Centre on Regulation and Competition

WORKING PAPER SERIES

Paper No. 43

BRAZILIAN REGULATORY AGENCIES: EARLY APPRAISAL AND LOOMING CHALLENGES

Andrea Goldstein
OECD Development Centre, Paris
and
José Claudio Linhares Pires
BNDES – Rio de Janeiro

December 2002

ISBN: **1-904056-42-3**

Further details: Fiona Wilson, Centre Secretary
Published by: Centre on Regulation and Competition,
Institute for Development Policy and Management, University of Manchester,
Crawford House, Precinct Centre, Oxford Road, Manchester M13 9GH, UK
Tel: +44-161 275 2798 Fax: +44-161 275 0808
Email: crc@man.ac.uk Web: http://idpm.man.ac.uk/crc/

BRAZILIAN REGULATORY AGENCIES: EARLY APPRAISAL AND LOOMING CHALLENGES

Abstract

Brazil is going through an institutional transition in the provision of public services, which had historically been supplied by State monopolies. A core element in this process is been the creation of a new form of public sector institutions – regulatory agencies with operational and financial autonomy. In this paper we identify their most important decisions and provide detailed analysis of the economic and political context in which they have been taken. We then compare Brazil with some of its peers and argue that its regulatory performance has been rather satisfactory so far, although four main problems must be solved:

a. clear governance inadequacies in the coordination between different bodies;
b. unclear definition of their respective competencies;
c. lack of regulatory sovereignty; and
d. inadequacies in design of the new antitrust agency.

"What are we doing in practice? Creating regulatory agencies, a new State. And when I say regulation, I mean a radicalization of democracy. Improved control deepens democracy" Fernando Henrique Cardoso (1997)

INTRODUCTION

Brazil is going through an institutional transition in the provision of public services, which had historically been supplied by State monopolies. Three main factors explain this development: the scarcity of fiscal revenues required to fund important investment needs, technical advances refuting the natural monopoly argument to justify state ownership, and political and ideological changes that have diminished the sensitivity towards private ownership of hitherto strategic industries. The outcome is a set of policies that try to govern ownership transfer and competition with the ultimate aim of improving cost efficiency and service delivery, increasing product variety, enhancing innovation, and reducing prices for users and consumers.

A core element in this process has been the creation of a new form of public sector institutions – regulatory agencies with operational and financial autonomy. Flexibility and agility are required to implement *ad hoc* policies through regulations, resolutions, and decrees. Their special status also responds to the need to operate efficiently in an environment characterized by technical complexity leading to a rise in the number of interested stakeholders; arbitrage conflicts and potential clash of interests with other government bodies; and the risk of regulatory capture, since the agencies repeatedly interact with a reduced number of private firms.

Despite the short timespan of Brazil's regulatory agencies[1], they have already produced a considerable volume of regulatory decisions and their media profile is indeed relatively high. As Spiller (1993) put it, "it is only through detailed analysis of the economic and political implications of the privatization experiences that we may obtain insights about the role different institutions have in determining the performance of the regulatory and ownership reforms" (p. 388). While there are some articles that provide *ex ante* assessments of the normative framework in which they operate, our paper is among the first ones to analyze in detail their activity[2].

Given the existence of different forms of government failure, the goal of law-makers should be to design the organizational framework that can minimize the overall transaction costs of contracting. This study therefore has two main objectives:

- evaluate the performance of Brazil's three largest regulatory agencies – electricity (Aneel), natural gas and oil (Anp), and telecommunications (Anatel);
- analyze the main challenges in order to make policy proposals to improve their performance, also in view of drawing lessons for other industries that are still in the process of establishing a regulatory compact.

On the basis of a selective review of the economic literature on regulation, in the next Section we define a few analytical criteria. In particular, following Berg (2000) and Levy and Spiller (1994), we distinguish between regulatory incentives – i.e. behaviors that should be regulated and mechanisms for developing and enforcing rules – and regulatory governance – i.e. how new regulatory agencies are insulated from ongoing political pressures, while utilizing processes that promote participation, transparency, and predictability. In Section III we sketch the main characteristics of the Brazilian regulatory experience and study the process

leading to the appointment (and sometime the renewal in office) of the agencies' directors[3], their relationship with other government bodies and state-level regulatory bodies, and more in general the political economy of Brazilian regulation. In section IV, we then proceed to analyze the agencies' most important decisions – resolutions (*resoluções*), decrees (*portarias*), and administrative acts (*atos administrativos*). Following Artana, Navajas and Urbiztondo (1998), we analyze:

- whether the interventions have been based on the terms set in the original contracts or their modification;
- whether such decisions have been motivated by an expected event and/or contractual imperfections[4];
- whether the decisions have been challenged by the enterprises (or other interested parties), how such disputes have been solved, and who has been involved in this process.

In the conclusions we place Brazil in a comparative perspective and identify the main challenges for policy-makers.

A GENERAL FRAMEWORK TO ASSESS UTILITIES' REGULATION

Utilities differ from other (formerly) state-owned firms because they have natural monopoly components, so that the welfare benefits of transferring ownership to a private investor may not be big if this continues to act as a monopolist: "it is an essential truth that trading a public monopolist for its unregulated private equivalent is not guaranteed to enhance either the enterprise's efficiency or the government's chances of being kept in office by satisfied consumers" (Galal *et al.* 1994, p. 579). This is why it is argued that privatization must be accompanied by regulatory reform and that – because of the nature of the services supplied by the utilities (assets' specificity and non tradability) – this process hinges on the (prior or simultaneous) development of safeguarding institutions (Spiller 1993). These must improve *regulatory governance*, signaling policy-makers' commitment not to engage in opportunistic behavior and reassuring potential and actual investors against the risk of administrative expropriation of their assets. This reduces the regulatory risk and premia on financial markets. Specific norms on issues such as market structure, tariffs, and interconnection rules constitute the *regulatory incentives*.

Those with a significant interest in a decision incur costs when negotiating the amelioration of a market failure, so regulation is best viewed as a contracting problem. Political and social

institutions not only affect the ability to restrain administrative action, but also have an independent impact on the type of regulation that can be implemented, and hence on the appropriate balance between commitment and flexibility. In particular, to complement regulatory procedures in a welfare-enhancing way, three mechanisms restraining arbitrary administrative action must be in place (Levy and Spiller 1994): a) substantive restraints on the discretion of the regulator; b) formal or informal constraints on changing the regulatory system; and c) institutions that enforce the above formal – substantive or procedural – constraints.

These principles are relatively general. All around the world, issues in the reform of regulatory governance include the designation of regulatory authorities, the definition of their powers, of guarantees against unmotivated removal, and of financial autonomy, the choice of the tariff-setting formula, the fora to arbitrate controversies, and the role of the existing antitrust authority in monitoring access to networks and competition in the liberalized markets. In developing countries, agencies may be more permeable to the temptation of kick-backs, as the state is weak and civil servants' salaries are often low in absolute terms and always lower than in regulated firms. The recipe is therefore rather simple: introduce meritocratic recruitment and pay competitive salaries. A final issue concerns the degree of discretion. While clear mandates which specify limits, either through licenses or through legislation, may reduce the risk of expropriation, rules such as price caps and incentive schemes demand some flexibility in order to adapt to ever-changing technology and demand circumstances.

There is then an important trade-off between constraining discretion and retaining the flexibility to pursue efficiency and other goals. Thus, unless the country's institutions allow for the separation of arbitrariness from useful regulatory discretion, systems that grant too much administrative discretion may underperform in terms of investment and welfare[5]. Smith (1997b) argues that the allocation of responsibilities between agencies and ministries should be decided on the basis of four factors: a) whether political or technical criteria should prime; (b) whether significant conflicts of interest may raise by sharing responsibilities; (c) whether there are learning-by-doing effects and economies of scope that may favor concentration of responsibilities; and (d) whether political authorities have confidence in the agency (or more in general in agencies as a "general-purpose institutional technology").

The discussion so far has hinted at the importance of a "transaction costs political economy" which would give an active and central role to institutional design (Estache and Martimort 2000). The normative and positive agenda, however, should not be limited to the "depoliticization" of the economy by strengthening the rules on bureaucratic conduct and setting up independent agencies (Chang 2002). In the public domain individuals have motivations other then pure self-seeking and a further facet of the regulatory process is indeed highly idiosyncratic. As Smith (1997a) put it, "persons appointed to these positions must have personal qualities to resist improper pressures and inducements. And they must exercise their authority with skill to win the respect of key stakeholders, enhance the legitimacy of their role and decisions, and build a constituency for their independence". Equally important, the structure of rights and obligations that underlie markets are political constructs and result from political struggles.

A GENERAL OVERVIEW OF THE BRAZILIAN REGULATORY EXPERIENCE[6]

The pre-privatisation regulatory regime, by giving federal holdings planning and policy execution responsibilities, clearly blurred the relationship between the regulator and the regulated, allowing a high degree of discretion in the exercise of monopoly power. Moreover, competencies were split among several ministries, local authorities, public companies, and national committees, except for the setting of a number of tariffs, which has been the responsibility of a single government committee, the CIP (*Conselho Interministerial de Preços*). The practice of hiring the bureaucracy from SOEs also did little to foster the development of independent and autonomous capacities within the regulatory bodies. Tariff decisions were often subordinated to macroeconomic or social policy objectives, such as inflation control or equity considerations. None of these objectives was achieved, but long-run inefficiencies have been inserted. Moreover, while Brazil has had a competition law since 1962, CADE's action remained subdued for many years and the modern era in competition policy in the country only began in 1994, when a new competition law was enacted, granting independence to CADE[7].

Between 1994, when the sell-off process started in earnest with the disposal of state assets in the steel industry, and 1998, when the sale of Telebrás made Brazil by far the world's largest privatizer, almost 170 SOEs were transferred to the private sector and total revenues amounted to close to US$ 83 billion. As far as the rules of the games in the three industries under examination are concerned, regulatory incentives are clearly different. In

telecommunications, a master plan (PASTE), released in late 1995, pointed to the benefits of competition and privatization in hitting the target of almost doubling the number of phone lines. It was only in July 1997, however, that Congress finally approved the General Telecommunication Law (LGT, which does not cover cable TV nor radio broadcasting)[8]. First, Telebrás system was completely reorganized by grouping the 27 operators in three separate holdings (one of which serves the São Paulo state); by carving up mobile telephony in nine regional A-band operators competing with B-band private concession-holders; and by establishing the long-distance carrier Embratel as a separate holding. Second, PASTE's goals – increasing wireline lines by 89 per cent (by 2001) and wireless lines by 148 per cent (by 2003) – were incorporated in the new Universalization Plan, that successors companies are expected to attend. Third, the mechanism for differentiated sharing of long-distance revenue between Embratel and the operators of individual states was replaced by a tariff-based interconnection for long-distance calls[9]. Fourth, an RPI-X formula was decided. For the tariffs of wireline companies, the X-factor is equal to zero for the 1998-2002 period, but equal to 10 for interconnection charges, in order to allow new competitors (the concessionaires of so-called mirror, or *espelho*, licenses) to challenge the incumbent. The Telebrás system was sold very successfully in July 1998. Two *espelho* local concessions were then granted on 14 January 1999 to compete with the former Telebrás holdings until 2002, when entry into the Brazilian telecoms market will be unrestricted[10]. July 1999 saw the launching of the multi-carrier system that allows consumers to choose their long-distance carrier.

The 1993 electricity reform created a transmission system (SINTREL) to unify the national grid and provide open access to all suppliers[11]. In September 1997 a report commissioned by the government to an international consultancy recommended some standard measures for electricity privatisation, such as gradual unbundling of Eletrobrás's assets, creation of a wholesale power market, and operation of the transmission network by an independent operator (possibly to remain state-owned) (MME 1997). Except for the Angra nuclear reactors and for Brazil's stake in Itaipú, the federal government sought to privatize all generation and distribution companies – an objective that it has largely fulfilled. Following the introduction of rules on unbundling and on access to the transmission network, industrial users with consumption in excess of 10 MWh (3 MWh since mid-2000) can buy on the recently-established wholesale market (*Mercado Atacadista de Energia Elétrica*, MAE) where short-term electricity transactions not covered by bilateral contract take place. New

investment in hydroelectric and thermoelectric generation is governed at the federal level by the concession regime, while entry regulation in gas distribution, also through concession, is a state responsibility. For technological reasons, however, market competition in electricity finds its limit in the need to assure centralized coordination (planning and dispatch order). So, even in this more competitive setting, the MAE remains subject to the decisions of the National System Operator (*Operador Nacional do Sistema Elétrico*, ONS), a private non-profit body in charge of co-ordinating and controlling the operation of electricity generation and transmission facilities.

Finally, in the case of oil, where prices and quantities already responded to (international) market signals, the government strategy in the 1990s has been to cautiously open up new exploration opportunities to private participants, usually in partnership with Petrobrás, whose state-owned status remains unquestioned[12]. The situation is more complex in the case of gas. Transportadora Brasileira Gasoduto Brasil-Bolívia (TBG), the Petrobrás subsidiary that operates the pipeline, maintains long-term contracts (20 years) with separate clauses to determine dollar prices for gas and to index readjustments on the variation of oil prices on the world market. Gaspetro weights the prices of domestic and imported gas (80 and 20 per cent respectively) and defines a dollar price for gas distributors. Increases in the price of gas are passed through by distributors, who define a overhead before charging the final consumers.

As far as regulatory governance is concerned, three new independent bodies have been created (Tables 1-4)[13]. A positive feature is the fact that the regulatory regime is embodied in laws, thus making it more difficult to change it without a debate in Congress. The law-making process itself, however, substantially watered down the government's initial propositions, regarding for instance the regulators' ability to access information, provide firms with efficiency-enhancing incentives, and institute safeguarding mechanisms to protect against expropriation. Moreover, as will be made explicit below, the decision to create two separate agencies for the energy sector has created serious inefficiencies, especially insofar as it has contradicted the goal of increasing the use of gas. Finally, only Aneel has signed a management contract detailing its operational targets[14].

Table 1. Brazilian regulatory agencies: summary data

	ANATEL	ANEEL	ANP
Industry-wide regulation	Law 9472 (16 Jul 97)	Law 8987 (13 Feb 95)	Art. 177 of the Constitution
Founding legal act	Decree 2338 (7 Oct 97)	Law 9427 (26 Dec 96)	Law 9478 (6 Aug 97)
Estrutura Regimental	Decree 2455 (14 Jan 98)	Decree 2335 (6 Oct 97)	Decree 2455 (14 Jan 98)
Regimento Interno	Resolução 197 (16 Dec 99)	Portaria 349 (28 Dec 97)	Portaria 41 (15 Apr 98)
Management contract	No	2 Mar 98	No
Inauguration	5 Nov 97	2 Dec 97	16 Jan 98
Headquarter	Brasília	Brasília	Rio de Janeiro
Regional offices	In each state	No	Brasília, São Paulo, Salvador
Number of directors	Director-General + 4	Director-General + 4	Director-General + 4
Background of Director General	Renato Navarro Guerreiro: former Executive Secretary, Ministry of Telecommunications, and President of the Board of Directors, Telebrás.	José Mário Miranda Abdo: former Director-General, Departamento Nacional de Águas e Energia Elétrica.	David Zylbersztajn: Ph.D., Institut d'Economie et de Politique de l'Energie (Grenoble), former Energy Secretary, state of São Paulo
Number of employees *Of which graduates* *Of which temporary consultants* *Of which former civil servants*	No more than 1,496	No more than 325	No more than 657
Annual budget (R$ million) in 1999	278	106	439 (2000)
Source of funding	Telecom fiscalization tax (Fistel) + Budget Law	Electricity fiscalization tax + Budget Law	Concession fees + windfall gain tax + Budget Law

Source: authors' elaboration

Table 2. Regulatory incentives

	ANATEL	ANEEL	ANP
Sector characteristics Type Extent of monopoly Extent of competition	Markets Fully competitive Favor new entrants through regulatory asymmetry	Markets Partiality competitive In transmission and distribution In generation and commercialization	State-owned enterprise and markets Vertically-integrated state monopoly Prospecting concessions, wholesale distribution
Granting of licences & concessions	No	Yes	Yes
Tariff setting (formula, frequency)	Price cap over a basket of services (until 2001); possibility for the agency to free companies from this requirement.	Price cap in distribution, revenue cap in transmission. Annual adjustement + revision every 4 years.	Ministries of Finance and Mining/Energy (until 31 Dec 2001?). Gas tariffs are determined by state governments.
Contractual objectives Quality standards Investment targets Meeting demand needs	 Yes Yes Yes (universalization)	 Yes No Yes	 Yes Yes No
Contractual requirements Access to essential facility Universalization	 Free negotiation Yes	 Yes No	 Partiality No
Review of anticompetitive conduct	Control, prevent, and sanction anti-competitive behaviors, without infringing CADE's legal responsibilities.	Avoid the exercise of monopoly power through restrictions on market participation. No agent can a) control more than 20% of nationwide capacity or distribution (25-35% at the regional level) and b) have cross-ownership in generation and distribution in excess of 30%. Distribution companies can self-generate 30% of their own consumption.	Inform CADE and SDE about any indication of anti-competitive behaviors.

Source: authors' elaboration

Table 3. Formal safeguards of Brazilian regulatory agencies

	ANATEL	ANEEL	ANP
Legal mandate (freedom from ministerial control)	Yes	Yes	Yes
Criteria for appointment	No specific requirements, but rules to prevent conflict of interest	No specific requirements, but rules to prevent conflict of interest	No specific requirements, but rules to prevent conflict of interest
Appointment process	By the President of Brazil, following approval of his proposal by Senate	By the President of Brazil, following approval of his proposal by Senate	By the President of Brazil, following approval of his proposal by Senate
Staggering terms	No, except for the first Board	Yes	Yes
Length of mandate	5 years	4 years	4 years, renewable
Terms of removal	Upheld sentence or administratrive sanction	Unmotivated in the first four months only; motivated at any time (upheld sentence, administratrive sanction, unmotivated failure to comply with management contract)	Unmotivated
Quarantine	A former Director cannot make a complaint to the Agency on behalf of any actor for the 12 months following the end of the mandate	A former Director cannot work for any company in the electricity sector for the 12 months following the end of the mandate. During this period s/he remains an employee of the Agency.	A former Director cannot work for any company in the oil sector for the 12 months following the end of the mandate. During this period s/he remains an employee of the Agency.
Exemptions from civil service salary rules	Yes	Yes	Yes

Source: authors' elaboration

Table 4. Accountability of Brazilian regulatory agencies

	ANATEL	ANEEL	ANP
Transparency			
Open decision-making	Public hearings and sessions	Public hearings and sessions	Public hearings and sessions
Publication of proceedings	Yes	Yes (minutæ)	Yes
Justification of decisions	No	No	No
Consultative/advisory boards	12-member Conselho Consultivo	No	No
Ouvidor	Yes	Yes	Yes
Appeal procedures	Agency, ordinary justice	Agency, ordinary justice	Agency, ordinary justice
Grounds of appeal (error of fact or of law, incl failure to follow a required process)	Decisions are subject to three levels of internal administrative appeals	Decisions are subject to three levels of internal administrative appeals	Decisions are subject to three levels of internal administrative appeals
Scrutinity of the budget	No	No	No
Management contract	No	Yes	No
Scrutinity of conduct	Internal auditing, Congress (with General Accounting Office – Tribunal de Contas da União), ordinary citizens can appeal to justice	Internal auditing, Congress (with General Accounting Office – Tribunal de Contas da União), ordinary citizens can appeal to justice	Internal auditing, Congress (with General Accounting Office – Tribunal de Contas da União), ordinary citizens can appeal to justice

Source: authors' elaboration

THE GENERAL CONTEXT: IDEAS, POLITICS, AND INSTITUTIONS

Discussing the conditions for establishing a "regulatory compact" requires a normative analysis – what is the content of norms and regulations in imperfectly competitive markets – as well as a institutional explication – under which conditions future public regulation can be made more effective than the direct state intervention of the past. Our perspective in this study is informed by the idea that political institutions interact with regulatory processes and economic conditions in exacerbating or ameliorating the potential for administrative expropriation or manipulation, and hence determining the utilities' economic performance. Core elements of the institutional endowment include informal norms and values, legislative and executive bodies, and the judicial power (Abdala 2000).

The impact of values on economic policies has been studied extensively in the case of trade policy, especially in the US (Goldstein 1993), much less so in other policy domains. There is no doubt, however, that the leeway that regulatory agencies have in implementing their mandate is constrained not only by their institutional embeddedness but also by the degree of acceptance that the populace – and the elites in particular – have for their autonomy. The conventional wisdom, often found in the financial press, is that in Brazil the ideology of state-led development – even at the cost of macroeconomic imbalances – remains deeply-rooted and that market reforms find their limit there. The picture is more nuanced and points to the prevalence of contingent priorities over generic, ideological goals. Twenty years ago, a seminar contribution demonstrated the existence of complex cleavages in the elites, especially regarding the trade-offs between capital accumulation and social equity (McDonough 1981). Studying the most recent period, Kingstone (1999) has also highlighted how two powerful sectors of the elite, industrialists and business associations, have by and large supported trade opening, although making such support dependent on their perception of the ability of government leaders to deliver on their promises.

That pragmatism has informed the attitude of societal interests that had long enjoyed the benefits of protection by the state from market pressures is clear when looking at the political economy of Brazilian privatizations. Indicators as diverse as opinion polls, electoral success of market reformers, and frequency of strike actions directly or indirectly related to the sell-off program all show that in Brazil ownership transfer has not elicited strong passions (Goldstein 1999). This is not to say, however, that privatization is being supported full-heartedly. Already in August 1999 the

difference between supporters and opponents of privatization was statistically insignificant in telecoms and road transport and negative in electricity[15].

By turning internal bureaucratic conflicts into formal legal processes, the agencies could facilitate the transition from populist democracy to rule-based state regulation[16]. Legislative and executive bodies can constrain the action of regulatory authorities, usually limiting their independence and/or making it more costly for them to gain credibility via-à-vis investors and other stakeholders. While it is intuitive that a credible government willing to cooperate with a Congress with a common political platform makes the regulators' life less complex, there is not clear-cut formula to determine the optimal political regime. Spiller (1999) identifies three key issues – the centralization of decision-making, the extent of discretionary powers, and the degree of procedural specificity – and argues that, depending on the country, various combinations may maximize institutional credibility. Indeed, almost a decade after the virtues of insulated bureaucracies were influentially extolled as a building block for economic transformation (Williamson 1994), this thesis has been questioned as too mechanical.

In Brazil the executive has exercised almost unchallenged leadership in designing and implementing the program of privatization. As in many other countries, the 1990s have seen a rising resort to temporary decrees to advance the policy goals of the government; interestingly, this has not reflected the need to by-pass Congress, which, quite on the contrary, has rarely been strong enough to amend government proposals (Almeida 1999)[17]. For this reason, in Brazil the challenges to regulatory politics may stem less from excessive politicization and more from the lack of effective mechanisms allowing coherent bargaining over policy design. In other words, insofar as regulatory decisions are concerned, the executive may be under too weak pressures to hear signals from other parties and search for compromise and hence take ill-advised decisions.

There is however a sector in the public administration that has consistently opposed reforms. The Brazilian judicial system has traditionally functioned rather badly, with a poor track record in upholding private property or contracts and a statistically-significant negative impact on growth (Pinheiro 2000)[18]. As shown in Table 5, which does not include the particularly heated case of Banespa in 2000, the judiciary has repeatedly and consistently sided with plaintiffs seeking an injunction against the sale of state assets. Not surprisingly, judges are also opposed to relinquishing their powers to independent authorities. More than half of magistrates consider that courts should

not refrain from overhauling the decisions of the agencies, not only on procedural but also on substantive grounds (Pinheiro 2001, Table 22).

Table 5. Judiciary interventions in the privatization process (1991-97)

Sector	Nr of privatization	Nr of cases
Steel	8	92
Chemical	14	105
Ferylizers	4	35
Electricity	6	35
Railroads	1	19
Mining	1	148
Banking	1	4
Other	3	22
Total	38	460

Source: Almeida (1999)

AN EARLY APPRAISAL

The previous sections have shown the large steps taken in the second half of the 1990s in reducing the role of the state in the Brazilian economy, the scrupulous adoption of the lessons from the international experience concerning the design of the regulatory agencies, and the institutional and political conditions that have surrounded the whole process. Here, on the basis of Table 6, which provides a synoptical view of the ten most important decisions taken by the agencies, we analyze the regulators' behavior.

Anatel

Our analysis of this agency is based on decisions concerning ownership changes, fulfillment of interconnection conditions, and redefinition of the regulatory environment in the mobile phone market. It is important to emphasize that in this sector the dynamics of technological progress and the wide differences in corporate strategies make our task relatively difficult, since it is not easy to separate regulatory failures from strategic errors made by managers. In its decision-making, Anatel has been helped by the fact that clear sectoral rules had been set before its creation. Nonetheless, it has also faced obstacles that could undermine its credibility: a) the operators' initial difficulty in meeting quality objectives, given the simultaneous fast expansion of services supply[19]; b) the adoption of new technical norms to introduce competition in long-distance intra-regional telephony one year after the introduction of the new industry framework; c) the threat of losing control over the Universalization Fund to the Ministry of the Communications[20]; d) the fact that, in a context of fast technological convergence, Anatel does not exercise regulatory governance over radio and TV

services, whose concession is the responsibility of Congress; and e) lack of competition in local fix phone services because the "mirror firms", that were created after Telebras` privatization, have little power in the local market.

The LGT prohibits the same operator to own shares in the controlling consortium in more than one region. Anatel has taken three decisions in this domain and even signed an agreement with the National Securities Commission (*Comissão de Valores Mobiliários*, CVM) to improve its understanding of corporate finance issues. The first intervention concerned the acquisition of Telesp by Telefonica[21], the Spanish group which had already bought CRT, a company independent from the Telebrás group that provides local fixed telephony services in the state of Rio Grande do Sul. A series of conflicts had erupted between the shareholders of CRT and Brasil Telecom – which operates in the same region as Telesp, already held 8 per cent of the latter's ordinary shares, and was also interested in gaining control. As these were delaying the sale of shares in the CRT consortium, Anatel first considered the possibility of suspending the license and eventually took over the company in June 1999 to verify the possible existence of legal, regulatory, or contractual wrongdoings by CRT or its controlling shareholders. After a tense legal battle – that also involved the state government – and under pressure from the agency's president and the minister of Telecommunications, Brasil Telecom finally agreed to pay US$ 800 million to gain control[22]. This unusual situation has shown the costs associated with failing to appoint an arbitrator to settle the dispute.

Table 6. The main decisions taken by Brazilian regulatory agencies

Event	Type of contractual revision	Subjective evaluation of the decision	Adequacy of contractual design	Context in which the decision was taken	Visibility of the decision	Participation
ANATEL						
1. Share Sale	Intervention in the CRT´s board (20 June 2000 until 27 June 2001)	Right: Application of sector's law avoided market concentration	Adequate: applied LGT	Conflict of interest, judiciary appeals	Average	Industry, state and federal governments
2. Redefinition of mobile phone regulation	Anatel resolution No. 253 (21 December 2000)	Right: supported convergence	Adequate: applied the General Concession Plan	Conflict of interest between incumbent and challengers	High	Public hearings with industry participants
3. Interconnection rights	Anatel arbitrations (several between 1998 and 2001)	Right but insufficient: strong information asymmetry	Insufficient: the lack of reference tariffs made free negotation difficult	Conflict of interest between incumbent and challengers, judiciary appeals	Average	Anatel's Câmara de Arbitragem
ANEEL						
4. Escelsa's tariff revision	Aneel resolution No. 246 (3 August 2001)	Right: included productivity gains in pricing formula and started timid readjustement	Insufficient: the revision was not foreseen in the concession contract, thus risk of opportunism and *hold up*	Erosion of consumers' trust in the agency, black-outs in various parts of Brazil	High	Public hearings with industry participants and consumers
5. Pass-through of increases in distributors' non-controllable costs	Non-application of clause in the concession agreement (several between 1998 and 2001)	Wrong: created an hold-up problem that increased regulatory risk	Insufficient: the concession agreement does not clarify terms for pass-through	Erosion of investors' trust in the agency, inflationary pressures, intervention of Finance Ministry	High	Public hearings with industry participants and consumers, judiciary appeals

6. Intervention of the MAE	Aneel resolutions Nos. 160, 161, and 162 (20 April 2001)	Right but overdue: overcome a deficiency in the model	Insufficient: MAE is a private concern	Energy crisis and erosion of investors' trust in the agency	High	Threat of judiciary appeals
ANP						
7. Exploration and production license tenders	Public tenders (June 1999, 2000, and 2001)	Right: boosted competition	Adequate, application of Oil Law	Conflict of interest between Petrobrás and challengers	High	Industry participants
8. Free access to the Bolivia-Brazil gas pipeline	Decision of the director-general based on decree No. 8 (18 January 2001, 14 February 2001, and 16 April 2001)	Right but insufficient: unsustainable boost to competition	Insufficient: lacking a Gas Law, ruling is not sufficient to break entry barriers	Conflict of interest between Petrobrás and challengers	Average	Only interested parties (Enron, Gaspetro)
9. Withdrawal of licenses of fuel distributors	Anp resolution of 26 December 2000	Correct	Adequate	Conflict of interest between incumbents and challengers, protect consumers	Average	None
ANEEL/ANP						
10. Emergency measures to overcome the energy crisis	Resolutions of the Comitê de Gestão da Crise de Oferta de Eletricidade (21 resolucions between 16 May and 26 June 2001)	Necessary but far from perfect: trade-off between policy coordination and agencies' independence	Industry laws did not make it possible to ensure supply expansion and coordination	Various conflicts of interest	High	Government bodies, industry participants

Source: authors' elaboration

In other interventions, Anatel was concerned about the effects in Brazil of the planned global merger between Sprint and MCI – both of which already had stakes in the two long distance operators – and suspended the voting rights of Macal Investimentos on the board of directors of Telemar, in September 1999, as it suspected the former of transferring its shares to Grupo Garantia before the expiration of the five-year grace period set in the LGT[23].

The second important event concerns the terms of interconnection. The international experience of the last decade clearly shows that the market power of the incumbent firm makes it very difficult to introduce competition in the market for infra-structure. In the case of telecoms, in particular, the incumbent has a strong monopoly power over the local loop, so that its position will hardly be challenged unless the regulator proactively seeks to promote access by setting the rate of interconnection on the basis of the marginal cost. This is a key issue in Brazil where the local monopolist in one given region can also provide long-distance data transmission and Internet services in others, so that the terms of interconnection can give rise to a set of strategic games played in different markets.

The LGT allows free negotiation between the parties and foresees an intervention by the agency only at the parties' request. However, information asymmetries between the parties have increased transaction costs and opportunistic behavior in negotiating interconnection agreements. Anatel, moreover, lacks the experience to operate in this environment. When Embratel appealed against a set of decisions by the Arbitration Chamber of Anatel that had favored mobile phone operators in various regions, Anatel denied it a suspension of the rulings. At the same time, Embratel asked the agency to arbitrate in its dispute with local concessionaires over the use of the "last mile" to supply high-speed Internet access. As local fixed-telephony operators enter the Internet Service Providers (ISP) market, more disputes will emerge. Embratel charges a capacity rent – and not a tariff, as it does in basic phone services – for the use of its backbone, that already accounts for almost two thirds of total traffic. Only learning by doing by both regulators and the private sector will change this situation.

Anatel's activity in the area of competition is made easier by the fact that it is the only agency empowered to prepare a case and refer it to Cade (Herrera 2001). In the other cases, the responsibility to prepare cases falls under the duties of the SDE in the Ministry of Justice[24]. This power gives its more flexibility and efficiency to oppose mergers that amount to an abuse of market

power and produce anti-competitive behaviors. The action of Anatel in regulating competition and arbitraging conflicts, however, finds its limit in Brazil's institutional context. For example, in July 2000 Anatel ruled that the revenue for fixed-to-mobile calls made between June 1998 and July 1999 belonged to the long-distance operator and forced Telefonica to pay some US$ 20 million to Embratel[25]. Telefonica successfully appealed the decision in court.

The third and final event refers to the auctions for licenses to provide personal mobile communications service (*Serviços Móveis Pessoais*, SMP)[26]. The *Lei Mínima* carved the country into respectively nine and ten areas for the A and B mobile telephony bands; for local fixed services the *Plano Geral de Outorgas*, as foreseen in the LGT, created a duopoly in three multi-state regions; and finally, long-distance calls are supplied at the national level. In setting up the SMP model, Anatel has tried to induce the convergence between fixed and mobile operators and the creation of conglomerates of sufficient size to exploit economies of scale. The licenses for C, D, and E bands are to operate in areas which cover regions that are different from those of fixed telephony, while cellular phone companies licensed on bands A and B have been encouraged to migrate to the SMP standard.

Although the strategic interest of gaining access to the C, D, and E band markets should be clear, the auctions have not been completed yet. Brazil has not escaped the negative fall-out of the worsening financial standing of the main global players, whose level of indebtedness has risen dramatically since 2000 as they overpaid for licenses in Europe and the US. The SMP model, moreover, is a so-called 2.5G technology and investors have been cautious before committing large sums to an option that may be outdated in little time. Despite these problems, there are indications that Anatel has been at least partly successful in meeting its twin goals of convergence and consolidation – for example Telemar and Telecom Italia bought mobile licenses in the same areas where they already operating fixed services (see Table 9). The number of players is likely to fall rapidly after 2001 or, at worst, once the large fixed telephonic service operators fulfill their expansion goals.

Aneel

Four main reasons explain the much greater difficulties experienced by the electricity regulator in its action:

a. as Aneel was established when the restructuring process had already started, its legitimacy in dispute settlement and arbitration is contested. The capacity to enforce obligations on the private sector was weak from the very beginning as the first two contracts with privatized distributors had been signed by DNAEE;
b. as the process of privatization is still far from complete and some state-owned companies have a strong market power in generation and transmission, the government's direct role as investor (in generation and transmission) and indirect role as regulator gives rise to a conflict of interest. Furnas, for example, was fined by Aneel in September 2000 for not paying its debt to the MAE, but it has not complied so far.
c. as most of Aneel's top management is formed by former DNAEE officials, the signal given to private investors is that the crux of the regulatory game still concerns technical, legal, and operational issues, and not the creation of the economic incentives necessary to create a really competitive market; and
d. there is an insufficient degree of institutional coordination between Aneel and Anp and the water agency, despite the fact that some important issues for the functioning of the electricity sector – such as the use of water rights or the structure of the gas industry – fall under the responsibility of such other bodies.

Table 7. Regional Distribution of Telecoms Operators

	Mobile Services				Fix services	
Area	**A Band**	**B Band**	**D Band**	**E Band**	**Concessionary**	**"Mirror"**
REGION I						
Amazonas, Amapá, Pará, Maranhão and Roraima	Telesystem, Opportunity, Pension Funds	Inepar	Telemar	Telecom Italia	Gutierrez, Inepar, Macal and others	Telecom Americas[1]
Alagoas, Ceará, Paraíba, Pernambuco, Piauí and Rio Grande do Norte	Telecom Italia [2]	Bell South				
Bahia and Sergipe	Telefonica	Telecom Italia				
Rio de Janeiro and Espírito Santo	Telefonica	Telecom Americas[1]				
Minas Gerais	Telesystem, Opportunity ,Pension Funds	Telecom Italia				
REGION II						
Acre, Distrito Federal, Goiás, Mato Grosso, Mato Grosso do Sul, Rondônia and Tocantins	Splice	Telesystem, Telecom Americas[1]	Telecom Italia	No bidders in of 05/06/2001	Telecom Italia, Oportunity and Pension Funds	GVT
Paraná e Santa Catarina	Telecom Italia	Inepar				
Rio Grande do Sul	Telefonica	Telesystem, Telecom Americas[1]				
REGION III						
São Paulo (Capital)	Portugal Telecom	Bell South	Telecom Italia	No bidders in of 05/06/2001	Telefonica	Telecom Americas[1]
São Paulo (Interior)		Telia				
REGION IV (Long distance fix services)					MCI	France Telecom, National Grid

Notes: (1) Joint-venture between Bell Canada, SBC and Telmex; (2) Telecom Italia had to renounce D and E bands' rights in order to respect the provision forbidding regional overlapping with A and B bands' frequencies

Source: BNDES

Reflecting all such factors, Aneel has often lacked the flexibility to define key rules to encourage entry, stimulate investment, and increase electricity capacity. To give just an example, the delays accumulated in defining transmission charges or the pass-through mechanism for the purchase price of imported gas have slowed the start of the auctioning of licenses for, respectively, new

transmission lines and new generation projects. In what follows we focus on three case studies, namely the revision of Escelsa's tariffs, the decision not to allow pass-through of distributors' non-controllable cost, and the decision to assume the management of the MAE.

Escelsa was the first electricity distribution company to be privatized by the federal government, well before the creation of Aneel. Its concession contract set the first revision three years only after ownership transfer, reflecting the fact that in 1995 the regulatory environment was still very uncertain[27]. When it started to revise the contract, Aneel was being criticized on account of the continuous blackouts around the country, in particular in Rio de Janeiro and Ceará. Because of these events, public opinion started questioning the logic of privatization and the tariff conditions set by the government when selling off, in particular the fact that the formula for final consumers did not include a productivity factor.

Conscious of the serious risk of a backslash, in the case of Escelsa Aneel established a process of public consultation and deliberation. In real terms, the tariff was reduced by 3.4 per cent on average, while the rate structure for different users was also modified. As concerns the yearly tariff readjustments for 1999-2001, Aneel decided to make them conditional on the fulfillment of additional targets for quality and unversalization[28]. This action allowed users to share the benefits from the improvement in efficiency that privatization had brought about. Although the original contract did not take into account the increase in productivity – so that in theory Aneel's intervention amounted to a hold-up – Escelsa's management welcomed it. A possible explanation is that the contract ended up being the same as those of the other distributors, although in such other cases the initial x in the RPI-x formula was equal to zero.

If in this event private investors did not complain about the intervention by Aneel, the same cannot be said of its denial to the distributors' request to pass through increases in their non-controllable costs[29]. On several occasion Aneel came out against the request by the concessionaires for extraordinary tariff revisions, for instance in January 2000 when Escelsa sought authorization for a 4.3 per cent increase to reflect the higher cost of purchasing power and the increase in the Cofins rate decided in January 1999. While acknowledging that non-controllable costs had indeed risen, Aneel ruled that, even without the tariff revision, Escelsa's economic and financial position was not being in peril. The regulator's position mirrors that of the Ministry of Finance concerning the risk that tariff readjustments pose for inflation and the need to modify the reference index used in

concession agreements[30]. In practice, by adopting a practice not foreseen in the contracts, Aneel may have increased the regulatory risk, not least because a number of non-controllable costs did indeed increase dramatically. The CCC, for example, rose by more than 125 per cent in the first five months of 2001, although its weight in the distributors' cost structure is small[31].

Of course the risk that regulatory agencies may lose credibility as a result of ill-advised choices is heightened in the case of Brazil. Because of its recent high-inflation past, private investors, foreigners in particular, are sensitive to any signal that government may tamper with tariff policy as a tool to fight inflation. To make things worse, before the debate on this issue formally started, Aneel's director general argued that, to avoid a pass-through of the 1999 revisions on inflation, the index used to quantify controllable costs could be altered, as could some clauses in the concession agreements[32].

We now turn to the third event, the decision taken by Aneel on 20 April 2001 to take over control of the MAE in order to "increase the flexibility of negotiations in the electricity market, preserve competition, support investments to expand supply, and defend the public interest"[33]. Since its establishment, the operation of MAE has been marred by the conflicting interests of the state as regulator and producer and the vague definition of the enforcement regime for penalties.

Regarding the first factor, as the federal government owns the main generators, in practice it has failed to signal to other industry participants that it was expecting such companies to respond to the same pressures. As observed above, a clear indication in this sense has been the fact that when Aneel fined Furnas US$ 240 million for its failure to respect an agreement with MAE to supply power generated at the Angra II nuclear plant, the company refused to comply. The second factor relates to flaws in MAE's governance structure, based shared management by agents that intervene on the pool market at different stages. In this regard Brazil seems to share many problems with California. According to Besant-Jones and Tenenbaum (2001: pp. 12-8):

> "the market and system operator must be genuinely independent in ownership and decision-making from market participants (generators, distributors, retail and wholesale suppliers and final customers). The governance system in California resembled a mini-legislature and […] suggests four lessons. First, the board cannot be too large or it will be ineffective as a decision making body. Second, the voting rules must ensure that one or two classes cannot control the board's decisions. Third, the regulator must be able to step in and make a decision if the board is deadlocked.

> Fourth, consumer representatives or advocates should be viewed as market participants".

The intervention has brought about three key changes:

a. the MAE's Executive Committee (Coex), a collegiate body, has been suppressed and substituted by the *Conselho do Mercado Atacadista de Energia* (Comae), managed professionally[34];
b. guarantees and penalties have been set for trading energy on the MAE, with an upper limit set at 10 per cent of a firm's total turnover; and
c. the Asmae, which was previously an independent and self-regulated institution, is now regulated and supervised by Aneel.

Aneel's decision is correct, although probably overdue considering that in two years no transaction had been concluded on the MAE.

Anp

The biggest difficulty encountered by Anp in establishing its credibility as the "referee" in the market for oil and gas is the degree of market power exercised by Petrobrás in all upstream and downstream segments. A further limit stems from the fact that Anp is not responsible for the regulation of prices and tariffs, that over the current transition period remains under the control of the Ministry of Finance. A modification in the tax structure – in the sense of either creating a single tax on fuels or adding an extra rate, earmarked to the states, to the VAT on imports – is a prerequisite to phase out the so-called Fund of Compensation (*Parcela de Preços Específica*, PPE), the special formula that permits cross-subsidization between different refined products and covers Petrobrás against variation in the difference between the price of oil in Brazil and on the international market. Pursuant to the Oil Law's target of liberalizing fuel imports by August 2001[35], Anp sent to Congress a project of constitutional revision authorizing the imposition of duties on refined products, which were exempted by the 1988 Constitution. Until the PPE is removed, it is not possible to open the market to imports, since Petrobrás would be obliged to compete with companies that are not subject to the cross-subsidization requirement and could therefore underprice Petrobrás. But this process requires a constitutional amendment, which in turn has to be approved by a two-thirds majority in both congressional houses.

Yet, despite this great limit on its operational autonomy, so far Anp has successfully accomplished its mission of implementing the competitive model in the oil and gas industry. Our evaluation is

based on the analysis of three key events, the tender for the exploration and production licenses, the debate on the free access to the Bolivia-Brazil gas pipeline, and the closing down of fuel forecourts.

In July 1998 ANP issued the list of the blocks left in concession to Petrobrás and of those to be tendered. Out of a total of 6,436,000 km^2 in 26 basins, only 7.1 per cent was kept by Petrobrás. One year later, ANP started tendering the license for exploration, development, and production. Three rounds have been held between June 1999 and 2001 for a total of 103 blocks, bringing dozens of companies, including all the international majors, to dig for oil and gas in the country's mainland and deep waters[36]. While in the first round there was one only bidder for 15 blocks out of 27, one year later there was competition for 21 out of 23 blocks. Another difference between the two rounds – and a partial explanation for the more heated contests of 2000 than 1999 – is that the government initially imposed a high minimum price for licenses. As a result no Brazilian company, except Petrobrás, took part to the first round, while some participated in the second and third, as did second-tier and smaller international companies.

We evaluate this event positively because Anp was responsible for surveying, delimiting, and auctioning the blocks. In other words, despite the existence of transaction costs and strong information asymmetries – Petrobrás traditionally monopolized technical knowledge in the oil business in Brazil – Anp created a set of attractive assets. Anp is also playing an active role in monitoring the fulfillment of contractual obligations, as in the recent warning addressed to Coastal for not informing the agency of the discovery of gas in Bacia do Paraná.

The second event refers to the application of the free access principle – established by article 58 of the Oil Law and regulated by ANP decree no. 169/98[37] – in the case of the Gasbol gas pipeline run by TBG. The agency initially set the transmission volumes at 1 million m^3/day (between April and August 2001) for Enersil (controlled by Enron) and between 800,000 and 1 million m^3/day (September 2001 to December 2003) for British Gas (BG)[38]. Anp intervened following a request by these two companies, which alleged they were finding it difficult to close contracts with TBG. Enron had asked for more gas delivery points along the TBG's pipeline, a contractual agreement with Petrobrás was signed in September 2000, and British Gas asked the same conditions. On 16 April 2001, Anp awarded BG transport rights from Bolivia to the state of São Paulo, in the form of firm contractual arrangements, to the tune of 700,000 m^3/day for April-August 2001 and 2.1 million m^3/day between September 2001 and December 2002. BG had requested that these conditions apply

until December 2003, but Anp argued that, from that date, supply will be made in the form of interruptible contractual arrangements, i.e. that any interruption has to be notified to Anp for approval.

Because the pipeline is clearly a natural monopoly, ensuring free access is one key issue, possibly the most important, to promote competition in the gas market. For this very reason, the Anp decision was right: as explained in its ruling, the agency found that TGB was preventing the sharing of the essential facility it controls[39]. TBG modified the original planning of the pipeline's maximum capacity in such a way that it could only respect the contracts signed with Petrobrás. Concerning the tariff applied on the BG-TBG firm contractual arrangement, Anp upheld the same criterion adopted in solving the conflict over interruptible contractual arrangements with Enron, that is introducing a distance factor into the definition of the values between the source and the delivery location.

Our evaluation is that this measure will prove insufficient to guarantee full competition in the Brazilian gas market[40]. The only action that may avoid conflicts of interest and abuse of market power is the unbundling of Petrobrás, separating the transport facility from both upstream and downstream activities[41]. Contrary to Anatel, Anp does not enjoy the power of preparing anti-trust cases and Cade has not studied the sector so far. A further problem is that Anp's jurisprudence does not cover the distribution and marketing of gas, since for these activities the Constitution established a principle of subsidiarity, giving granting responsibilities to the states.
The biggest challenge is to design a adequate model for the natural gas sector. In Brazil gas exploration is associated with oil and Petrobrás has always treated the former as a complementary product of its main activity. The 1997 Oil Was has not modified this situation and Petrobrás continues as a monopoly in gas exploration and transportation while distribution is in the hands of regional monopolies.

Finally, we examine the possibility that the decision of increasing to 750,000 liters the minimum storage capacity directly owned by wholesale fuel distribution companies may have reduced competition by raising a barrier to entry and exit. Anp has defended its decree on the grounds that the excessive number of market participants – 409 in 1997, of which most acting as intermediaries – made it impossible to exploit economies of scale and induced them to increase financial margins by adulterating fuel and dodging taxes. As a result of the decree and of more efficient monitoring, the number of agents has fallen to 202, of which 194 have market shares of 0.1 per cent each[42]. In this

sense the possibly negative effects on competition have been more than offset by the reduced risk that consumers be jeopardized by opportunistic behaviors and predatory competition.

Comitê de Gestão da Crise de Energia

In 2001 the fortunes of the Brazil's energy sector – and more in general the credibility of the country's utilities reform exercise – have been overshadowed by power shortages that have forced production cuts in industry and slowed economic growth. Although a discussion of the origins of the crisis goes well beyond the goals of this paper[43], it has showed the limits of the institutional model adopted to regulate the energy sector, based on separate agencies for electricity and oil and gas. For the purpose of our paper, it is interesting to analyze the first joint decision taken by Anp and Aneel which in June 2001 led to the adoption of the emergency program to reduce energy consumption[44].

The 1997 Law envisaged the creation of the National Energy Policy Council (*Conselho Nacional de Política Energética*, CNPE) to advise the Presidency of Brazil in the formulation of the national energy policy. The Law, however, did not foresee any role for either Aneel or Anp, and at any rate CNPE only became operational in June 2000[45]. Although increasing competition in power generation largely hinges on the greater use of gas, the lack of clear coordinating mechanisms has made it much more difficult to attain this goal. Decisions on at least two key issues – how to adjust the price for imported gas (by Anp) and how to define the maximum value of the pass-through (by Aneel) – have been postponed. Added to the inefficiencies caused by Petrobrás's market power, this indefinition has created a bottlenecks in supply that has paralyzed new investment in gas-powered stations.

In May 2001, as the energy crisis worsened, the Comitê de Gestão da Crise de Energia (CGE), chaired by Pedro Parente, President Cardoso's Chief of Staff, was established[46]. As shown by the high number of resolutions approved (15 in the month to 15 June), the CGE has proven rather efficient in taking emergency measures to reduce consumption and increase supply – and has attracted positive comments from the business press[47]. By including a large number of ministries, departments, and government agencies, however, the CGE has effectively taken over most of Aneel's statutory responsibilities, such as setting the spot price on the MAE, marketing excess capacity produced by independent generators, and fixing objectives to curb consumption. The initial intention of extending the CGE's emergency powers by making it impossible to take legal action

against its decisions, which was later overturned by President Cardoso, is also rather questionable. Indeed, it would have been deeply in contrast to the desire, expressed in the citation at the beginning of this paper, of making regulatory efficiency a building block for a virtuous circle of democratic governance.

Although the CGE is also responsible for decisions in the gas industry, Anp has been able to gain increasing power and credibility, at least indirectly at the expense of Aneel. The agency's director general proposed the emergency plan that, with some changes, was finally preferred to a competing plan sponsored by Aneel. In June, Anp met another success when the CGE altered its initial decree – sponsored by the Ministries of Finance and Energy – setting the price conditions for supplying the new plants included in the Priority Thermoelectric Program (*Programa Prioritário de Termeletricidade*, PPT)[49]. The intervention by Anp was motivated by the desire to remove certain elements in the original decree – such as the power for Petrobrás to set in dollars the tariff for transporting gas from Bolivia – that risked jeopardizing the entry of new market participants[50]. Last, on 13 June 2001 Anp refused to grant Petrobrás the right to expand by 10 million m^3/day the gas volume shipped on the pipeline. In agreement with the CGE, it decided to put this right up for auction and to limit in any case Petrobrás to 4 million m^3/day. We think that this decision was right, and it certainly increased the credibility of the agency insofar as it showed its unwillingness to sacrifice the long-term objective of creating a competitive market on the altar of any short-term solution needed to overcome the current crisis.

CONCLUSIONS AND POLICY IMPLICATIONS

In this paper we have analyzed the performance of Brazil's regulatory agencies from an institutional perspective. Before proceeding to some concluding remarks, it is important to highlight that – to the possible exception of computable general equilibrium modeling – there is no direct method for quantifying the impact of regulatory intervention. By examining financial markets, on the other hand, it is possible to indirectly measure the perception of regulatory risk in two different ways. First, by examining firm-specific risk, i.e. that portion of the risk in investing that cannot be eliminated by portfolio diversification and that measure the higher return (and therefore cost of capital) required to become a shareholder in a set company (Alexander *et al.* 1996). Second, by comparing through event-studies the stock-market returns for the regulated firms with general stock-market returns, to test the hypothesis that the regulatory package shows symptoms of capture by special interest groups (Dnes and Seaton 1999). Both avenues are open for future research.

While performing a beauty contest is not among the goals of this paper, it is fair to conclude that Brazil has not done worse than its peers. Simple indicators such as price, quantity, and quality of services, as well as financial results and productive efficiency, all show across-the-board improvements[51]. In Table 11 we synthesize the regulatory experiences of Brazil and three other countries: the United Kingdom for being a pioneer in this domain, Argentina because it is a neighbor whose record Brazilian policy-makers have closely studied, and Italy for being another country where utilities have been transformed in the second half of the 1990s. Three implications emerge from the international experience. First, that the success of the agencies in gaining autonomy and respect from the government, the regulated firms, and consumers strengthens the regulatory environment. Second, that this process takes time and that learning by doing effects are sizeable. Third, that, as suggested by Levy and Spiller (1994), commitment can be developed even in what are *prima facie* problematic environments and that without such commitment long-term investment will not take place.

Of course this does not mean that all is well in Brazil. There are four main problems:

a. insufficient coordination between different agencies;
b. unclear definition of their respective competencies;
c. lack of regulatory sovereignty; and
d. inadequacies in design of the new antitrust agency.

First, there are clear governance inadequacies in the coordination between different bodies. Political infighting and lack of coordination between energy authorities have inhibited private sector investment and, as we write this paper, the country faces its worst energy crisis in decades, with serious consequences on short-term economic prospects and possibly on the medium-term sustainability of reforms. While setting up the CGE has allowed to quickly issue some urgent measures, this still represents a imperfect form of intervention. Over the long term, enhancing policy coherence and credibility requires to return decision-making powers to the regulatory agencies, consolidate the sources of rule-making, and achieve higher coordination capabilities. In this sense it may be appropriate to trasfer regulatory competencies over electricity and gas to a single agency – following the British example[52]. Indeed, as observed by one of us in another paper, even in the case of railways the consolidation of the existing regulatory bodies into a new

independent agency, whose mandate may extend to other transport industries, is an imperative given the powerful positions enjoyed by concessionaires (Estache *et al.* 2001).

Second, the need to better define each agency's competencies, while more evident in the energy sector, is also clear when observing the debate raging around the definition of the rules governing digital TV operations. As technologies and corporate strategies converge, Brazil needs a sort of focal point to negotiate with industrial and financial investors and set the rules over both media and telecommunications. Such body may indeed be Anatel, and clear benefits in terms of transparency and accountability may be derived from removing the right of granting licenses from Congress – especially in Brazil where many members of Parliament hold media concessions. There is however also a risk in completely isolating decision-making procedures. Society at large should have a voice and, while there is no reason to think that a regulatory agency is not the appropriate forum, its functioning should be adapted accordingly.

Third comes the issue of the legal status of the agencies' deliberations, which today can be overhauled by any judge (Araújo and Pires 2000). A constitutional amendment is required so that the decisions of the regulatory bodies can be made equal to the ruling of a first instance court. It is imperative to discipline the incentives that parties currently have to call the judiciary to step into the fray and delay business decisions.

Table 8. A summary view to assess regulatory agencies in selected countries

	Argentina	Brazil	Italy	United Kingdom
Institutional endowment and regulatory design	While politicians have largely relinquished control on macroeconomic policy by adopting the currency board, they have kept discretionary powers in utilities' regulation	Neutral effect, although the judiciary may impact negatively on the performance of the agencies	Strong resistence by Parliament and the judiciary to the institution of independent authorities, governments in favor but weak	Supportive, although the choice of individual, rather than collegiate, regulators has been criticized
Regulatory governance	High degree of specificity of the contractual arrangement has made regulation individualized and politicized	Agencies have generally abode by the spirit of the respective industry laws; uneven development of due process procedures; the debate on how to improve accountability is still in its infancy; lack of coordination between electricity and oil/gas regulators	The media regulator has dual responsibilities for telecoms and television and its cumbersome structure resuls in politicization of decisions; its procedures are rather murky, while those of the gas and electricity agency are very transparent	Excessive discretion has not encouraged consistency between regulators and the adherence to common principles in addressing core issues; the Monopolies and Mergers Commission has reinforced the regulators' discretion rather than constrained it
Regulatory incentives	The very generous conditions granted in some cases (telecoms and water in particular) are making it difficult to open up markets; the risk of renaging on signed contracts outweigh the possible benefits; the energy wholesale market is highly competitive	Competition has been introduced to the largest possible degree in telecoms, while the costs of the delayed sell-off of generators are proving sizeable	In electricity and gas the very limited dilution of state ownership in the integrated incumbents is delaying the introduction of competition; some asymmetrical competition in telecom, although the privatized incumbent still has more than 90 per cent of the market	Achieving the current large degree of competition has required continuous adaptations (e.g., duopoly review in telecoms, British gas demerger); the RPI-X approach has resulted in excessive costs of capital and has tended to benefit investors over consumers

Sources: Abdala (2000) and Spiller (1999) for Argentina; this paper for Brazil; Abate and Clô (2000), Pontarollo and Oglietti (2000) and Ranci (2000) for Italy; Dornah and Pollitt (2001) and Helm (2000) for United Kingdom

A fourth point has to do with the current debate over a single agency responsible for consumer protection and competition (Instituto Nova Cidadania 2001, Oliveira 2000, and Pittman 2001). The draft proposal to establish the *Agência de Defesa do Consumidor e da Concorrência* (ANC) includes positive developments in regulatory incentives – in particular that mergers and acquisitions should be examined before, and not after, they are concluded. In light of the experiences analyzed in this paper, however, there are clear governance risks. Appointing a director general, instead of a committee, may decrease transparency, *a fortiori* if the mandate coincides with that of the President of Brazil, while the defense of competition and the protection of consumers are separate issues that should probably be left apart.

Finally, the Brazilian experience proves the relevance of a political and institutional approach to the study of economy reforms. Data showing that the level of rainfalls was insufficient has been available for a long time, and yet bureaucratic turf wars distracted the agencies. This way, the endemic short-sightedness of politicians – more interested in the vagaries of the political business cycle – has not been compensated by the long-term planning capacity of an insulated bureaucracy. At the same time, while there can be no doubt that the pressure of social interests may decrease the quality of regulatory decisions, too much insulation from societal pressures may do no good. The question which remains answered – and whose relevance extends well beyond the borders of Brazil (e. g. Kay 2001) – is how to reconcile the desire to extend the scope of private enterprise in the economy with the need to ensure efficient planning of investment.

Notes

[1] Anatel was established in 1997, Aneel in 1996, and Anp in 1997.

[2] FGV (2001) is similar to our paper, although the focus is on specific contractual arrangements rather than the performance of the regulatory agencies. Muller and Pereira (2000) is also similar in the use of an institutional approach, although their analysis is clearly *ex ante*. In view of theory's capacity to derive a number of interesting predictions about which interests will be represented, the extent to which the intensities of their stakes will be translated into effective political participation, and the relative allocation of rents by the regulatory process, it is not surprising that the empirical work (regardless of the specific approach) lags behind.

[3] In the three agencies directors have been changed at least once.

[4] Since contracts are incomplete by definition, they may be renegotiated because numerous contingencies were unforeseen.

[5] A somehow mirror problem may occur when the agencies take the "opportunity to engage in "shirking" – consciously failing to pursue the policy objectives that elected political leaders would desire" (Noll 1989, p. 1277).

[6] This section builds on, and expands, previous work by the authors, especially Goldstein (1999), Pires (1999), and Pires and Piccinini (1999).

[7] The 1994 law broadly resembles the competition laws of other countries, proscribing anticompetitive conduct, including single firm conduct by monopolists or dominant firms and anticompetitive agreements, and anticompetitive mergers. The Brazilian system is unique, however, in that, beyond CADE, two other government bodies, SDE in the Ministry of Justice, and SEAE in the Ministry of Finance, are designated in the competition law as having principal advisory and investigative roles in competition enforcement. Cases are begun in SDE, which, with the assistance and advice of SEAE, conducts preliminary investigations and administrative proceedings before submitting the file and its recommendations to CADE, which renders the final judgement. CADE does have power to request further information from entities whose transactions or actions are being reviewed. According to a multi-country survey of regulatory bodies (Global Competition Review 2000), this agency is warmly endorsed, although its independence – or at least its willingness to antagonize the government – has been questioned.

[8] The 1996 *lei minima* governs cellular B-band 15-year concessions. To avoid cherry-picking, Brazil was divided into two groups comprising ten regions; no competing group could bid for more than two regions and only one bid could be placed in each group. Concessionaires are forbidden from adopting overly-competitive practices, such as providing subsidies or free handsets.

[9] ANATEL has established a rate per minute, plus an additional temporary surcharge (PAT) per minute, that will be abolished in 2002.

[10] In August 2000 Anatel awarded the first *espelhinho* concessions, to offer fixed telecom services in 413 municipalities not served by the *espelhos*.

[11] Sintrel has never worked in practice because state concessionaires opposed it and transmission tariffs were not defined.

[12] While the government must hold, by law, a controlling majority in the company, in August 2000 some 250,000 Brazilians bought Petrobrás's share in the first sale of a state-owned company specifically targeted at retail investors. The government raised US$ 4bn and reduced its stake from 81.7 per cent to 55 per cent of the voting capital.

[13] State-level multi-utility agencies have also been set up in Bahia, Ceará, Pará, Rio de Janeiro, Rio Grande do Norte, Rio Grande do Sul, and São Paulo. The National Water Agency (ANA) was instituted in 2000 (Law 9984).

[14] The Bill establishing Aneel generated a lot of controversy and Congress significantly watered down the initial text presented by the executive (Abranches 1999).

[15] "Pós-privatização", special supplement, *Folha de S. Paulo*, 20 August 1999. It is noteworthy that in May 2001, 10 per cent only of respondents considered privatization as the main cause of the electricity crisis – against 42 per cent blaming government responsability and 27 per cent lack of rain, although 69% of brazilians are aginast the electricity power privatization program in accordance of Datafolha Research (03 july 2001).

[16] Majone (1997) distinguishes between two views of democracy, the "majority" or "populist" model and the "state regulator" one. In the former, the majority controls the entire government apparatus, while in the latter execution tasks and control responsibilities are delegated to non-government public bodies.

[17] At 95 per cent, the approval rate of law proposals presented by the current government to Parliament since 1998 beats by far the records set since 1985 (according to data by Argelina Figueiredo and Fernando Limongi quoted in "Orçamento é livre na luta contra as trevas", *Valor Econômico*, 18-20 May 2001).

[18] Similar considerations apply to administrative tribunals. At least formally, an important advancement has been the approval of constitutional revision n. 19/1998, which introduces the efficiency principle in article 37 of the Constitution.

[19] "Telefonia sob pressão", *Folha de S. Paulo*, 2 June 2001

[20] The Fund (*Fundo de Universalização dos Serviços de Telecomunicações*, Fust) was created in August 2000 (Law 9998) It is financed through a 1 per cent levy on the gross profits of each telecoms operator, plus other sources. It will

be used to supply telephone lines and high-speed Internet connections to public schools, libraries, and hospitals (draft version of Decree 3624/2000)

[21] The consortium that took over both companies was formed by Telefónica, Iberdrola, BBVA, and RBS.

[22] The final ruling is still pending and the shareholders of Brasil Telecom and Telefonica may still be fined for their failure to reach an agreement concerning the ownership of CRT.

[23] Anatel decided to return management rights over Telemar to Macal as it emerged that control had not changed hands. Garantia and Macal had simply agreed to coordinate their votes, although the latter may still be fined for withholding this information from Anatel.

[24] The National Agency for Health Monitoring (*Agência Nacional de Vigilância Sanitária*, ANVS), however, is empowered to both investigate and take decisions.

[25] Until the concession contracts were signed in June 1998, the receipts for all fixed-to-mobile calls accrued to the local operator; with the introduction of the multi-carrier system the process was inverted and it is now the trunk operator that receives the receipts.

[26] Brazil has opted for the European GSM technology to operate in the 1.8 GHz SMP band because this standard makes it easier to introduce more competition in the short run and migrate to the 1.9 GHz band when the International Mobile Telecommunications-2000 (IMT-2000) third generation mobile systems will become operational worldwide.

[27] Contrary to later concession contracts, that of Escelsa did not specify any tariff regime, simply setting the average rate and the structure for different services.

[28] According to Aneel's director general, "after the first revision, a price cap lower than the inflation index should be used to stimulate the concessionaire to seek higher efficiency" (*Estado de São Paulo*, 5 May 1999).

[29] Contracts divide tariffs into two different components. One, revised every year, reflects costs that are under the firm's direct control (personnel and administration); the other, whose revision is decided following a request by the concessionaire, includes non-controllable items such as energy purchases, special regimes (Reserva Global de Reversão – RGR, Conta de Consumo de Combustíveis - CCC), and transmission and distribution access charges.

[30] The price index chosen for energy – IGP-M – is more sensible to changes in wholesale prices, rather than exchange rate variations because the Wholesale Price Index (IPA) represents 60% of IGPM.

[31] The CCC had been created in 1975 to subsidize the use of fossil fuel for thermal plants.

[32] Abdo declared that, in order to meet both goals of showing commitment to investors and keeping inflation under control, Aneel and the Ministry of Finance were studying how to define an appropriate index. According to the press this initiative was resisted by the Minister of Communications. See "Aneel e Ministro divergem sobre contratos com concessionárias", *Estado de São Paulo*, 2 December 1999.

[33] For more details see http://www.aneel.gov.br/scripts/not/Noticias.idc.

[34] Comae consists of six professional members, independent from market participants and subject to a quarantine obbligation upon expiration of their mandate. Consumers, producers, and Aneel appoint two members each. ONS and Asmae (Administradora de Serviços do MAE) each have one non-voting director.

[35] However, by the end of 2000 only imports of LPG, aviation kerosene, and fuel oil have been authorised, while imports of naphtha diesel oil and gasoline remain controlled by Petrobrás. After a first postponement to January 2001, the final opening of the fuel retail market has now been postponed until January 2002.

[36] At June 2001, exploration and production rights for 50 blocks, representing 3.2 per cent of the total area managed by Anp, have been tendered.

[37] This decree was revoked on 16 April 2001 and Anp has started public hearings on the subject.

[38] The two decisions were taken in December 2000 and January 2001.

[39] According to Anp, "TBG has consistently sought to impede third-party access to the transport infrastructure, by either creating entry barriers to new gas suppliers or putting off negaotiations and decisions" (see http://www.anp.gov.br/gasnatural.htm).

[40] As shown below, Anp took other initiatives, but they had to be submitted to the Comitê de Gestão da Crise de Energia.

[41] Anp argued that limiting vertical cross-ownership is imperative for implementing the free access principle and making it possible to introduce competition.

[42] At end-2000, Anp had withdrawn the license to eight fuel distributors, while a further 75 had not complied yet with the new requirements.

[43] These have included consumption growth rates much above supply expansion, lower rainfalls in the summer period (January-April), uncertainty regarding progress in the privatization process, and the willingness of private participants to invest in new generation capacity while the regulatory framework was not clarified (Pires *et al*. 2001). As the risk of blackouts dramatically increased in Brazil's industrial belt (South-East) and in other regions (Centre-West and North-East), government decided to implement a rationing program.

[44] Over a minimum of six months, small commercial and industrial users will have to reduce their consumption by 20 per cent. Large consumers are required to reduce consumption by 15-25 per cent (10 per cent in rural areas), depending

largely on the employment and value added they generate and power they consume. All face substantially higher electricity rates and selective power cuts if they do not meet the targets.

[45] The CNPE consists of seven Ministers, a representative for the States and the Federal District of Brasília, a specialist in energy policy, and a University professor. Its objectives are to protect consumers and the environment, promote energy conservation, new investment, and competition, optimize the energy mix between different fuels, and fix guidance for specific programs such as those on gas, coal, nuclear power, alcohol, and other biomass.

[46] While Aneels´s director general blamed the low level of rainfalls, the government instituted the Comissão de Gerenciamento da Racionalização da Oferta e do Consumo de Energia Elétrica (CGRE) on 18 April 2001. This was replaced by the CGE on 15 May 2001, at the same time as a special commission, chaired by the director-general of the National Water Agency (*Agência Nacional de Águas*, ANA), was set up to assign responsabilities for the crisis.

[47] "A inércia versus a eficiência da Câmara de Gestão", *Valor Econômico*, 12 June 2001.

[49] The PPT offers incentives to those power plant developers able to start generating before the end of the first semester of 2003. To the government, through Petrobrás, will set price ceilings for 15-year fuel-supply contracts, so as to reassure investors concerned about gas-price fluctuations.

[50] Until the recent decision on exchange rate risk, only Petrobrás had started projects in gas-powered generation.

[51] See data on http://www.bndes.gov.br/pndnew/palestra/priv2002.exe. An important qualification, however, is that competition in local fixed phone services is still minimal, because the "mirror firms" have found it difficult to challenge the incumbents.

[52] Anp already has very considerable regulatory powers, so that the alternative option of merging it outright with Aneel to create a "super" energy agency has sizeable risks. Even if there were economies of scale, diseconomies of specialization are likely to be greater. On the other hand the experience during the crisis shows that there are large gains from coordination that can be internalized by putting electricity and gas under a common roof.

BIBLIOGRAPHY

Abate, Antonio and Alberto Clô (2000), "La regolazione elettrica in Italia, alcune prime valutazioni", *L'Industria*, Vol. 21, No. 4.

Abdala, Manuel (1999), "Una agenda para mejorar la regulación y competencia en sectores privatizados", LECG, *Expe-Outlook*, no. 54.

---- (2000), "Institutional Roots of Post-Privatization Regulatory Outcomes", *Telecom Development*, Vol. 24, Nos. 8/9.

Abranches, Sérgio (1999). Privatização, mudança estrutural e regulação: uma avaliação do programa de privatização no Brasil. In; Velloso, J. (org). A crise Mundial e a Nova agenda de crescimento. Fórum Nacional. Rio de Janeiro: José Olimpyo Editora.

Alexander, Ian, Colin Mayer, and Helen Weeds (1996), "Regulatory Structure and Risk and Infrastructure Firms: An International Comparison", The World Bank, *Policy Research Working Paper*, No. 1698.

Almeida, Maria Hermínia Tavares de (1999), "Negociando a Reforma: A Privatização de Empresas Públicas no Brasil", *Dados*, Vol. 42, No. 3.

Araújo, C. Helena and Pires, José Claudio L. (2000), "Regulação e Arbitragem nos Setores de Serviços Públicos no Brasil: Problemas e Possibilidades", *Revista de Administração Pública*, September/October.

Artana, Daniel, Fernando Navajas and Santiago Urbiztondo (1998), "Regulation and Contractual Adaptation in Public Utilities: The Case of Argentina", Inter-American Development Bank, IFM –115.

Berg, Sanford (2000), "Developments in Best-Practice Regulation: Principles, Processes, and Performance", *Electricity Journal*, No. 13, pp. 11-8, July.

Besant-Jones, John E. and Bernard W. Tenenbaum (2001), "The California Experience with Power Sector Reform: Lessons for Developing Countries", The World Bank, Energy and Mining Sector Board, April.

Cardoso, Fernando Henrique (1997), "As Razões do Presidente", interview with Roberto Pompeu de Toledo, Veja, 10 September.

Chang, Ha-Joon (2002), "Breaking the Mould: An Institutionalist Political Economy Alternative to the Neo-Liberal Theory of the Market and the State", *Cambridge Journal of Economics*, forthcoming.

Dnes, Anthony and Jonathan Seaton (1999), "The Regulation of Electricity: Results from an Event Study", *Applied Economics*, Vol. 31, No. 5.

Domah, Preetum and Michael Pollitt (2001), "The restructuring and privatisation of the electricity distribution and supply businesses in England", *Fiscal Studies*, Vol. 22, No. 1.

Estache, Antonio and David Martimort (2000), "Transaction Costs, Politics, Regulatory Institutions, and Regulatory Outcomes", in *Regulatory Policy in Latin America: Post-Privatization Realities,* edited by Luigi Manzetti, Lynne Rienner.

----, Andrea Goldstein, and Russell Pittmann (2001), "Privatization and Regulatory Reform in Brazil: The Case of Freight Railways", *Journal of International Competition and Trade*, forthcoming.

FGV (2001), "Private Participation in Infrastructure Projects and Determinants of Observed Contractual Arrangements: The Case of Brazil", Inter-American Development Bank, *Working Papers*, No. 413.

Galal, Ahmed ,Leroy Jones, Pankay Tandon and Ingo Vogelsang (1994), *Welfare Consequences of Selling Public Enterprises*, Oxford University Press.

Global Competition Review (2000), *Rating The Regulators*, available on-line at http://www.global-competition.com/rating/rtng_fs.htm.

Goldstein, Andrea (1999), "The Brazilian Privatization in International Perspective: The Rocky Path from State Capitalism to Regulatory Capitalism", *Industrial and Corporate Change*, Vol. 8, No. 4.

Goldstein, Judith (1993), *Ideas, Interests, and American Trade Policy*, Cornell University Press.

Helm, Dieter (2000), *Making Britain More Competitive: A Critique of Competition and Regulatory Policy*, Royal Bank of Scotland / Scottish Economic Society lecture, 6 November.

Herrera, Alejandra (2001), "Contribución al Debate: Reflexiones sobre el Sector de Telecomunicaciones", presented at the seminar *Camino a la Competitivid: el Nivel Meso y Microeconómico*, CEPAL/IADB;

Instituto Nova Cidadania (2001), "Comentários sobre o Antiprojeto de Criação da Agência de Defesa da Concorrência", *mimeo*.

Kay, John (2001), "Get back on the rails", *Financial Times*, 27 June

Kingstone, Peter (1999), *Crafting Coalitions for Reform*, Penn State Press.

Levy, Brian and Pablo Spiller (1994), "The Institutional Foundations of Regulatory Commitment: a Comparative Analysis of Telecommunications Regulation", *Journal of Law, Economics and Organization*, Vol. 10, No. 2.

Majone, Giandomenico (1997), "From the Positive to the Regulatory State: Causes and Consequences of Changes in the Mode of Governance", *Journal of Public Policy*, Vol. 17, No. 2.

McDonough, Peter (1981), *Power and Ideology in Brazil*, Princeton University Press

MME (1997), *Restrucuração do Setor Elétrico Brasileiro*, Ministério de Minas e Energia.

Mueller, Bernardo and Carlos Pereira (2000), "Credibility and the Design of Regulatory Agencies in Brazil", presented at the Annual Conference of the International Society for New Institutional Economics, Tübingen, September 22-24.

Noll, Roger (1989), "Economic Perspectives on the Politics of Regulation", in *Handbook of Industrial Organization*, Vol. II, edited by R. Schmalensee and R. Willing, Elsevier.

Oliveira, Gesner (2000), "Novidades no controle de fusões", *Folha de S. Paulo*, 4 November.

Pinheiro, Armando C. (2000), "O judiciário e a economia: evidéncia empírica para o caso brasileiro", in *Judiciário e Economia no Brasil*, edited by Armando C. Pinheiro, Sumaré.
---- (2001), "O judiciário e a economia na visão dos magistrados", presented at the seminar "Reforma do Judiciário", Idesp, 27 April.

Pires, José Claudio L. (1999), "Capacity, Efficiency and Contemporary Regulatory Approaches in the Brazilian Energy Sector: The Experiences of Aneel and Anp", *Ensaios BNDES*, No. 11.
---- Fábio Giambiagi and Joana Gostkorzewicz (2001), "O Cenário Macroeconômico e as Condições de Oferta de Energia Elétrica no Brasil", BNDES, *Texto para Discussão* nº 85.
---- and Maurício S. Piccinini (1999), "A Regulação dos Setores de Infra-Estrutura no Brasil", in Fabio Giambiagi and Maurício Mesquita Moreira (eds.), *A Economia Brasileira nos Anos 90*, BNDES.

Pittman, Russell (2001), "Proposed Changes in Brazil's Antitrust Law", *Boletín Latinoamericano de Competencia*, No. 12.

Pontarollo, Enzo and Andrea Oglietti (2000), "La performance dell'Autorità per le Garanzie nelle Comunicazioni: un primo esame", *L'Industria*, Vol. 21, No. 4.

Ranci, Pippo (2000), "Un contributo per valutare l'Autorità per l'energia elettrica e il gas", *L'Industria*, Vol. 21, No. 4.

Salgado, Lúcia H. (2001), "A Petrobrás não está acima da Lei", *Gazeta Mercantil*, 24 April.

Smith, Warrick (1997a), "Utility Regulators: The Independence Debate", The World Bank, Public Policy for the Private Sector, *Viewpoint*, No. 127.
---- (1997b), "Utility Regulators: Roles and Responsibilities", The World Bank, Public Policy for the Private Sector, *Viewpoint*, No. 128.
---- (1997c), "Utility Regulators: Decisionmaking Structures, Resources, and Start-up Strategy", The World Bank, Public Policy for the Private Sector, *Viewpoint*, No. 129.

Spiller, Pablo (1993), "Institutions and Regulatory Commitment in Utilities' Privatization", *Industrial and Corporate Change*, Vol. 2, No. 3.
---- (1999), "La regulación de los servicios públicos en la Argentina: una propuesta de reforma institucional", Fundación Gobierno y Sociedad, *Cuaderno*, no. 3.

Werneck, Rogério L. F. (2000), "Tarificação de energia elétrica e perspectiva de excesso de demanda", Departamento de Economia, PUC-Rio, *Texto para discussão*, No. 440.

Williamson, John (ed.) (1994), *The Political Economy of Policy Reform*, Institute for International Economics.