powers.

In fact, the Ministry started to negotiate a way out of the CPI-X directly with the firms. The solution reached was to modify the formula from pesos to U.S. dollars, without modifying the X. That is, all tariffs were now expressed in dollars and, therefore,

[70] Since the end of the Second World War, when Argentina nationalized most of its public utilities, prices have been set following more or less politically or distributionally motivated patterns depending on the administration, and thus generating cycles in the price levels and structures (cf. Porto and Navajas, 1989). However, at the end of the 1980s, when the country was in the grip of hyperinflation, the structure of cross-subsidies in favor of residential customers (and against businesses) was exaggerated as the government decided to protect low-income customers (defined as urban or low consumption) from the sharp decline in real earnings (see for example, Navajas and Porto, 1990). This exaggeration of cross-subsidies was corrected before privatization in gas and electricity (for example, natural gas residential tariffs per cubic meter were one third of the industrial tariff, a relation symmetrically reversed at the time of privatization).

supposedly protected from devaluation, and would be adjusted each semester according to changes in the U.S. PPI. Of course, the firms took this as a violation of their licenses and began legal actions (unsuccessfully) in an attempt to get the cumulative difference[71] according to the old formula.

During the negotiating process, the firms demanded compensation in the form of permission to readjust tariff rates, as was contemplated by their licenses. Apparently, this was not the concern of the Ministry of the Economy insofar as the adjustment could be delayed because it did not interfere with its major short-term concern of no price increases. The firms could not get a written acceptance of the adjustment until November 1991, when a Presidential Decree (NE 2585), designed by the Ministry of the Economy, established the "dollarization" of tariffs, the new adjusted formula adapted to U.S. inflation, and also the guidelines for adjusting the tariff structure. The main one was to determine that the adjustment should be neutral for the firms, as defined by the invariability of revenues before and after the adjustment. The decree also announced that the adjustment would be undertaken shortly (within six months).

A month later, in December 1991, the Ministry took over the CNT, creating the Under Secretariat of Telecommunications to which the CNT was annexed. This direct intervention remained for almost two years without any major development, a fact that reflected the reluctance of the Ministry to change what had been achieved in 1991.[72] The new CNT officials recruited in October 1993 also followed this strategy: they were reluctant to make substantive modifications (many of the members of the new Board of Directors had a negative opinion of Decree No.2585).

Phase II: Toward the Public Hearing of 1994

Since 1993 the development of call-back competition in international calls made existing rates unsustainable, and the firms began to lose outgoing traffic. Until then, the closed monopoly nature of the Argentine market could sustain heavy cross-subsidies. Development of call-back was the first signal that the pre-privatization price structure was going to be difficult to sustain.[73]

The companies increased their pressures for fulfillment of the rates adjustment agreement of 1991. They presented the call-back case before the Courts, arguing that the government should ban it because it violated their exclusivity rights. The Courts' interpretation was that the exclusivity issue was a territorial one and that the provision of international voice transmission from abroad did not go counter that exclusivity.

Amid this dispute over call-back, the Undersecretary of Telecommunications and the companies agreed to implement a public hearing mechanism (that is common in gas and electricity) on the issue of tariff adjustment. The mechanism is a public meeting in which interested parties express their views on the

[71] Domestic inflation did not converge to international standards until the second half of 1992, and cumulative inflation since the beginning of convertibility (April, 1991) has been 62.2 percent.

[72] Between December 1991 and March 1992, the Ministry proceeded to sell 30 percent of the equity of the two telecom companies that had remained under public ownership.

[73] The extent of call-back penetration was initially constrained to international calls and later (in 1995) was extended to long distance domestic calls. The limit to call-back penetration was the so-called accountancy charge, which is the transfer price a U.S. or other foreign Telecom has to pay the Argentine telecoms for receiving the call. The charge, which is an agreed (reciprocal) transfer or access price, was set from previous agreements at US$0.75 per minute. Any call-back tariff then had this figure as a floor upon which to price the call, assuming competition in the call-back market, prices could go as low as this figure plus costs for the activity. By the time the call-back started to hit the companies, average international charges of the two telecoms were well above US$ 2, and long distance calls were up to US$ 1.6. In the case of interurban calls, since call-back operators need to enter Argentina twice to contact two calling parties in the country, they had to pay two accountancy charges which add up to US$ 1.5. This led the companies to argue in 1995 that, with the more expensive domestic long distance call at or below US$ 1.5, the call-back operator should be accused of dumping practices, i.e. selling below their costs. However, this argument is flawed by the fact that the cost is established by a transfer or access price that is an international convention between Argentina and the rest of the world, and is above the ones established between most developed countries. The determination of this charge at more normal values could have created a large entry of call-back operators into the domestic market.

issue at stake. The results of the meeting could be informative (as was the case in telecommunications) or mandatory. The first hearing (actually there were three meetings) took place in November 1994, and the companies were invited to present their proposal, a fact that was in accordance with the procedures established both in the license and in Decree No. 2585.

The proposal was very unsatisfactory from a welfare point of view and it aroused a lot of suspicion from well-informed analysts and the general public.[74] This hearing was the first instance in which a group or implicit coalition opposing the rebalancing started to express their voice, with some effect on public opinion.

Phase III: The NERA Report and the Second Round of Public Hearings

The negative experience of the first hearings gave rise to a new take over of the CNT in early 1995. The Commission has remained since then a mere branch of the Undersecretariat, who took control of the process of adjustment. In fact, the Undersecretary now fell under the control of the (newly created) Secretariat of Energy and Public Works of the Ministry of the Economy. The Secretariat took direct charge and decided to hire an international consulting firm, which was expected to complete a report on the adjustment issue in six months. This became known as the NERA (1995) report, which produced a technical proposal for adjusting rates with seven different options depending upon the constraints that one could include in the adjustment process.

The NERA (1995) report was discussed in a second public hearing which took place in January 1996 under increasing opposition from three interest groups: one represented by the ombudsman (*Defensor del Pueblo*); the second by consumer groups; and the third by opposition members of parliament. The NERA report had several flaws as noted in other studies and reports (e.g., Artana et al., 1996; Mitchell and Taylor, 1995; Yarrow, 1995) which accepted the economic (within the institutional constraints) case for an adjustment of rates. However, the critique of the interest groups was not of a technical nature. While the criticisms were all different, they did point to the inconvenience of the adjustment. The groups argued that: 1) the companies had high profits and this called for a reduction of interurban long distance and international calls without any compensation; 2) prices for international calls were being reduced anyway by the companies in response to competition from call-back firms; the adjustment would shield them from this; 3) information regarding costs and demand was insufficient and unreliable to justify an adjustment exercise, and 4) the restructuring was unfair to many consumers who did not make long distance or international calls.

These criticisms are not entirely wrong, even though they do not make a case for not adjusting telephone rates in Argentina. First, it is true that the firms have been profitable but this is irrelevant in a (within period) price cap regulatory framework, as they were supposed to maximize profits and there were gains to be obtained from the previous existing organization in the sector. Second, it is true that prices for international calls were being adjusted downwards and that the readjustment could protect the firms from this situation yielding undue compensation for these reductions. However, this element could be easily subtracted from the readjustment exercise (as proposed in Artana et al., 1996) and the call-back was not an effective solution for correcting distortions in interurban calls, particularly short to medium distance calls. Third, it is true that demand and cost estimates are not abundant and very robust. However, available estimates coupled with international evidence (Ahumada et al., 1996) can

[74] In short, the proposal 'solved' the required rebalancing (too high international and long distance domestic charges and too low rental charges and local call rates) with a modest reduction in the former (in relation to what was required according to efficiency criteria), and a similar increase in the latter. However, it disguised a big increase in tariffs by proposing a segmentation of the main metropolitan area (Buenos Aires) whereby local calls would be classified as short distance domestic calls, i.e., reducing the geographical definition of urban area. Once this new zoning was explained in the press, general opinion turned negative. According to the consulting group NERA (1995), approval of this restructuring scheme would have generated an important increase in the profits of the companies, which later questioned this conclusion.

give a fair range of values which, given the magnitude of preexisting price distortions, can safely justify an adjustment.[75] Furthermore, even accepting some unreliable estimates of fixed and variable costs (a common problem in dealing with cost estimates in telecommunications) the move to an efficient regulated price structure may yet be desirable (Urbiztondo, 1995). Finally, it is true that the adjustment leaves some consumers worse off, particularly those who had been favored by pre-existing distortions. Simple evaluations of the change in consumer welfare before and after the adjustment (Ahumada et al., 1996; Navajas, 1996) indicated aggregate gains, at the expense of a significant redistribution between urban and interurban consumers.

Another non-technical problem with the NERA report is that it could not be taken as a proposal since according to the existing license, the government cannot fix or change (or even propose a change to) the tariffs. Instead, the proposal should come from the companies, as was the case during the 1994 hearings. All the government can do is to accept or reject the proposal.

To complicate matters, immediately after the second set of public hearings, in February 1996, the Ministry of the Economy issued a ministerial resolution ordering the Secretary of Energy and Public Works to make a decision on the adjustment rates, after the companies had chosen one of the options of the NERA report. The complication came from the fact that this resolution could be construed as direct government involvement in fixing telephone rates, a legal argument later used by the ombudsman.

[75] The argument is similar to an optimal marginal tax reform exercise. If prices (e.g. urban and long distance interurban) are not optimal, then there exists an inverse optimum problem and a direction of marginal reform that can justify the adjustment as a welfare gain. Given the size of the initial relative price distortion, there is a range of values for the basic parameters (price-elasticities of demand and marginal costs) that validate the move. One only needs the true parameters to be within the limits (even though one does not know the exact values) to justify beginning the adjustment process. This argument is further elaborated in Navajas (1996).

However, this decision was not implemented because political changes within the executive (due to fighting over control of the post office privatization process) led to the removal of the Undersecretariat of Telecommunications from the Ministry of the Economy. The office was upgraded to a Secretariat of State answering directly to the President of the Republic. The CNT, completely enmeshed in this structure, moved into the orbit of the new Secretariat, created in March 1996.

Phase IV: Toward the Third Public Hearing and Decree 92/97

In the second half of 1996, the new Secretariat authorities started a more decided approach to implementing the adjustment, with (according to them) "direct presidential instructions." One of the first things they did was to abolish the ministerial resolution issued in February and establish a new mechanism for the readjustment to take place (which was not much different from what had been established before the NERA report). It clearly stated that the government could not propose an adjustment but instead could evaluate and decide on proposals made by the companies (with the final consent of the firms).

In October 1996 the companies presented a new proposal which improved upon previous ones (such as that of 1994) by taking into account the progress made, particularly after the NERA report debate. The proposal had some salient features (see Table 3). The proposal increased the rental charge (80 percent) and the local call rates (50 percent) together with an elimination of free minutes embodied in the old tariff structure and the implementation of a low user scheme to protect low-income consumers. However, it also reduced interurban short to long call charges (from 15 percent to 59 percent) and the average international call (55 percent).

The Secretariat evaluated this proposal and called for a new (the third and most recent) public hearing in December 1996. The interest groups described previously participated in that debate, as did other business organizations and individuals of the interior of the country who were supposed to express their

support for the adjustment given the large drop in the price of interurban communications. To avoid pro-urban pressure (particularly in the large metropolitan area of Buenos Aires), the hearing was scheduled to take place in a provincial capital.

The hearing was a reiteration of old arguments by opponents of the adjustment and, therefore, did not add new issues to the debate. The perception from the Secretariat's viewpoint was that the time had come to announce an adjustment modifying the one proposed by the companies. In February 1997, the Secretariat decided to go ahead with the adjustment and, instead of using the (expected) mechanism of a Secretarial Resolution, issued a Presidential Decree (No. 92/97) to signal that the decision had full political support.

Table 3: Tariff Structures in Argentine Rate Adjustment Conflict

	Original	FIEL Exercise of Efficient Prices	Var. %	October 96 Proposal by Companies	Var. %	Decree 92/97	Var.%
Rental Charge Residential	8.9	22	147%	16	80%	12.5	40%
Rental Charge Commercial	35	79	126%	35	0%	35	0%
Free Units (in pulses)	75	--	49%	--	50%	--	--
Local Calls	0.022	0.033		0.033		0.026	18%
Interurban Calls							
Short Distance	0.26	0.06	-75%	0.22	-15%	0.2	-23%
Medium Distance	0.75	0.08	-89%	0.54	-28%	0.54	-28%
Long Distance	1.4	0.11	-92%	0.58	-59%	0.64	-54%
International Calls	2	0.98	-51%	0.90	-55%	1	-50%
Low User Scheme	No	Yes**		Yes***		Yes***	

* Values are approximations and averages. Rentals are in $ per month, unit (pulses) are also monthly (1 unit=$0.044). All calls charges are expressed in $ per minute. “Pulses” (so called PTFO) are a metering convention to which the pricing is defined. One pulse costs $0.044 and it lasts 2 minutes for normal urban calls. The pricing is adjusted throughout the relation between pulses and minutes or seconds, without changing the value of the pulse.
** Up to 450 pulses/month, same rental as before and call charge equal to twice the new price.
*** Up to 150 pulses/month, reductions in the rental start with 20% (up to 70 pulses) and then drop. This scheme is not well designed, as explained in the text.

The adjustment thus decreed was a modification of the one proposed by the firms in order to make the changes less abrupt (see Table 3). First, residential rental charges were increased (40 percent) by half the amount requested by the firms. Second, the cost of a minute for a local call was allowed to rise by 26 percent (which was the result of an increase of 33 percent in the peak period from 10 AM to 1 PM, and a change in normal rate and reduced rate periods); the decree also established a low user scheme (which was poorly designed).[76] Third, the reductions in prices of both interurban and international calls were in general less sharp than proposed by the firms, with the exception of short distance interurban calls.[77]

After this decision, the Secretariat rapidly found that it had underestimated the capacity of interest and pressure groups to block the adjustment. The counterattack came in the following months through a large number of judicial hearings that led to perhaps the hottest legal dispute in recent history and to chaos in the legal status of telephone rates in Argentina. Press coverage of the dispute was, in general, favorable to the case against adjustment, with economic arguments being relegated to a second place.

[76] The low user scheme in the Argentine debate was first suggested by Artana et al. (1996) and can be thought of as an optional (self-selected) two-part tariff. The trouble with the Decree was that the established scheme did not have conditions of continuity, convexity and therefore self-selection for the scheme to be Pareto superior a la Willig (1979). Being designed for residential consumers, the nonexistence result of Ordover and Panzar (1980) does not apply to this case.

[77] In particular, for the interior of the country the Secretariat decided to give some short distance calls the status of urban calls, yielding big price reductions in calls of up to 30 kilometers. This was to compensate small towns located at distances that are shorter than those of the metropolitan area of Buenos Aires. In fact this reclassification from interurban to urban calls is precisely the opposite of what was proposed in the 1994 hearings.

Phase V: Legal Confusion and the Partial Implementation of the Adjustment

In a few weeks, there were dozens of suits that asked (mainly federal) judges to interrupt the adjustment of telephone rates, with few (or just a couple) requesting the opposite. The leading or more important judicial decisions can be classified into four groups:

- Dr. Bustos Fierro's decision in Córdoba, after lawyers for the industrial association argued that the adjustment should be accepted and implemented because it represented a relief of an unfair situation for the customers in the interior of the country who used the long distance service more intensively. This was the only case decided in favor of the adjustment with the judge expressing that the decision had a national validity. The Federal Court of Appeals in Córdoba has confirmed the decision.

- Dr. Sarmiento's decision to grant protective action (*amparo*) in Buenos Aires following the argument brought by the ombudsman (Dr. Maiorano). The argument was that the adjustment could not be held valid because the Secretariat had violated legal procedures by failing to summit the decision to a public hearing. Even though this is not a final verdict, it proved effective since it was later accepted by the Court of Appeals of Buenos Aires. The Secretariat appealed the protective action arguing that there was no case since it had not changed any tariffs, but rather modified a proposal made by the companies. Additionally, the Secretariat argued that the protective action was based on the resolution issued by the Ministry of the Economy in February 1996, which had been superseded in March 1997 and was no longer valid (see Phase IV). In August 1997 Dr. Sarmiento ordered the Telecom firms to send bills using the old pre-adjustment tariff structures.

- Dr. Heyland's grant of protective action in Buenos Aires in response to action brought by a local opposition council member (Mr. Polino) in collaboration with an association of consumer interests. In the judge's opinion, the adjustment went against article 42 of the National Constitution (reformed in 1994) and, therefore, it should be voided. In June, Dr. Heyland got tough with the companies, applying fines for charging the new tariffs. In those parts of the country where the companies were not sending out bills until the situation became clearer (so as to avoid fines), the judge fined them for not sending out the bills.

- Dr. Rodriguez's verdict in Mendoza following adjustments made by an opposition member of the National Congress (Ms. Zucardi). This was similar to the case in Córdoba and was later confirmed by the Federal Court of Appeals. Among all the legal actions considered, this is the only one that raises economic arguments. One unintentional source of confusion that contributed to the judge's decision was the fact that the National Institute of Statistics (INDEC) had to compute the increase in telephone rates to be included in the CPI. This is based on the 1985-86 expenditure survey which is, in turn, based on consumption patterns in Buenos Aires, and is based almost exclusively on rental charges and local calls. When INDEC computed the increase, taking into account the elimination of free minutes, it reported an increase in telephone charges or outlays of around 60 percent (press coverage of this had a significant impact on public opinion). Dr. Rodriguez's verdict stated that according to INDEC, which is an official body, the adjustment did not balance rates because only increases were being registered. In addition, in the judge's opinion the increase violated the peso convertibility law. It was very difficult to explain to the Judge that the INDEC measurement depended on a biased sample and that there were conceptual flaws in his argument, because the convertibility law does not forbid changes in relative prices and, in fact, says nothing about the behavior of prices.

The reaction of the companies to this situation was not uniform. The northern company (Telecom) decided to go ahead with the adjustment, while the

southern one (*Telefónica*) did not send out any bills in Mendoza and Buenos Aires in reaction to the legal actions and possible fines. By the end of September, the situation was rather chaotic and the firms waited for a Supreme Court ruling that was postponed until after the October parliamentary election. Amid speculation that the Supreme Court was reluctant to hear the contradicting cases of Córdoba, Buenos Aires and Mendoza, the Attorney General was consulted on whether the Supreme Court should resolve the dispute. The Attorney General's reply was not clear and gave rise to a sense of uncertainty. He maintained that the Supreme Court should not intervene in measures of protection such as those presented in Buenos Aires, and that there was, in principle, no contradiction between the Cordoba and Mendoza verdicts. Furthermore, he added that the ombudsman should not participate in cases where some consumers are made worse off and others are made better off.

Summary of the Case

The initial decision analyzed in this long case was made by the government and was not in compliance with the initial contract. Decisions made after the renegotiation of 1991 were in compliance with the (corrected) contract even though there were many institutional uncertainties surrounding the government action.

- The initial decision responded to a macroeconomic stabilization shock that required de-indexing contracts. Since the application was of a general nature, it cannot be interpreted as a hold up decision. The government further proved its initial intention to compensate the companies with a restructuring of tariffs, and it eventually fulfilled this commitment.

- The actors involved in the dispute were the executive (which superseded and practically removed the regulators), the regulated companies and a coalition of opposing groups formed by the ombudsman, the opposition parties, consumer associations and many judicial courts.

- The mechanism used to reach a solution of the dispute between the executive and the companies was a nonbinding public hearing with a final decision to be made by the former and agreed to by the companies. This mechanism was not accepted by the courts.

- The evaluation of the decision made by the Secretariat admits different interpretations. First, it respected the contract as modified in 1991, even though politically it was costly to do so. Second, it represented a move toward both static and dynamic efficiency, as cross-subsidies among different services were reduced and the resulting structure was closer to Ramsey Principles, giving correct signals for expansion and entry following deregulation and inter-modal competition in the future. Last, the adjustment in prices might have favored the regulated firms for not having considered the extent of protection against the penetration of call-back operations and because the reduction in short and medium distance tariffs was minor (except for areas neighboring large urban centers in the interior of the country), and due to the difficulty in anticipating the full extent of the adjustment (i.e., due to the creation of peak load charges).

- The main lesson to be learned from this case is that the conflict owes a lot to deficiencies in the privatization process, in particular, the maintenance of a highly inefficient and unsustainable pricing structure. This made the debate in telecommunications in Argentina a rather old-fashioned one, where the main topic was how to deal with cross subsidies in a closed monopoly. Other interesting aspects relate to the blocking capacity of interest groups and the way the ill-created (i.e., weak) regulatory agencies lost control in favor of the executive.

The Transportation Sector

RAILWAYS

The national network of railways, operated by the state-owned company *Ferrocarriles Argentinos* since 1946, began to be concessioned between 1991 and 1993 in separate units of service and regions, even though it remained vertically integrated. The maintenance of the network and its operation was assigned to the concessionaires. The railroads were divided in six freight units and seven suburban passenger units (the commuter network in the greater Buenos Aires metropolitan area, one of which would remain public), whereas urban passenger services were transferred to the provincial governments.[78] The regulatory jurisdiction remained under federal control.[79] Until 1996, each concession had its own regulatory body. A 1997 Presidential Decree merged all the railway and road regulatory agencies into one (which is a part of the Secretariat of Transportation and Public Works in the Ministry of Economy and Public Works).

Case 11: Renegotiation of Railway Freight Concessions, 1997

The key elements of any concession are the requirements to fulfill and the canon to pay by the operator, both of which have an impact on costs, and on the level and structure of tariffs. Also important, although sometimes forgotten, is the consistency of incentives to carry out all the terms of the contract (either through auditing efforts and penalties or through the use of private incentives to maximize profits). Since an auction tries to match the "seller" with the best "buyer," the design of the concession has to account for the interrelationship among these aspects in a way that effectively induces competition and the selection of the best possible option.

The five existing freight concessions were designed for a 30-year duration with an optional 10-year extension. Competition from trucks sets a limit on tariffs to final users (and thus the regulatory burden does not fall here, even though it is reasonable to require approval by the regulatory authority before changes in prices). That means that the key issues are the combination of the canon, the required expansion, quality of service and employment of the preexisting labor force, and the access charge to alternative users of the net (i.e., provinces that wish to provide passenger services) in an incentive-compatible way. Naturally, there are different feasible combinations of canon and requirements according to the objective followed. In this case, the goal of concessioning the service was to find new sources of funds to expand capacity and improve the efficiency of the operation of the net, because its underdevelopment and poor functioning exerted a heavy burden on the Treasury. Another goal was to increase the use of a less polluting means of transportation (which, paradoxically, suffers from the effect of public subsidies to the use of roads to autocarriers). Privatization experiences before the Convertibility and the Brady Plan (in 1990 and 1991) on the other hand, stressed financial aspects of privatization. Furthermore, since *Ferrocarriles Argentinos* was transferring passenger service to the provinces, objectives included not only the development of freight service but also passenger service, which would be promoted by lower charges for access to the railways network.

Naturally, the way to combine these elements so as not to destroy incentives is not a simple matter.

[78] Except the Buenos Aires-Mar del Plata corridor, which was also concessioned by the federal government. Many of the provinces opted to discontinue service, because it required high subsidies to be economically viable.

[79] Although currently there is an emerging jurisdictional conflict regarding the commuter network for suburban access to Buenos Aires, because the local government wants to participate in the renegotiation of the contracts which is now in hands of the federal government.

Generally speaking, the concessionaires must find it in their interest to respect the offers made. If this is sufficiently the case, then offers will not be opportunistic and the auction will attract serious investors while at the same time minimizing ex-post renegotiation of contractual terms. The importance given to all these aspects does not mean that the criterion for selecting the best offer has to combine all of them, because the weights given to each would make very problematic and even arbitrary the selection process, increasing the chance of opportunistic offers made just to win the competition but resting on the hope of ex-post bilateral renegotiation. Instead, it would be highly advisable to fix two of the three variables (providing some degree of flexibility in the contract and organize competition in the third one). For instance, the quality and expansion requirements of the network could be predefined. Similarly, an access charge consistent with real competition by alternative providers of passenger transportation over the network can also be established. The best offer would then be the one fulfilling these conditions and offering the highest canon as the rental of the assets received.[80]

This choice would certainly be transparent and probably would also be more difficult to modify: having explicitly combined different conditions to be considered in the offers, the organizer of the concession typically tries to guess consistency and credibility by analyzing the relationship between the three conditions and projections made by the participants. This facilitates contract modifications when these conditions do not hold: since the weights attached to each dimension might induce high levels of investment, announced projections must look optimistic even if they aren't really so and the benefits of the concession came from other margins. If, instead, the requirements of the concession are fixed (or linked in the contract to observed market conditions), there is no need to require explicit projections of traffic and other market conditions, which then makes it more difficult for the firms to claim that "unexpected events" require a renegotiation.[81]

Unfortunately, the auctions for the concessions of freight services and the operation of railways in Argentina determined the selection of the winning bids according to a complex set of weights regarding canon, access charge and investment plans (in addition to experience, size of the work force and participation of domestic investors, making matters even worse). Given this, even though traffic has increased (62 percent between 1992 and 1994 according to former Secretariat of Transportation and Public Works),[82] competition from trucks has been strong and demand projections have not been reached which, in turn, has induced concessionaires to lag behind in their investment plans and in the payment of canon (according to the press, they have only carried out 50 percent of the investment plans and owe $20 millions in canon, which for some concessionaires corresponds to being overdue on more than one year of monthly payments; see *Clarín*, September 28, 1997). The contracts called for the application of penalties due to these faults, including the termination of the concessions, but they have

[80] Naturally, if requirements are tighter, the highest canon will be lower. Thus, the establishment of quality requirements while competing on canon is perfectly compatible with different objectives pursued in the privatization process.

[81] The relative ability to renegotiate multidimensional offers and one-dimensional offers is at this point a theoretical conjecture with no formal model to defend it (to our knowledge). Regarding the case of water in Buenos Aires, for instance, renegotiation occurred even with one-dimensional offers in 1994, and this also happened, to certain extent, in the Port of Buenos Aires in 1995 (in this case it was not a renegotiation but rather the misuse of a clause of the contract, and even though the offers were ordered according to the canon only, they had to be explicit regarding the traffic to be assured, which later was argued was the one expected). Still, the transparency in the selection of the best alternative with one-dimensional offers reduces the scope for opportunistic behavior and, other things being equal, should reduce the probability of renegotiation. Naturally, other things must be equal to draw conclusions from different experiences, among them the warranty for the execution of the contract, the structure of final tariffs making incentive-compatible the expansion of the network and the respect of the investment plan, the autonomy and technical expertise of the regulatory body, the concentration and lobbying abilities of providers and users, etc.

[82] Interviewed in Radio Continental, February 17th, 1995; see *Ambito Financiero*, CD-ROM.

proven to be difficult to enforce.

The problem with enforcement also stems from the fact that carrying out the initial investment plans would be inefficient and, therefore, the renegotiation can be Pareto-improving.[83] The ex-post inefficiency of the investment plans justifies some type of renegotiation. However, the fact remains that the method used to select the best offer was quite inefficient (this is, in part, also reflected in the difficulties faced in most auctions, which needed to be repeated to find interested investors; in some cases, there was only one offer presented), and that renegotiation does have its costs. Indeed, a lower access charge together with a lower investment plan would have meant a much better concession outcome, and also probably a more attractive auction with more high-quality offers.

In July 1997, the Executive ordered the Secretary of Transportation and Public Works to modify the concession contracts (Presidential Decree 605/97), following the authorization to do so by the *Comisión Bicameral de Reforma del Estado* (a bicameral regulatory review commission) in April 1996.[84] The reasons for renegotiation alluded to in the decree include "unforeseen changes in conditions, which made contract plans incompatible with the level and composition of the demand," in part due to a "shortfall in actual demand relative to expected demand."

Renegotiation requirements in the decree correctly include four important constraints. First, they do not affect the "economic and financial equation" of the concessions (i.e., leaving profits constant as in a rebalancing of tariffs towards a Ramsey structure).[85] Second, they preserve the principle of entrepreneurial risk assumed at the time of competition for the market. Third, they introduce flexibility to formal (or input) requirements but respecting substantial (or output) results. Lastly, the agreement is subject to both internal and external scrutiny by auditors such as the SIGEN (*Sindicatura General de la Nación*, an internal auditor of the Executive), the AUGEN (*Auditoría General de la Nación*, an ex-post agency directed by a representative of the first political party in the opposition) and the Bicameral Reform Commission.

In this sense, given the decision to start a bilateral renegotiation of the contract, the characteristics of the mandate are ex-post appropriate, allowing improvements relative to the initial contract (for this would mean investments for which there is no effective demand, and the current high access charge delays the actual development of competition and expansion in the provision of long distance passenger transportation by alternative providers such as the

[83] Naturally, the renegotiation would be very transparent if it is competed in the market, i.e., if the concessions are terminated and a new auction is organized in which the assets added by the private operators can be included in the package at the price requested by the owners (provided that the new participants have the option to reject these assets). If the option is technically impossible, then the valuation of all the assets transferred has to be done by the authorities. New concession requirements should be modified to avoid the inconsistencies of the previous ones (the current operators could participate and continue the operation of the freight services provided that they are the highest bidders). The fact that the government has not adopted this alternative leaves open three possible interpretations. First, that the government has problems in executing the contract, which would then trigger a problematic lawsuit. Second, that the government believes the transaction costs of this alternative to be too high, including running the risk that the services may collapse at some point in time. And third, that there is simply an inadequate mechanism to defend the interests of taxpayers and users of the service (either due to a lack of capacity on the part of public officials or the lobbying efforts of current operators). Since the contract did not include the government's active participation in the provision of certain inputs or services to the concessionaires, the last two options seem to be the most relevant ones, but distinction among them is rather difficult and therefore not attempted here.

[84] During 1995 the Executive was trying to renegotiate the contracts without going through Congress. The Commission opposed these attempts arguing that the discussion disregarded important issues such as the dispute over access charges involving the provincial operator (UEPFP) in Buenos Aires, which had demanded a renegotiation of the $5 per train/kilometer access charge. This charge was, allegedly, 10 times higher than international standards (see *Clarín*, April 20th, 1996).

[85] Presumably, the renegotiation will include lowering the access charge and the canon, whereas the investment plan will be adapted and the ownership of the assets used will be more flexible.

provinces). Nevertheless, the renegotiation will be carried out with asymmetries of information and a weakened bargaining position by the Secretary of Transportation and Public Works, which makes it unlikely that "the financial and economic equations of the contracts remain constant," as mandated in the decree. Renegotiation is a costly process that should be avoided at the time of the design of the competition for the market. This requires consistency and flexibility in contract clauses, defining the exogenous changes that would lead to changes in the contract and the guiding principle to follow, avoiding also causing opportunistic misconduct by either party. These characteristics in the design of the concessions have not been observed in this case. Thus, even though the final details of the decision have not been determined yet, requiring postponement of final evaluation, the previous considerations are still illustrative and insightful, deserving their inclusion in this study.

MARITIME PORTS

The organization of maritime ports in Argentina is undergoing major changes. In 1992, Law 24.093 established that, with the exception of the country's five main ports, the provinces could request the transfer of management for existing and new commercial and industrial maritime ports. Provincial operation of ports would require federal government approval of location, safety and environmental considerations, but the federal government would in no way be involved in determining the characteristics of eventual concessions to be organized by the provinces).[86] This new legislation was the starting point for a process of decentralization of operations. In many instances, this meant allowing the participation of private operators through concessions. In this changing context, a conflict has emerged regarding the administration of the contract for the port of Buenos Aires. The port of Buenos Aires consists of two areas: Puerto Nuevo and Dock Sud. Control over Dock Sud was transferred to the province of Buenos Aires, which awarded a concession to a private operator in 1995. Puerto Nuevo remains federally owned, but it was also given in concession to a private operator in 1994. This has given rise to strong competition between the two.

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The characteristics of the concessions are different. The concessionaires of Puerto Nuevo have to pay a high canon (resulting from the economic offer they made in the auction of the concession contracts), whereas the concessionaire of Dock Sud has to pay a significantly smaller canon.[87] The concessionaire of Dock Sud is the owner of the land used for the operation of the port. Other differences are related to mandatory investments, taxes, commitment to employ the preexisting labor force, etc. Naturally, the geographical proximity between the two (areas of the) port(s) has given place to strong competition (not only port-to-port, but also terminal-to-terminal), a result of which has been a significant reduction (50 percent) in the tariffs charged to shippers. In light of this situation, the operators of Puerto Nuevo have lodged a demand pointing out the asymmetries in the respective concessions and arguing that the characteristics of the Dock Sud's concession are a violation of the rights of the Puerto Nuevo operators as they were defined at the time of their participation in the auction. The operators of Puerto Nuevo allege that: "the rules of the game have been changed. Initially, the volume to be transported was to be distributed among the port terminals, and the operators of Puerto Nuevo took this into account when preparing their bid. Now, however, a new terminal which does not pay the canon, does not have obligations with the labor force, enjoys certain services, etc. Thus, Puerto

[86] The five ports retained by the federal government are Buenos Aires (located in the city of Buenos Aires), Bahía Blanca and Quequén (in the province of Buenos Aires), and Rosario and Santa Fe (in the province of Santa Fe).

[87] Formally speaking, the concessionaires of Puerto Nuevo pay the *tasa a las cargas* (i.e., a charge for each ton transported), but have to assure a minimum volume of transportation and pay the port authorities for it. Since the guaranteed level of transported merchandise has been well above the actual volume transported, this charge is a fixed cost, and can be interpreted as a canon to be paid regardless of the volume of freight transported.

Nuevo operators agree, there is an important difference with the original auction.[88]

The consideration of the reasonableness of these demands has centered on the comparison of costs among terminals in Puerto Nuevo and in Dock Sud. However, it should be noted that the comparison is incorrect. It is like discussing whether Coca-Cola and Pepsi-Cola have different costs to level the playing field. Moreover, it will always be possible to construct cost estimates pointing in one or the other direction (for instance, modifying arbitrarily the opportunity cost assigned to the land owned by the concessionaire of Dock Sud, or changing the time preference applicable to investments already sunk versus investments to be carried out in the future, etc.). In that sense, the (ex-post) asymmetry of the concessions is a weak argument to justify a modification of the contracts. Thus, the evaluation of the conflict has to be ex-ante of investments, and according to the relevant legal and information environments.

As soon as this dispute emerged in April 1995, there was a 25 percent reduction in the canon charged by the port authority of Puerto Nuevo, the *Administración General de Puertos*, AGP, according to Resolution No. 6/95. The analysis of the resolution requires precision in terms of the applicable legal framework. Article 34 of the *Pliego de Bases y Condiciones para la Licitación de las Terminales de Puerto Nuevo* (the *Pliego*) says that a new regulatory agency, SAP, will replace the AGP and that the canon paid by the private concessionaires may be adjusted so as to cover the expenses of the administration and common port services. However, article 24 of the *Pliego* established that the winning bid would be the one with the highest economic offer among qualified participants. Article 35 stated that "during the first, second and third years of the concession, the canon would be 40 percent, 60 percent and 80 percent of the amount offered in the auction, respectively," also anticipating that from the fourth year on, the adjustment would follow the global volume of transportation for the entire port relative to the volume at the time of privatization. In other words, the contract made explicit the adjustment mechanism for the canon, anticipating that the magnitude of transported merchandise would grow in the first three years, including some sort of insurance or protection from the fourth year on. At the same time, it allowed the authorities of the port to modify the canon so as to obtain the resources necessary to finance operation of the port.

It is possible that the contradiction between the authority given to the SAP in order to modify the canon and its predetermination in the *Pliego* for the first 3 years of the concession as a function only of the economic offer, allows some legal space for having reduced the canon by 25 percent five months after the beginning of the concession in Puerto Nuevo. In fact, the arguments used to justify this decision were that "as a result of various measures, important economies in the operation of the AGP and significant increases in revenues will result, thereby abiding by the formal requirements for taking such a measure." Nevertheless, leaving aside this legal aspect which we do not pretend to solve here, from the economic point of view there is no contradiction. In effect, the 25 percent reduction in the canon paid by the operators of the terminals of Puerto Nuevo cannot be justified, not only because it occurred only five months after the beginning of the concession (invalidating the meaning of the economic offers used to select the winners of the auction),[89] but also

[88] Interview with Mayra Tebot, a member of Intefema (the operator of Terminal 6 of Puerto Nuevo, which went bankrupt less than one year after the beginning of the concession), *El Cronista*, February 22, 1995.

[89] The inconsistency between article 34 of the *Pliego* and the auction mechanism used in this case should be noted, as it implies a lack of relationship between the economic offers by potential operators and the budget of the port. The offers lack any meaning if the canon offered is immediately adjusted in order to finance operation expenses. It is like auctioning a painting to the highest bidder and then reducing the payment arguing that the seller does not need so much money. It would have been more appropriate i) to exclude any reference in the *Pliego* to the adjustment of the canon according to the budget of the port (which faces the restriction of article 12 of Law 24.093 -*Ley de Puertos*- which requires that port administrators reinvest all their resources), or ii) auction the contract based on the lowest tariff to shippers ("à la Demsetz," fixing the required contribution to finance the operation of the port).

because it did not benefit the

owner of the port (i.e., the federal government, and taxpayers and users of port services). It has to be stressed that there was no authority to reduce the canon based upon the degree of competition in the sector.[90]

In any case, regardless of the AGP's interpretation of resolution No. 6/95, the evaluation of the conflict and eventual renegotiation of the contracts is a more general matter. First, the sequence of the division of jurisdictional powers between the federal government and the province of Buenos Aires indicates that the concession of Dock Sud was not a violation of the contractual obligations in Puerto Nuevo. Knowledge of the conditions under which the Dock Sud concessionaire would operate could have been imperfect, but this should have been foreseen by the firms that participated in the bidding for the Puerto Nuevo terminal.

Second, the competitive nature of the sector, both looking to the future and in terms of the design of the Puerto Nuevo auction, renders improper all renegotiations based on competitive developments occurring after the auction. The 25 percent reduction in the canon for the Puerto Nuevo terminals in April 1995 is an unjustified contractual change for the participants at the auction in Puerto Nuevo who offered a lower canon and lost the concessions (to the extent that such a measure did not reflect the true changes of the costs of services provided by the Port authority).

Third, as already mentioned, the real competitive variable in Puerto Nuevo was the canon. Therefore an eventual difference between expected and guaranteed traffic (implicit in the canon) is irrelevant as an argument of renegotiation. Furthermore, even though the design of the *Pliego* (regarding flexibility to adjust the canon given to the port authority) and the mechanism chosen to select offers in the auction are inconsistent, the authority to change the canon is not related at all to the development of new competition or with the financial outcome for the firms awarded the concession of the Puerto Nuevo terminals.

Fourth, the correct definition of "level playing field" is ex-ante, and the variable canon adjusts for the different conditions of the concessions and the expectations of ex-post competition. This definition emerges from a simple analytical model where it can be easily demonstrated that a sequence of auctions with different ex-post conditions is perfectly compatible with normal benefits for those who anticipated developments correctly, which must be presumed to be what happened.[91]

Fifth, the reduction of the canon in Puerto Nuevo is neutral as far as equilibrium is concerned, i.e., it does not produce a modification of the tariffs competed. Since the canon is a fixed cost, its reduction does not alter the equilibrium level of charges by the operators of terminals to the shippers (at least in the absence of significant imperfections in the credit market), which then means a direct transfer from the owner of the port (i.e., the federal government and, thus, taxpayers) to the operators of the port. This transfer has no social benefit involved (if the operators go bankrupt in the current situation, then there could be a new auction where, eventually, the canon offered will be lower).

Finally, the renegotiation of the Puerto Nuevo concession contracts can give rise to a tax war between the federal government and the province of Buenos Aires, triggering the renegotiation of the concession of Dock Sud. This jurisdictional competition could have desirable effects in other circumstances, but in this case would lead only to a transfer of rents to the operators of the terminals (if it generates a reduction in fixed costs), or to a subsidy to international commerce (if it involves subsidies linked to the volume transported), or simply to an inefficient tariff structure that does not consider externalities generated by the operation of

[90] The arguments for this decision also state that "the reduction of the canon... will produce effects conducive to increases in the competitiveness of the port of Buenos Aires and its concessionaires," an aspect which should not play any role in the decision to reduce the canon, and which is suggestive of the true reason for adopting this measure.

[91] See Urbiztondo, Artana and Navajas (1997).

ports.

Summary of this Case

On the one hand, the 1995 decision by the AGP to reduce the canon paid by the operators of the Puerto Nuevo terminals by 25 percent, was within the bounds of the contract, for reasons different than the one which (at least partially) motivated it. On the other hand, the province of Buenos Aires had not changed on the contract as of November 1997.

The 25 percent reduction was motivated by the lobbying activity of the Puerto Nuevo concessionaires, who claim to have received an unexpected shock (the degree of truth in the claim might be relative, and thus the decision could be described as a contractual failure, i.e., an unjustified modification of the contract). Furthermore, there was an inconsistency between the method for selecting offers and the authority given to adjust the canon in the contract that helps to explain the ongoing nature of the conflict itself.

The actors involved in the dispute are the AGP, the concessionaires in Puerto Nuevo, the province of Buenos Aires, and the operator of Dock Sud, whose positions were generally reflected in the press as well (the Bicameral Commission also analyzed the decision ex post, and its participation should be considered relevant for the future of the negotiations). No public hearings or judicial actions have been held so far, although there might be some in the future, as the issue has not yet been put to rest.

The mechanism used to reach the (initial) solution was a resolution by the AGP, and the current dispute is characterized by an ongoing debate with joint studies by the AGP and the province of Buenos Aires, whereas the concessionaires of the two ports lobbied actively.

The AGP decision respected the letter of the contract but not its spirit (it involved the misuse of an instrument which was designed for ends different than the emergence of competition, as it cannot be seriously argued that new economies allowed the AGP to reduce its budget by 25 percent within five months of the beginning of the concessions). It does not contribute to efficiency because it represents the reduction of a fixed cost without affecting the tariffs equilibrium, as it represents a transfer from users (i.e., taxpayers who could invest more in the infrastructure of the port) to the concessionaires. Nevertheless, the AGP has avoided taking further measures in this regard in spite of pressures from the concessionaires of the Puerto Nuevo terminals. This might have been the result of closer congressional scrutiny.

As a lesson, it should be noted that there are flaws in the design of the competitive environment in Puerto Nuevo which are now being exploited by the concessionaires. In addition, the multiplicity of political jurisdictions involved, allows lobbying efforts directed to different areas. Also, this case shows that it is very hard to grant exclusivity under jurisdictional decentralization of the property of facilities (i.e., AGP and the province would have to coordinate the characteristics of their concessions, which is difficult to do).

General Lessons and Concluding Observations

Table 4 summarizes the salient characteristics of the twelve cases studied in this paper. As can be easily seen, there is sufficient variation in the cases and each one obeys certain logical explanations, providing varied lessons. For instance, deficient contract design paved the way for renegotiations, putting more pressure on the regulatory task. Similar effects produce poorly designed (automatic) cross-subsidies or insufficient competition in the award process. In contrast, highly visible sectors in which consumers feel the impact of the regulatory measure immediately, yield an environment in which regulatory adjustment of the contract is more balanced. Overall, the decisions included in this study show some bias towards the objectives of the regulated firms, whereas the exceptions are mostly concentrated in the more autonomous regulatory agencies in the energy sectors. In this sense, the implementation of regulation in the public utility sectors of Argentina seems to have been more problematic in terms of assuring the selection of the best offer in the auctions for the public firms privatized and services given in concession, as well as in adequately protecting the interests of captive users, than in terms of political opportunism and "expropriation" by changing the rules.

Comparing different levels of government, the provincial cases show some expropriatory behavior, which is consistent with weaker institutions and with the fact that provinces "export" bad reputation to other provinces (i.e., they don't internalize all the long-run costs of opportunism).

These lessons can be readily compared with new experiences. Indeed, since the writing of the first draft of this paper in December 1997, important decisions have been reached regarding the extension of the exclusivity and introduction of managed competition in the telecommunications sector (not particularly in line with what was established in the initial contract), a broad renegotiation of tariffs and obligations in the water and sanitation services provided by Aguas Argentinas in Buenos Aires (including stronger environmental requirements and a higher and more easily implementable price structure), increases in tariffs for urban public transportation (both motor and rail operations), as well as attempts to modify highways concessions (substituting tolls by a general tax on oil) and the recently concessioned (not transferred yet!) airports. These new instances of contractual renegotiation appear to have a common bias against consumers and to favor the regulated firms, and at the same time go together with requirements for faster expansion and higher investments forgiving firms for not having reached the previously contracted obligations. This is striking since the public positions adopted by members of the governing party have created an atmosphere which anticipates expropriatory behavior (this is even more so at the local level, and particularly with extractive firms of natural resources). Perhaps there is some degree of anxiety for higher investments by public officials (another example of an intertemporal inconsistency of political cycles), or may be other reasons for this wave of (non-competed) renegotiations. It is also interesting to note that none of these decisions were debated in public audiences, which then appear to offer an effective mechanism to reach contractual stability.

Table 4: Summary

Event	Sector	Type of Contractual Adjustment	Evaluation of the Decisions	Design of Contracts and Competition	Characteristics of Regulatory Bodies	Context of Operation	Importance of the Issue Involved	Participation of Consumers
1. Retained gas	Natural gas	Resolution	Correct decision (reduced lobbying)	Correct	ENARGAS has formal and real autonomy based on design and context.	Decisions have direct effect on consumers; many firms acting separately.	Relatively low	None, due to the type of decision
2. Pass-through of gas costs	Natural gas	Resolution	Incorrect decision (opportunistic behavior)	Correct (but assumed more competition than is the case in generation)			High	Very active in the public hearings; poor arguments
3. Different sources of gas	Natural gas	Resolution	Acceptable decision, not perfect	Correct			Relatively low	None
4. Revision of the price cap in 1997	Natural gas	Resolution	Reasonable compromise, but not very transparent	Contradictory resolutions made more difficult because of the regulator's behavior			Very high	Active in the hearings
5. Construction of a transmission line in the Comahue region	Electricity	Resolution based on public audience which passed veto power	Slow decision, but correct	Relatively correct, but the sector is technologically very complex	ENRE has same properties as ENARGAS	Ditto natural gas, although the issue considered follows individual rules	High	None, only generators and DCs participated in the hearings
6. Acceleration of investment in Buenos Aires	Water and sewerage	Resolution	Incorrect decision: transferred rents to the firm and adjustment could not be enforced	Correct in broad terms (except automatic cross-subsidies	ETOSS is formally autonomous but its design and context of operation bias its decision toward the regulated firm	Only one regulated firm, different users (old and new); low visibility of decisions due to delayed impact	Very high	None (the regulatory framework does not include public hearings)

Event	Sector	Type of Contractual Adjustment	Evaluation of the Decisions	Design of Contracts and Competition	Characteristics of Regulatory Bodies	Context of Operation	Importance of the Issue Involved	Participation of Consumers
7. Modification of infrastructure charges in Buenos Aires	Water and sewerage	Resolution	Incorrect decision: transferred rents to the firm, but improved allocative efficiency	Vague/no guide for modification of referential tariffs			Relatively lower	None
8. Exit in Corrientes	Water and sewerage	Transfer of ownership to local investors	Tacit expropriation (denial of pass-through and of cutting off service to nonpaying customers)	Cross-subsidies and lack of commitment by the executive	Regulator is not autonomous	Political instability	A sequence of relatively important issues	None
9. Renegotiation and cancellation in Tucumán	Water and sewerage	Contract renegotiation and termination by provincial executive	Legal instability due to political swings, low competition and deficient design of tariffs	Ditto Corrientes; low competition for the contract	Regulator is not autonomous	More pronounced political instability	Very high	Press coverage was very important, and political representatives were extensively involved
10. Tariff rebalancing	Telecommunications	Presidential decree	Complicated decision, with pros and cons in every dimension	Unbalanced tariff structure aggravated the adjustment of the contract	CNT is taken over by the Secretariat of Communications, i.e., it is not autonomous	Very important and competing interests in place, high visibility of the decision, regional conflict	Extremely high	Very active, in various instances, through different representatives, and press coverage
11. Renegotiation in freight railways	Transportation	Presidential decree	Ex-post reasonable decision, following poor design of auction, with negative precedent setting	Bad design in various dimensions (multiple arguments in the offers, etc.)	Regulator is not autonomous by design, not even formally	Various firms which do not compete among themselves	Very high	None, but some publicity was given in the press

Event	Sector	Type of Contractual Adjustment	Evaluation of the Decisions	Design of Contracts and Competition	Characteristics of Regulatory Bodies	Context of Operation	Importance of the Issue Involved	Participation of Consumers
12. Adjustment of canon in Puerto Nuevo	Transportation	Resolution	Negative decision, with transfer of rents to concessionaires, following design of the contract	Inconsistent design (adjustable canon, used as the competing variable)	Regulator is not autonomous; its replacement by an autonomous body was de-signed in the contract but is delayed	Jurisdictional separation of authority, and very indirect impact on final consumers (low visibility)	Very high	None (low visibility and indirect effect)