

Independence after Delegation? Presidential Calculus and Political Interference in Brazilian Regulatory Agencies

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Is there Executive interference in the regulatory agencies after its formal establishment as independent bodies? Under what conditions the Executive chooses to interfere in the agencies? This paper analyses the degree of interference in Brazilian national regulatory agencies and provide a tentative explanation for the variation in the degree of interference. The basic hypotheses is that credibility costs, the degree of formal independence and the preferences of presidents are crucial factors affecting the extent to which presidents interfere in the regulatory process. A random effects model is estimated with panel data for the period between 1997 and 2008 covering ten national agencies. The degree of interference is operationalized by an index built using factor analysis. The data suggest that there is political interference, which varies across agencies and over time. The results show that the preferences of the president and some issue area specificity matters for the choice that presidents make regarding the interference in the regulatory process.

Keywords: Delegation; Independence; Regulation; Political interference.

Introduction

The relationship between political actors and autonomous agencies has long been the subject of debate in the North-American literature. These studies, which have particularly analysed the impact of the preferences of political actors on agencies' outcomes (Moe 1982; Wood 1988; Wood and Waterman 1991), have provided an empirical basis for the developing theories of delegation. In Latin America in general, and in Brazil in particular,

these studies can now be seen in a new light, taking the process of privatization and the diffusion of the independent regulator model in the region into account.

In Brazil, the endogenous regulation model centred on self-regulation by departments within ministries was replaced by the regulation model based on independent agencies in the late 1990s. The establishment of these bodies – whose defining characteristic is independence from political actors – was the main institutional innovation in the context of a state reform that restructured the size and manner of interventions by the Brazilian State.

This being so, a new set of issues of interest to Brazilian political scientists emerged: How much regulatory power was delegated to these bodies? Why does the Executive branch delegate? What degree of independence do agencies have from political actors? And (of particular importance for this paper) what degree of independence do they have after their formal institution as independent bodies?

This analysis focuses on the independence of national agencies from the Executive branch, specifically the period after the establishment of formal independence, and the degree of interference after delegation. The argument is that formal independence does not necessarily imply practical independence, the relationship being treated as a phenomenon of contingent delegation in which the president has a choice to *de facto* delegate power or not after the establishment of the agencies as independent bodies.

Between 1996 and 2005, ten regulatory agencies were created at a national level, with considerable formal independence from the Executive branch. However, despite various incentives for the delegation of powers, such as enhanced expertise (Krehbiel 1991; Bendor et al. 2001), the construction of the country's regulatory credibility (Levy and Spiller 1994), the blame-shifting for unpopular policies (Fiorina 1982) and the ability to tie the hands of future governments (Figueiredo 2003), there are also strong incentives for the president to disobey or bypass the signed contracts, and to try to interfere in the activity of such autonomous bodies. This is because the responsibility for economic outcomes is directly linked to the Executive branch, because this actor is elected on a majority basis with a national electorate, and also because of the historical conduct by the Executive branch in issues relating to utilities, such as electricity and telephony. According to Prado (2007a, 10-11),

If the president will be held electorally responsible for what the agencies are doing, he has strong incentives to try to influence them to implement popular policies. For example, the president could try to make the agencies reduce the electricity rates for residential consumers, given that electricity rates have been historically determined by the Executive branch and are likely to be perceived as the president's responsibility even after privatization.

Another source of incentives for intervention by the Executive branch in the regulatory process stems from the need to avoid conflicts between regulatory policies and other

macroeconomic and social policies implemented by the government such as the control of inflation. Thus, the regulation game, or even, the issue of the independence of regulatory agencies, does not end with the institution of formally independent agencies. This being so, this paper seeks to draw attention to the independence of the agencies from the Executive branch after the formal delegation of powers. That is, to the governance of the delegative “contract” after its establishment. What is questioned is the following: Under what conditions does the president interfere in the regulatory agencies after their formal establishment as independent bodies?

At this point, it is necessary to define exactly what is being termed as independence. Independence here means the ability of a particular actor, in this case the regulatory agency, to make decisions without considering the preferences and without the interference of a second actor (the president). Therefore, interference refers to threats – or inducements – by the president to the agency’s actions to suit his/her preferences (Hanretty and Koop 2009). Thus, the focus of this analysis is on the institutional aspects, or the institutional mechanisms of independence, such as the stability of directors, budgetary autonomy, as well as the stability of rules – especially administrative procedures and the agency’s scope of action. To be *de facto* independent, the agency must have the capacity to make decisions without directors facing the threat of losing their jobs, having their budgets restricted, or even their procedures modified or becoming less influential in the regulatory process.

This paper concentrates on the institutional characteristics of independence, so its focus is restricted to the political outcomes of the relationship between the Executive branch and the agencies, and not on economic outcomes, as is common in the American literature (Moe 1982; Wood 1988; Wood and Waterman 1991). But how do we explain such political outcomes? Or even, what explains the Executive’s interference in the independence of the regulatory agencies? The focal point of this paper is the analysis of the presidential calculus. Presidents are rational actors and thus make their choices based on a calculation of the costs and benefits of each course of action. However, such choices are not made in a vacuum. Accordingly, this study seeks to identify the potential components of this calculation, i.e., the different constraints that influence the choice of his/her course of action and explain his/her behaviour regarding the independence of the regulatory agencies.

So, what are the factors that explain the president’s choice to interfere or not in the agencies? Or even, what is the incentive structure that underlies the president’s decision? Taking as a starting point the hypothesis raised by the literature, I list three main factors accounting for the president’s behaviour: the level of formal independence, the president’s preferences regarding the independence of the agencies and the credibility cost of the sector involved. The central hypothesis is that the president makes the choice whether or not to interfere in the agencies’ independence not only based on his/her own preferences, but also

considering the institutional, political and economic constraints involved.

With the purpose of developing an analysis of the political interference in regulatory agencies in Brazil, this paper has been divided into four sections besides the introduction and conclusion. In the next section, the theoretical model proposed for the presidential calculus will be presented, emphasising the key elements that contribute to the president's choice to interfere or not in the agencies. In the following section, the formal independence of the national agencies will be analysed in order to gauge the potential of *de facto* independence of such agencies. Then, the index of political interference, a proposal to measure agencies' independence in practice, will be presented. And lastly, an empirical analysis of the conditions under which the president chooses to interfere in the independence of agencies will be made.

The Presidential Calculus

This paper deals with the governance of contracts, once they are established. More specifically, it deals with the governance of the contract of delegation of powers from the president to the national regulatory agencies in Brazil. The focus is on the political calculus made by the president to interfere or not in the agencies once they are formally established as autonomous bodies. The purpose here is to provide a theoretical model for the individual decision by the president regarding the level of interference in the independence of national regulatory agencies. This section will review the main arguments of regulation literature in order to provide a unified model of the president's choice of level of interference in the regulatory agencies.

The relationship between political actors and regulators has been analysed through an institutional approach from two central and complementary points of view. In delegation theory, the regulation by autonomous agencies can be understood in this way: the president, the Legislative or both (principal) delegates the regulatory activity, coupled with the power to act, to the regulatory agencies (agent), in order to benefit from their expertise and so carry out more and better policies (Melo 2001). However, with this action, the president or the Legislative runs the risk of empowering an agent who holds interests contrary to theirs, lacks the features flagged to the principal at the time of the contract (adverse selection), or, after the establishment of the contract, works against the preferences of the principal (moral hazard) (Melo 2001).

Given this possibly conflicting relationship between principal and agent, there has emerged a major programme of empirical research that seeks to elucidate the role of political authorities (principals) in the regulatory process. This is a process in which an agency may or may not be independent and the principal, be it the president, the Legislative or both, can

or cannot control the regulatory outcome. Put differently, from the analysis of outcomes we can analyse the capacity of the principal to maintain the main policies according to their preferences, and the mechanisms used for this purpose, even after the establishment of the autonomous agency.

With this question in mind, the analyses devoted to this subject have not reached a consensus: some prove the discretionary power of the agencies, i.e., the agencies are independent; others have reached opposite conclusions, confirming the dominance of political power, even after the terms of the contract have been taken hold. In Box 1 we see the main results of this literature and also the main mechanisms used to explain them.

Box 1. Principal-agent models - regulatory agencies and political power relation

Author	Political actor	Mechanisms	Control
Moe (1982)	Executive	Directors, budget, presidential leadership	Yes
Weingast and Moran (1983)	Legislative	Oversight by the Legislative Commission	Yes
McCubbins and Page (1986)	Legislative	Administrative procedures	Yes
McCubbins, Noll and Weingast (1987)	Legislative	Administrative procedures	Yes
Wood (1988)	Executive	Directors, budget, work force, managerial centralization	No
Spiller (1990)	Legislative and Interests Groups	Directors, budget	Contingent
Wood and Waterman (1991)	Executive and Legislative	Directors, budget, Legislative hearings, administrative Reorganization, New Legislation, Political Leadership	Yes
Snyder and Weingast (1999)	Executive and Legislative	Directors	Contingent
Howell and Lewis (2002)	Executive	Administrative procedures	Yes
Shapiro (2006)	Executive	Administrative procedures	No

The focus of the analyses presented above is on the political control of the economic outcome of regulation. That is, through political and institutional mechanisms the actors test the principal's capacity to keep the outcomes close to their preferences, even after the establishment of an autonomous regulatory body. The relevant political actor varies from

analysis to analysis, but they tend to be the Executive or the Legislative. This shows that despite the central role played by the Legislature in the creation of agencies in the United States, the managerial relevance of the Executive branch is not being forgotten.

As for the mechanisms analysed, the focus is primarily on three of them: directors, budget and administrative procedures. The budget is strongly emphasised by the literature as a mechanism for control of regulatory outcomes. Outlining the objective of regulators to maximize their resources, the models indicate the principal's ability to use this tool as an incentive or punishment for the behaviour of the regulators.

As a control mechanism, the directors are used as a kind of "colonization" (Moe 1985) of the agencies. For this purpose, the principal empowers directors with preferences closer to his/hers, as a way of conducting the agency's outcomes. The power of such a mechanism increases when the agency's institutional design allows the directors' term to be coincident with the principal's and does not restrict the reappointment to the post. Such institutional characteristics generate directors more readily responsive to the principal.

Lastly, administrative procedures constitute a relatively innovative variable in the debate. McCubbins and Schwartz (1987) directly confront the much propagated idea that the Legislative does not exercise sufficient oversight of its regulators, and show that the use of administrative procedures is a more effective and less costly form of control for lawmakers. Such procedures could be a way to crystallize the preferences of the coalition that created the agency, and also to transfer the activity of supervising the agency's actions to those most directly interested, through mechanisms of direct participation in the regulatory process. With this, the Legislative guarantees which groups will benefit and also gives such groups the informational role of signalling to the Legislative when the agency is out of control.

Aside from the empirical conclusions that these studies have arrived at, the theory of delegation is an important advance compared to the studies that preceded it, as it discusses the relationship between political power and agencies, once viewed as bodies of action limited to the implementation of policies formulated by the government. Here, the studies do not just answer the question about the reason for market regulation by the State, but also seek to elucidate how this process is performed. Thus, institutional and political elements are actually incorporated into the analysis, making them central variables for determining the regulatory outcome.

In the same vein, another theoretical framework linked to the neo-institutionalist tradition seeks to expand the scope of the institutions concerned, shifting the debate to the broader institutional context in which the actors interact in the regulation game. The central object is the capacity to make credible commitments and ensure regulatory credibility, so the interrelationship between the different actors and the institutional context has an important impact on the credibility of the sector.

This literature, linked directly to the context of post-privatization (Melo 2000), concentrates on an understanding of the construction of the credibility of regulation as an activity that involves the most diverse spheres of political and institutional systems. Based on the fact that markets subject to regulations generally involve utilities, that have quite significant sunk costs and high politicization, investments in these areas seem rather risky. Therefore, to ensure that the public good will be produced and that investments will be made to maintain the development of industry, it is necessary for governmental authorities to ensure that contracts will be enforced at the time of their establishment and in the future, and that changes in the rules of the game will not take place with a change of political elite (Melo 2000). This obedience to the rules is the basis of the regulatory credibility of a country.

Based on this model, the analysis of regulation must begin with some considerations about the institutional environment of the country. This environment is composed of five elements: first, the institutions of the Executive and Legislative; second, the judicial institutions; third, customs and other widely accepted norms that constrain the activity of individuals and institutions; fourth, the distribution of interests in society and the balance of power between them; and fifth, the administrative capacity of the nation. Changes in these aspects take place very slowly and independently of the regulatory regime, and are therefore considered independent variables.

Policymakers are able to choose the institutional design they see fit. However, this choice is constrained by the institutional endowment of the country, since aspects such as the rigidity or flexibility of the agency's mandate are linked to broader factors such as the concentration of power in the Executive/Legislative or the Judiciary's ability to act independently in defence of contracts. Likewise, the choice of regulatory instruments is also constrained by institutional design, given that more or less complex instruments depend on the agency's ability to act and therefore on the administrative capacity of the State. Thus, the policy outcome and its credibility are products of the inter-relation of all these factors (Levy and Spiller 1994; Spiller 1996; Holburn and Spiller 2002; Spiller and Tommasi 2005).

The main argument here is that regulation has a higher degree of credibility in countries with political systems that constrain the discretionary power of certain political actors over the agencies, thus reducing their incentives and possibilities for opportunistic action. Relating these postulates to the theory of delegation, one can see that the relationship between principal and agent is contained in an institutional context, so that the wider environment has a direct impact on the rulers' incentives structure to act opportunistically and change the rules of the game.

In the words of Melo, "political institutions influence the regulatory governance structure as a function of the limits they set for the discriminatory actions of the rulers"

(Melo 2001, 64).¹ In other words, they guarantee the stability and predictability of regulatory policies given the actors' actions, so they become variables decisive to the format that the regulation will take in a country and its development.

These two approaches are related in the sense that they bring political and institutional variables to the debate. Delegation theory stresses the importance of the relation between political actors (principal) and regulators (agent) for an understanding of regulatory outcomes, and deals with the issue of the *de facto* independence of regulatory bodies and mechanisms of political control. In its turn, the regulatory credibility approach emphasises institutional constraints over the opportunistic behaviour of political actors to explain the credibility of the regulatory system in the country.

The idea here is to take elements from these two approaches that can be used to describe and explain political interference in the independent regulatory agencies in Brazil, more specifically, elements that could influence the presidential calculus of political interference. The conditions under which the president decides to interfere in the regulatory agencies will derive from this literature. The presidential calculus can be understood as follows:

Presidents are rational actors and thus make their choices based on a calculation of costs and benefits of each course of action. However, such choices are not made in an institutional vacuum (Tsebelis 1998). Institutions matter in order to establish the "rules of the game" and constrain the behaviour of actors (North 1994), or because "they affect how political actors are enabled or constrained" (March and Olsen 2006, 8). Thus, the focus of this paper is on the presidential calculus, keeping in mind the various constraints that influence the choice of his/her course of action and explain his/her behaviour regarding the independence of regulatory agencies.

The aim here is to explain under what conditions the president decides the interference level that he/she will practice on the regulatory agencies. Some questions are listed as central: How is the interference related to the formal independence of the agencies? What is the role played by the credibility cost in the presidential calculus? How crucial are the preferences of the president to his/her course of action? In short, how does the president behave in relation to these autonomous bodies and why?

With these questions in mind, the argument of this paper is that the president's choice to interfere or not in the independence of the regulatory agencies is subject to the constraint of formal rules, i.e., the contract of delegation from the Executive branch to the regulatory agency. However, it is not only the formal rules that are relevant. The point here is that the arguments presented in the literature can be incorporated as additional constraints, other factors that form the presidential calculus and so explain the political interference in Brazilian regulatory agencies.

The proposal presented is based on a principal-agent model. The analysis is centred

on the relationship between the president and the regulatory agencies. The difference regarding the classical North-American analysis (Moe 1982; Wood 1988; Wood and Waterman 1991) is the dependent variable. That is, the focus is not on the political control of the results and what is being explained is not the variation in economic outcomes of the agency. Regulatory agencies are highly specialized organizations that enjoy considerable autonomy in their decision-making (Majone 1999). The analysis is therefore centred on the president's interference in the independence of the agencies, independence being perceived as follows:

By the independence of A from B, we mean the degree to which the day-to-day decisions of A are formed without the interference of B, and/or the consideration of the preferences of B. The term interference is used to refer to threats or inducements from some B which cause, or attempt to cause, A to act in a way desired by B (Hanretty and Koop 2009, 5).

Bearing in mind the idea that the agencies' independence is based on their ability to make autonomous decisions, much of the debate on independence underscores the importance of institutional design, i.e., the organizational characteristics that provide the agencies' announced ability to make autonomous decisions. Thus, the focus of this analysis is on the interference of the president in the independence of the regulatory agencies, analysed through their organizational characteristics, or on the agency's political outcomes rather than economic ones.

I will now turn to elements of regulation literature that can constitute explanatory factors for the president's behaviour, that is, which integrate the presidential calculus. First, because they are an appropriation of the principal-agent models developed in the American literature, one factor that must be considered is the president's own preferences. A distinction is imperious. In the case of the literature discussed above, the president's preferences are taken from the party's position regarding the "amount of regulation", with party affiliation as a proxy. That is, a republican president would prefer "less regulation", while a democrat president would prefer agencies more active in terms of regulation. Here, the president's preferences are analysed in terms of his/her position regarding the independence of the agencies, shifting the focus of the "more regulation/less regulation" dichotomy to "more independence/less independence".

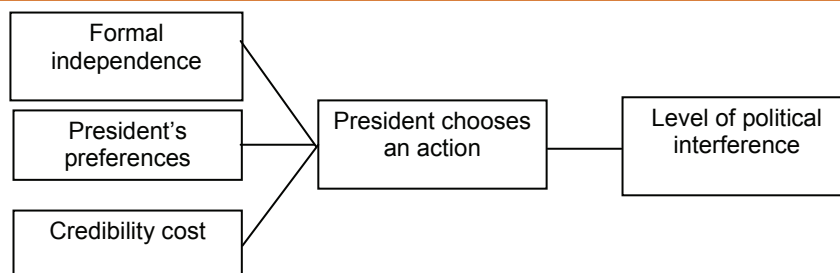
Because it is an analysis of the independence of agencies focused on their organizational aspects, the control mechanisms analysed in the principal-agent models of American literature presented above will serve as a guide for the most relevant dimensions of independence to be analysed in this study.

The second point is the question of the credibility of regulation. The process of the

institution of regulatory agencies in Brazil was, in its beginning, strongly associated with the context of post-privatization, in which the construction of regulatory credibility had fundamental relevance, whereas the main objective today is to attract investments, and the maintenance and development of markets now administered by private companies. Thus, the argument here is that the credibility cost involved in the industry that the agency regulates is a factor considered by the president in his/her calculation of interference in the agencies. A sector that needs to signal greater regulatory independence to the market in order to obtain investments obviously has a higher credibility cost than sectors already established in the private sector, or those that have a lower risk of expropriation.

Bearing in mind these three factors, the argument is that the formal independence of agencies, the preferences of the president and the credibility costs are elements that the president considers in his/her choice of level of interference in regulatory agencies. Political interference in the Brazilian regulatory agencies, i.e., their independence after the formal delegation of powers, is seen as a phenomenon of “contingent delegation” and is explained in a very exploratory way, based on the president’s choice to intervene or not in an agency. Below is the analytical model proposed in this paper:

Figure 1. The presidential calculus



As we can see, three elements are presented as relevant to the presidential calculus. The formal independence of agencies represents the major institutional constraint that the president faces, i.e., the rigidity and degree of detail of the institutional design of the independence influences the range of possible choices to the president. Constrained by formal rules, the president also considers his/her own preferences relative to the independence of the agencies, their ideology and their political agenda. The president also considers in his/her calculus the credibility cost, which is a constraint from the features of the market in question.

In the last section, the operationalization of the constraints that integrate the presidential calculus will be discussed. However, the first step is to present the performance of Brazilian regulatory agencies in terms of their independence. This is the task of the next sections.

Measuring the Independence of Brazilian Regulatory Agencies

This section is devoted to an empirical analysis of the independence of regulatory agencies in Brazil. Specifically, the focus is on the independence that agencies have from the Federal Executive branch. With this objective, the research design is based on an analysis of independence by certain institutional characteristics, i.e., not by economic outcomes. The focus on such characteristics is justified on the grounds that they lead to predictable outcomes. That is, “institutions cannot absolutely prevent an undesirable outcome, nor ensure a desirable one, but the way that they allocate decision-making authority within the public sector makes some policy outcomes more probable and others less likely” (Cukierman, Webb and Neyapti 1992, 353).

The focus on institutional design is closely related to the definition of independence used in this paper. As presented in the previous section, independence is seen as the ability to make decisions without interference or consideration of the preferences of another actor, in this case, the president (Hanretty and Koop 2009, 5). Additionally, independent regulators should have the ability to make decisions without needing to consider retaliation such as having their resources reduced, being replaced in office or becoming less influential in the regulatory process. In this sense, an analysis of institutional features is crucial.

The political independence of regulatory agencies has been treated in the literature as a specific component of the broader concept of regulatory governance, which also includes independence from interest groups, accountability, decision-making and regulatory tools, amongst others. This literature is strongly influenced by the debate about central banks (Cukierman, Webb and Neyapti 1992). Overall, the empirical literature can be subdivided into two distinct groups: the construction of indices of formal independence (Gutierrez 2003; Gheventer 2005; Gilardi 2005; Hanretty and Koop 2009), and the construction of indicators that seek to capture the practice, i.e., the *de facto* independence (Stern and Holder 1999; Stern and Cubbin 2003; Correa et al. 2006; Andres et al. 2007).

That said, the purpose of this next section is to analyse the formal independence of the Brazilian agencies and, lastly, propose a new indicator based on the practical independence of such bodies.

Accessing the Formal Independence of National Agencies

This section aims to analyse the formal independence of regulatory agencies in Brazil, as an initial approximation of the practical independence of these bodies, revealing the potential for autonomy from the Executive branch established in their institutional designs. Box 2 shows the indicators included in the index of formal independence and the assigned values.

Several indices on the agencies' formal independence are available. However, none of them include all the national Brazilian agencies² and the changes in the laws observed after their creation. The index was constructed as simply as possible so as to reduce the amount of error and arbitrariness in the analysis, following the structure proposed by Gheventer (2005). Because it is an analysis of the Brazilian case, reducing the complexity of the index will not have a negative impact on the quality of information obtained. This is because the institutional design of regulation by independent agencies in Brazil was built with a degree of homogeneity and does not require a complex index like Gilardi's (2005), more suited to cross-national analyses. In this sense, the index used here proves to be more concise in terms of both the variables included and the quantity of items within the response variables. Gilardi (2005) and Gheventer (2005) are replicated in their choice of assigning equal weight to each variable and also in the gradation of response items, due to the fact that there are not sufficient unchallenged theoretical reasons for the attribution of different values. Here is the index:

Box 2. Formal independence index

Variable	Description	Codes
Term of office	Is the director's term greater than or equal to four years?	1 (Yes); 0.5 (<4 years); 0 (No fixed term)
Appointment	Is the appointment system shared between the president and the Legislative?	1 (Yes); 0 (No)
Dismissal	Is dismissal only possible with a sentence?	1 (Yes); 0.5 (Beginning of term); 0 (No)
Renewability	Is reappointment forbidden?	1 (Yes); 0 (No)
Experience	Is it necessary for directors to have specialized knowledge in the area?	1 (Yes); 0 (No)
Authorization	Does the agency make decisions without the necessity of approval from the government?	1 (Yes); 0 (No)
Review of decisions	Are decisions by the agency only subject to review by the Judiciary?	1 (Yes); 0 (No)
Budget	Is the budget defined by the agency itself?	1 (Yes); 0 (No)
Human resources	Is the agency in charge of its human resources policy?	1 (Yes); 0 (No)
Procedures	Can the agency's procedures only be modified with consent from the Legislative?	1 (Yes); 0 (No)

The index comprises 10 variables, focusing on the independence of agencies from the Executive branch. The variable "term of office" refers to the regulator's period in his/her position in relation to the president. In this sense, the longer the directors' term, the

more independent the agency will be. The agency is more independent when its directors' term is greater than or equal to 4 years in relation to the presidential term. Who appoints the directors of the agency is relevant because of the type of relationship that the director will maintain with the president. Thus, the agency is more independent when directors are appointed by a shared process between the president and the Legislative branch, than when the directors are appointed exclusively by the Executive branch.

The "dismissal" variable refers to the possible use by the Executive branch of the threat of removal from office as a way to induce the agency to take a certain action. Therefore, when the dismissal of directors is only possible after a sentence, the agency's independence is considerably higher than when directors can be dismissed at the discretion of those who nominated them. There is also the possibility of dismissal at the beginning of the term, something of a director's "trial" period, which may be a way for the Executive branch to assess whether the behaviour of the director suits their preferences.

The possibility of renewing the mandate is the hallmark of a smaller independent agency since it induces the regulator to conduct his/her decisions based on the preferences of political actors, as a way of retaining office. The technical knowledge variable was included bearing in mind that this signals the importance of the political ties in the recommendations. Recommendations for a body of the importance of a regulatory agency are always guided by political criteria. However, the lack of any relationship with the sector in question can be an indicator of a strong bond and loyalty to the political actor who made the recommendation.

The "authorization" variable refers to the need for approval from the Executive branch to establish rules: the agency is independent when it does not need approval from the Executive branch, and more dependent when approval is a prerequisite for making decisions. The "review" variable refers to the possibility of reversal of agency decisions by actors other than the Judiciary. This variable refers directly to the issue of hierarchical control by the government. The agencies are independent when there is no provision for review outside the Judiciary.

The "budget", "human resources" and "procedures" variables capture the government's use of an agency's budget, human resources and procedures as a mechanism to induce certain regulatory decisions. An agency's budget constitutes a much emphasised mechanism in the literature, and agencies are more independent when their budgets are set by the agencies themselves than when they depend on the government.

When the government has control over the human resources policy, it can "colonize" the agency with its preferred representatives, according to Moe (1985), or may not provide sufficient human resources for the agency as a way to weaken it. Finally, how the procedures and scope of action of the agency can be modified refers to the question of

stability of the rules or the use of these modifications in order to induce certain results. So when the Legislative must be consulted, the rules become more stable and less sensitive to any change in the preferences of the Executive branch. This variable is also based on the research programme on the use of administrative procedures as a means of political control, established by McCubbins, Noll and Weingast (1989).

The analysis of the results indicates that of the ten indicators included in the index, four have no variation between agencies. The budget is based on the agencies' own resources, funds and fines, and also government resources. However, the release is made in the Annual Budget Law (LOA) and is therefore subject to curtailment (*contingenciamento*) by the Executive branch. The human resources policy of the agencies, which is governed by specific legislation, indicates that the supreme organ of the agency, its executive board, has the discretion to request and define the allocation of human resources. As for the need for specific knowledge in the area of regulation, the same specific law on human resources defines that directors should have a college degree and recognized knowledge in the specialty for which they are appointed.³

Other similarities relate to constitutional guidelines, as the appointment followed by Senate approval of the directors and also the possibility of modifying the procedures through decree (*medida provisória*), a power delegated to the president in the 1988 Constitution. Other indicators reveal differences among agencies and focus primarily on indicators of the status of directors. The directors' mandates are fixed and the time varies slightly, with only two agencies with mandates of less than four years. Dismissal is only possible with a final sentence or in the director's first four months.

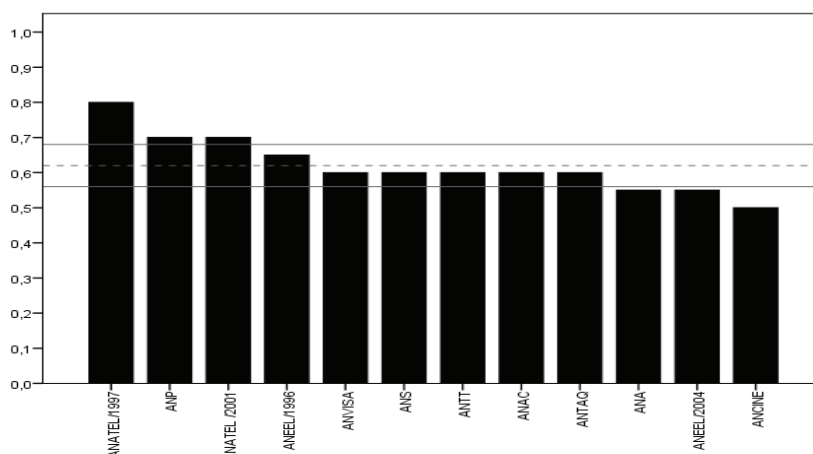
As for the reappointment of directors, there is always the implication that they will become more dependent on the preferences of the Executive branch, bearing in mind the renewal of their mandates. Of all Brazilian agencies, only the ANATEL prohibits renewal in its original design, but in 2001 this item was deleted. Regarding the variable referring to the need for approval from the government for the adoption of decisions by agencies, the analysis shows agencies that do not require government approval for the establishment of their main rules and those that do. A unique case is that of the ANEEL, which in 2004 lost the power to define concession contracts independently, depending directly on the government. The review of the actions of most agencies is done only by the Judiciary. This means that the agencies constitute the last administrative instance, and that the Judiciary is the arbiter in conflicts with other external actors. However, the *medida provisória* that created the ANCINE indicates that it is formally overseen by its ministry manager.

Graph 1 shows the ranking of agencies in the index of formal independence on a scale of 0 to 1.⁴

Graph 1 shows the level of formal independence of regulatory agencies in Brazil.

On a scale of 0 to 1, the independence of the Brazilian agencies is fairly high. As seen in the indicator analysis above, the main restrictions on independence are in the status of directors as a whole, the possibility of contingenciamento of the budget and the possibility of modifying the procedures and scope of action through *medidas provisórias*.

Graph 1. Index of formal independence – Brazilian National Agencies



The first thing to note is that the only regulatory agency not created during Fernando Henrique Cardoso's government – the ANAC – reveals a continuity of the model, and even shows up as one of the most independent agencies from a formal point of view. As a whole, it is noted that the top positions are occupied by the first agencies to be created and also those that are more directly linked to the privatization process. Then there are the agencies of social regulation and subsequently those of economic regulation, and also the ANEEL after the change in design that took place in 2004.

From this index, the organizational characteristics of Brazilian regulatory agencies can be measured and evaluated systematically in order to indicate the level of independence of each agency regarding the Executive branch. In conclusion, we can observe that the level of independence of the Brazilian agencies is fairly high, which has a cost for the actions by the political actors.

However, is this all that needs be said about the independence of regulatory agencies in Brazil? Does legal independence directly translate into independence in practice? This paper argues that the Executive's delegation game with regulatory agencies does not end with the establishment of the "delegative contract", or with formal rules. Thus, the focus of the next section is to measure the characteristics of institutional independence in practice

or, more specifically, the political interference in the agencies' independence.

Measuring Political Interference: A New Indicator Proposal

This paper's analysis focuses on political interference over time, through certain institutional characteristics associated with the independence of regulatory agencies. This research design allows us to evaluate the degree to which established mechanisms of independence in the agency's institutional design are put into practice. It also allows us to relate the degree of interference observed in these formally autonomous bodies to the political, institutional and economic conditions that compose the presidential calculus. But how do we measure such interference?

One useful way of measuring the Brazilian agencies' — *de facto* independence — is the one provided by Correa et al. (2006). Their paper was the first to deal with the differences between the formal and actual independence of the Brazilian agencies. Despite its relevance, this measurement could not be used here as it does not include all ten national agencies, and also because the information comes from time-specific surveys that do not capture the evolution throughout time essential for the research design here proposed.

This paper's strategy to deal with the difficulty in measuring this phenomenon is documentary information. Thus, it seeks to construct an index based on measures such as the turnover of directors (Cukierman, Webb and Neyapti 1992; Montoya and Trillas 2009), the composition of the board (Maggetti 2006) and the budget (Spiller 1990; Maggetti 2006). Specifically, the focus of the analysis of political interference is on the stability of the directors in office, vacancy of the boards, budgetary autonomy and the stability of procedures and scope of action of the agency. With the start date of the mandate, the official date of the end of the mandate and that when the dismissal actually occurred, I was able to identify those who resigned before the end of the mandate and also the number of days that the agency spent without any directors, i.e., the time between a director's departure and his/her replacement.⁵

With this in hand, I could see that out of the 152 directors, 25 resigned before the end of the mandate. Another important element for the agencies' independence in practice are the operating conditions of the executive board, the supreme decision making body of the agency. I evaluated the time that the agency operated without at least one of its directors (the vacancy). A vacancy refers to the absence of specific regulation of such a sensitive issue as the functioning of the board of directors, which needs quorum to deliberate as well as an absolute majority in order to make decisions.

If an agency stays for long without one or more directors, the functioning of the regulatory agency as a whole is undermined. Thus, a vacancy on the board of the agencies

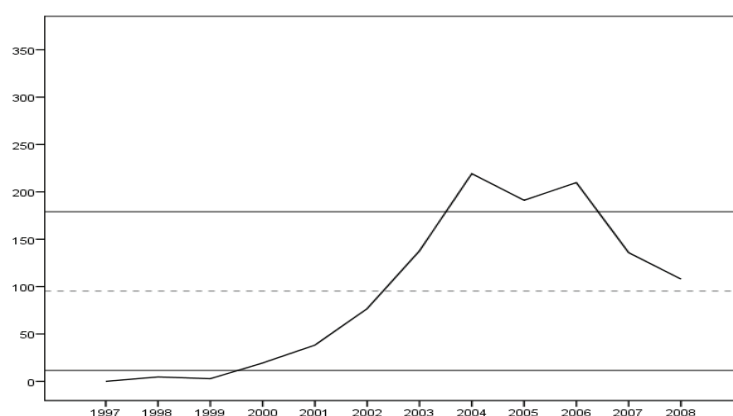
can be considered a mechanism of interference in the functioning of the agency, which is a way of weakening the agency by decreasing its decision-making capacity. So the vacancy can be politically motivated, because the nomination of a director with aligned preferences does not guarantee control of the agency's decisions, but it undermines its decision-making capacity and certainly makes it easier to capture. Table 1 shows the Brazilian agencies in terms of vacancies of their executive boards – that is, the number of days the agency remained without at least one of its directors per year.

Table 1. Vacancy on the board of the Brazilian regulatory agencies (days)

Agency	N	Minimum	Maximum	Mean	Standard deviation
ANA	9	0	324	61.11	106.753
ANAC	3	0	116	47.00	61.049
ANATEL	12	0	365	128.33	134.660
ANCINE	6	76	365	214.83	130.824
ANEEL	12	0	226	52.08	90.767
ANP	11	0	365	202.82	167.398
ANS	10	0	273	110.20	106.208
ANTAQ	8	0	317	136.50	149.500
ANTT	8	0	352	92.88	140.030
ANVISA	10	0	300	121.90	110.308

As we can see in Table 1, all Brazilian agencies have a relatively high number of vacancies on their boards. The most symptomatic case is that of the ANP, where the agency worked without at least one director for most of the year (202 days on average). Interestingly, in addition to the ANP, the ANATEL and the ANCINE also functioned without one of their directors for a full year. Graph 2 shows the vacancy per year:

Graph 2. Annual vacancy in Brazilian regulatory agencies



In Graph 2 the darker line represents the vacancy and the horizontal lines the mean and one standard deviation above and below the mean. Note that vacancy in the first year is near zero, as the first agency directors have just been appointed. However, as the first periods of office are interspersed so as not to be coincident, vacancies and their consequent renewal begin in 2000, rising considerably to peak in 2004.

As for the agencies' budgets – the mechanism of interference most emphasised in the literature along with the appointment of directors –, the analysis is based not on the actual budget, but on the percentage of the budget that is effectively released by the government. With this, I assessed the interference of the president where he/she has discretion, that is, the contingency reserve (*reservas de contingência*). According to the Chamber of Deputies, in the budgetary process “expenditures are blocked at the discretion of the government who releases them or not depending on its convenience” (Câmara 2005).⁶

Thus, the agency's budget is based mainly on its own resources. However, its effective release depends directly on the government, which has the power to withhold funds even after the approval of the agency's budget by the Legislative. In other words, the president delegates powers to agencies, but keeps the “key to the vault”. The *contingenciamento* of the agencies' budgets can be obtained with the Sistema Integrado de Administração Financeira do Governo Federal (SIAFI) data. However, the agencies' initial budget varies greatly because there are differences in revenue due to fees and fines. So the *contingenciamento* measure can be biased, with the agencies with the highest budgets being the ones with the highest *contingenciamento*, because more resources are available to be withheld by the president. To deal with this problem, a change in the *contingenciamento* was made to correct this difference in the initial budget. The formula for the “corrected *contingenciamento*” is the following:

$$CC_{ij} = \frac{1 - [P_{ij} / (L_{ij} + C_{ij})]}{B_{ij} / (\sum B_i)} \quad [1]$$

The SIAFI directly presents the amount actually transferred to the agency, which is the total amount paid (P_{ij}) divided by the value that was established by law, plus the credits ($L_{ij} + C_{ij}$). Thus, to obtain the portion of the budget withheld by the government, the actual transferred total is subtracted from 1. To deal with the bias of this measure alone, a correcting factor was created to take the differences in the agencies' initial budgets into account. So, the *contingenciamento* is weighted by the agency's budget (B_{ij}) divided by the sum of all agencies' budgets in a given year. Table 2 shows the data for the Brazilian regulatory agencies:

Table 2 indicates that the corrected *contingenciamento* is a frequent practice present in all agencies to a greater or lesser degree. Note that with the correction, the number shown

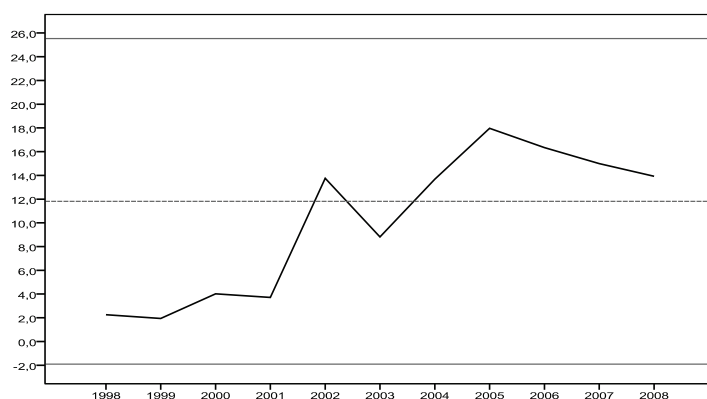
represents the portion of the budget that is withheld, considering the size of the agency's initial budget. The agency most affected by this practice is the ANTAQ, where the average *contingenciamento* is 41.73. Conversely, the agency least affected is the ANATEL, with an average *contingenciamento* of 2.27.

Table 2. Corrected *contingenciamento* of the Brazilian regulatory agencies (1997-2008)

Agency	N	Minimum	Maximum	Mean	Standard deviation
ANA	8	2.94	17.31	12.45	5.42
ANAC	2	11.15	16.09	13.62	3.49
ANATEL	11	0.81	3.52	2.27	0.86
ANCINE	5	29.88	44.18	36.61	5.39
ANEEL	11	0.93	20.53	8.07	6.40
ANP	11	1.69	3.67	2.42	0.63
ANS	9	3.46	24.29	9.18	6.38
ANTAQ	7	21.33	61.11	41.73	15.61
ANTT	7	11.01	16.93	13.57	2.19
ANVISA	10	1.71	4.01	2.73	0.80

Graph 3 shows the development of the corrected *contingenciamento* annually:

Graph 3. Evolution of annual budgetary *contingenciamento* (1997-2008)



Again, the darker line represents the *contingenciamento* and the clearer the mean and standard deviation. Note that there is a clear pattern of growth of the *contingenciamento* over time, with a provision “zigzag” in the period of the Cardoso government and stabilizing above the mean in the Lula government.

Finally, I assessed the stability of the rules after the moment of the agencies' creation, based on the analysis of modifications in order to reduce the scope of action of the agency

or to modify its administrative procedures through *medidas provisórias*. Evaluating the use of *medidas provisórias* in the modification of the procedures of the agency aims to capture the president's unilateral action to alter the agency's decision-making process. However, contrary to expectations, there were no changes along these lines. Of the ten federal regulatory agencies, only the ANATEL has not been changed by means of *medidas provisórias*. However, such changes do not specifically address changes in an agency's procedures.

Regarding the agencies' scope of action, the analysis showed that changes in the rules with the purpose of making the agency less influential in the regulatory process was not often used as a mechanism of interference. Only the ANEEL suffered this type of intervention, in the well-known case of the electricity crisis of 2003, where the president issued *medidas provisórias* in order to reverse the delegation of powers and transfer back to the ministry the power to establish the terms of concession contracts.

These last two mechanisms of interference in the regulatory agencies, to reduce the scope of action and change the agency's administrative procedures, refer directly to bill "general law of regulatory agencies" (PL 3.337/2004). A direct result of the report of the interministerial working group (Presidência da República 2003), established early in Lula's government and coordinated by the chief of the Casa Civil, José Dirceu, the bill focuses mainly on the redistribution of power between agencies and ministries and the social control mechanisms of regulation.

With the ANEEL example in mind, the project's goal is to give back to the ministries the authority to establish concession contracts. The main argument is that the State is the holder of the right to operate public services, directly or through concessions. In this sense, the government should establish the terms of the concession, not an autonomous agency.

As for the agency's social control, the main objective is to establish in the law the obligation of an ombudsman and the system of notice and comment in case of new rules or decisions that affect the interests of the groups involved. It also establishes public hearings in all agencies. Currently, all agencies already have hearings or public consultation. However, the goal is to legally require all agencies to adopt administrative procedures that integrate the interests of society directly into their decision-making.

This initiative by the Executive branch to propose a bill that aims to reorganize the regulatory system simultaneously signified a retreat from the position of radical modification of the regulatory system, including the extinction of the model of independent regulatory agencies, and a step towards restoring to the ministries some of the powers now allocated in the agencies.

However, with the establishment of the regulatory agencies and the maturing of this model after more than ten years, a support network has been created. This means that significant changes in the model will now undergo resistance from the agencies themselves,

from the representative association of the agencies (Brazilian Association of Regulatory Agencies (ABAR)) and associations of companies that operate in the market like the Brazilian Association of Infrastructure and Basic Industries (ABDIB). Such associations have played an active role in the discussions of the bill, including providing detailed discussions to the Executive's bill. Currently, the bill has yet not been voted in the Chamber of Deputies (Câmara dos Deputados).

Bearing in mind these performance aspects of independence in practice, the interference index constructed here is based on the key mechanisms used by the president to interfere in the agencies, as seen in the analysis developed in this section. Thus, the index assesses the independence of the agencies on the basis of budgetary autonomy, vacancy of the boards and turnover of directors. These three mechanisms were selected from the others discussed in this section because they appear to be the most relevant indicators, and also because they are undoubtedly political interference. In Box 3 the indicators that compose the index of political interference proposed here are:

Box 3. Index of political interference

Indicator	Description
Turnover	Identifies the number of directors who handed over before the end of his/her term.
Vacancy	Identifies the number of days that the agency functioned with at least one of its directors missing.
<i>Contingenciamento</i>	Identifies the corrected portion of the budget approved in the budgetary annual law (Lei Orçamentária Annual (LOA)) retained by the government.

As discussed above, the variables related to the mandate of the directors, the vacancy of the boards and the *contingenciamento* are the mechanisms of political interference most used by the president. Given that this index has not yet been validated in the literature, here I am using the technique of factor analysis for its construction. The logic behind this is that factor analysis indicates the patterns and relationships among a group of variables, examining if the set of variables can be condensed into a smaller set of factors or components. The results obtained from the factor analysis represent the best linear combination of variables, indicating that the combination offered explains more variance than any other linear combination. The extraction method for the construction of the index of political interference is principal component analysis (PCA), which summarizes most of the original information (variance) to a minimum number of factors (Hair et al. 2006).

That said, the analysis will be based on the above three variables, that were standardized. Tables 3 and 4 show the process of the factor analysis.

Table 3. Communalities

	Initial	Extraction
Turnover	1.000	0.275
Vacancy	1.000	0.530
“Contingenciamento”	1.000	0.476

Extraction method: principal component analysis.

Table 4. Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% Variance	% Cumulative	Total	% of variance	% Cumulative
1	1.281	42.694	42.694	1.281	42.694	42.694
2	0.928	30.924	73.618			
3	0.791	26.382	100.000			

Table 4 presents the communalities that indicate the amount of variance in each variable that is accounted for. Table 5 presents the factors obtained. Of the three factors, only the first was extracted, following the recommendation of the literature to extract only the factors that have eigenvalues above 1. As we can see, this factor alone carries about 42% of the variance of the variables included in the analysis. The loadings are presented in Table 5:

Table 5. Component matrix

Variable	Component
Turnover	.524
Vacancy	.728
<i>Contingenciamento</i>	.690

The loadings represent the correlation between the factor and the variable in question. According to Hair et al. (2006), the minimum acceptable is 0.30. Loadings greater than 0.40 are considered more important and loadings of over 0.50 are considered to have practical significance. Note that the loadings of the three variables are above 0.50. Moreover, the three variables contribute positively to the factor, that is, all vary in the same direction, as expected.

Regarding the appropriateness of the technique of factor analysis to the data in question, namely, the significance of the factor analysis, the statistical value of the Kaiser-

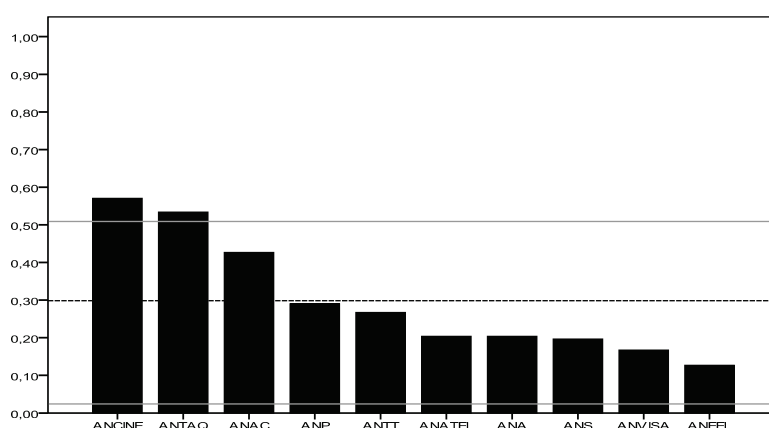
Meyer-Olkin (KMO) was 0.543 and Bartlett's Test of Sphericity was significant at 95%, indicating that the matrix in question can be factored and that the observed correlations are not due to sampling error. The value of Cronbach's alpha statistic was 0.323. This value is low, but it is noteworthy that this statistic is directly affected by the number of variables included in the analysis. Thus, an analysis with only three variables is expected to have a low value.

From this analysis it was possible to construct a single measure that represents the three variables, i.e., for the purposes of this study, which represents the political interference in the Brazilian regulatory agencies. In this sense, such a measure is also more reliable, since the share of each variable in the factor is determined by its explanatory power and not arbitrarily as is done in many indices. In order to facilitate an understanding, the scores assigned to each case by factor analysis were converted to a scale ranging from 0 to 1.7

The average political interference, which varies from 0 to 1 (bearing in mind that the higher the value, the greater the political interference), is 0.2665, with a standard deviation of 0.24237. We note that by the indicators included in this analysis, the interference is relatively low. However, the standard deviation is high, indicating significant differences between the cases.

Similarly to what was done in the previous section on formal independence, the Brazilian regulatory agencies are presented in Graph 4 in terms of the degree of political interference. The values for each agency refer to the mean of the period studied.

Graph 4. Index of political interference – Brazilian federal agencies

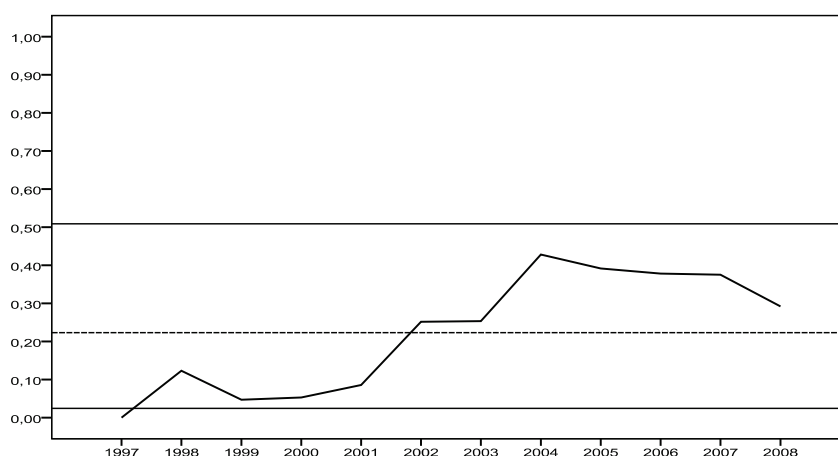


Look at Graph 4 and note how all Brazilian regulatory agencies suffer political interference, but there are remarkable differences in the degree of interference. The ranking of the agencies in terms of political interference presents a heterogeneous pattern. The agencies that suffer the most with political interference are the ANCINE, the ANTAQ and

the ANAC; the first an agency of social regulation, directly connected to the ministry, and the other two, agencies of economic regulation. Next appears the ANP, an agency connected to the privatization process but in charge of regulating Petrobras, a state-owned company. Then appears the ANTT, the ANATEL and the ANA, all agencies that deal with concession contracts, and the ANS and the ANVISA, agencies of social regulation classified by the report of the interministerial working group on regulatory agencies as “executive” agencies, not “regulatory” (Presidência da República 2003). Finally, the ANEEL, the agency that had its institutional design drastically changed during the energy crisis.

This analysis reveals an array of agencies that do not follow the pattern seen in formal independence. Even bearing in mind that from the standpoint of formal design the agencies have a degree of homogeneity and that few items differentiate them, it is interesting to note the variation between agencies in the degree of political interference. In Graph 5 the evolution of political interference over time can be seen.

Graph 5. Evolution of political interference in Brazilian federal agencies



Graph 5 shows that political interference is a fact since the creation of regulatory agencies, that is, political interference exists independently of the government. Thus, the hypothesis proposed by Oliveira Filho (2005) that there is an institutionalization of independence, i.e., a tendency to increase and stabilize the independence of the agencies over time, collides with the information in Graph 5, which shows that there is increasing interference in the agencies.

However, what is most notable is that, apart from the growth of interference over time, there are remarkable differences between governments. The degree of interference, which rose and fell during the Cardoso administration, reached the exact mean in 2002 and remained above mean throughout the Lula government.

What can be seen with this description of the information obtained with the index of political interference is that a change of government had an impact on the degree of political interference in the national agencies in Brazil. Unfortunately, there are no studies or any other information about the agencies' independence in practice, i.e., after the establishment of formal rules, with which the results achieved here can be compared. However, as a way to test these preliminary results, the next section will be devoted to a more rigorous analysis.

The Presidential Calculus and the Determinants of Political Interference

As seen in the previous section, interference in independence is a fact present in all agencies throughout the whole period of their existence. However, the variations between agencies and over time are not negligible. So what explains this variation in the degree of independence in practice?

The exploratory nature of this analysis and the scarce development of empirical research on this subject in Brazil do not allow us to draw conclusive results on the subject. However, the purpose of this section is to evaluate the conditions under which the president chooses to interfere in the independence of the agencies, according to three hypotheses derived from the main theories of regulation seen in the first section.

In the following subsections I will present the independent variables as well as the estimation method for the analysis proposed here, followed by the results and also new ways in which to deepen the analysis of *de facto* independence of regulatory agencies in Brazil.

Measuring the Independent Variables

The president's preferences

The actor's preferences are the natural starting point for an analysis of the determinants of his/her behaviour, so I have sought to identify the preferences of the president in relation to the independence of the regulatory agencies. In the period of the agencies' existence, Brazil was ruled by two presidents, both with two mandates: Fernando Henrique Cardoso and Luiz Inácio Lula da Silva.

The issue of measuring the preferences of political actors is still problematic, considering that there are substantive differences between behaviours and preferences, and between real preferences and revealed preferences. In the present study, the preferences are analysed as follows: president Cardoso was the creator, bearing the political costs of

creating regulatory agencies. Therefore, it is assumed that his preferences were favourable, i.e., that the president supported the independence of the agencies. Now, regarding president Lula, as a candidate he was contrary to the independence of the agencies, his election being considered a “political shock” to this particular issue (Mattos and Mueller 2004) or a “test” for the autonomy of agencies (Pacheco 2003). Nunes, Andrade and Costa (2003), in a study on the mentions of the regulatory agencies and the Lula government in major newspapers in the country, found that the statements by members of Lula’s government to be the following:

They consider excessive the autonomy of agencies, which are extrapolating the functions of regulation and supervision to develop policy guidelines – the role of ministries. They state the need to correct existing distortions and strengthen the role of the ministries in the formulation of public sector policies left to the agencies by the previous administration. They recognize that any change in the functioning of regulatory agencies can only occur through changes in legislation and think to recommend the creation of a General Law of Agencies (Nunes, Andrade and Costa 2003, 6).

Bringing the autonomy of the agencies to the centre of the discussion, Lula went from a position contrary to the model to a position of recognizing their role, but defending reformulations such as those seen in the project of the “general law of regulatory agencies”, discussed in the previous section. Thus, his preferences are considered as negative in relation to the independence of the agencies. That is, president Lula was contrary to the independence of such bodies.

As preferences are indicative of the actor’s actions, even if not decisive, it is expected that in the Lula government there would be more interference in the independence of agencies than under Cardoso.⁸

H1: In the period of the Lula government there was more interference in the agencies than in the Cardoso government.

Formal independence of the regulatory agencies

The formal mechanisms of independence of the agencies appear to be the main institutional constraint to interference by the Executive branch. This is because the law imposes costs on any attempt at interference so that the president acts around the law, and does not go directly against the rules too frequently. The formal independence variable is composed of the values obtained by the formal independence index presented in the previous section.

H2: The greater the agency’s formal independence, the less the interference by the Executive branch.

Credibility Cost

The credibility cost of the sector in which the agency operates directly refers to its relationship to the privatization process, as seen in section before. Thus, agencies that regulate the electricity, telecommunications and oil and natural gas sectors – those most affected by the privatization process – underwent less interference from the Executive branch. This is because the ANEEL, the ANATEL and the ANP had to signal to the market that the established regulatory framework was not to be modified and that the commitments made at the time of privatization were credible. Thus, interference in such agencies indicates the possibility of opportunistic behaviour by the president and reduces regulatory credibility, affecting investments in the sector. Consequently, interference in such agencies is more costly for the president than in agencies where the credibility cost is smaller, because the sector has been in operation by private enterprise for a long time.

H3: In agencies where the credibility cost is higher, less interference from the Executive branch is expected.

The descriptive analysis made in the previous section provided an indication of which of these hypotheses is empirically supported. However, a more rigorous analysis is required. To test these hypotheses, some control variables have been included.

Control Variables

Some papers on this subject indicate that the kind of regulation – whether economic or social – that the agency operates influences the level of independence. According to Gilardi (2005), economic regulation deals with the tariffs, input, output and services of an industry, while social regulation is concerned with noneconomic issues such as health and safety. Agencies of economic regulation need to signal greater independence from the market, something less important for agencies with responsibilities aimed at ensuring quality of services (Gilardi 2005). Agencies of economic regulation might be more committed to independence because their main task is to regulate prices and tariffs, so if their acting lacks credibility and pricing is influenced by the government, companies have no incentive to invest in the sector.

A second control variable is the existence or not of a contract between the agency and ministry (*contrato de gestão*). In Brazil, the ANEEL, the ANVISA and the ANS are obliged to follow a contract established by the ministry and be accountable on the basis of this contract. Contradictory arguments can be raised about the relationship between the contract and the agency's independence. The contract can serve to control the agency's activity or to establish guidelines within which the agency has autonomy. This variable is therefore included in order to understand its relation to independence in practice and also to avoid problems of omitted variables in the regression model.

Finally, the support given to the president in the Legislative branch that year is included in the model. The idea is that in the Brazilian coalition presidentialism, the support enjoyed by the Executive branch in the Legislature is not negligible and has an impact on its incentives to act unilaterally and interfere in the agencies. This Legislative support is operationalized by the percentage of seats of the coalition supporting the president in the two Legislative houses (Chamber of Deputies and Senate separately). It is expected that the greater the support by the Legislature, the greater the political interference.

The Conditions of Interference

The analysis of political interference in the independence of regulatory agencies in Brazil over time here proposed has a panel data structure, i.e., cross-sectional time series. That is because there are ten national regulatory agencies in Brazil and the period of analysis is between 1997 and 2008. With this in mind, the data requires special treatment, so the inference method used here is a panel, linear model with random effects.⁹

As the Brazilian regulatory agencies were created in different years, there are no observations for all years and all agencies. In this sense, the model is an unbalanced panel. However, Wooldridge (2006) states that if the lack of observations is not based on some kind of selection bias, there are no additional problems in the treatment of such a panel.

The dependent variable — *Interferência_{it}* — it refers to the scores obtained from the factor analysis for each observation, i.e., every year from each agency.¹⁰ The basic model being tested is proposed in the following equation:

$$Interference_{it} = \beta_0 + \beta_{1PREFERENCESit} - \beta_{2FORMALit} - \beta_{3CREDIBILITYit} + v_{it} \quad [4]$$

Where:

β_0 : Constant

PREFERENCES: dummy variable that indicates the preferences of the president, assuming the value 0 if Cardoso and 1 if Lula, at agency *i* in year *t*.

FORMAL: indicates the level of formal independence at agency *I* in year *t*.

CREDIBILITY: dummy variable that indicates the credibility cost of the agency in question, assuming the value 0 if agencies with low credibility cost and 1 if agencies with high credibility cost at agency *i* in year *t*.

v_{it} : composite error term, captures the unobserved factors constant in time that affect the interference at agency *i*, and also unobserved factors that do change over time and that affect the interference, at agency *i* in year *t*.

Table 6 shows the results for the equation above.

Table 6. Linear regression model — Panel random effects

Variable	Model 1	Model 2	Model 3	Model 4
Constant	.871 (1.592)	.782 (1.604)	1.384 (1.475)	1.994 (1.44)
Preferences	.788*** (.198)	1.406*** (.437)	1.364*** (.431)	1.315*** (.418)
Formal	-2.085 (2.596)	-1.596 (2.521)	-2.831 (2.333)	-3.168 (2.107)
Credibility	-.108 (.379)	-.135 (.357)		
Sector			.204 (.347)	
Chamber of Deputies		-.045 (.028)	-.045 (.028)	-.045 (.027)
Senate		.039 (.025)	.039 (.025)	.039 (.024)
Contract				-.720** (.310)
R ²	0.237	0.258	0.263	0.361
Wald X ²	24.12***	27.31***	27.20***	33.74***
N	89	89	89	89

Standard error in parentheses. ** sig. 0.05, *** sig. 0.01.

The first model is restricted to this paper's three central variables. As expected, the preferences of the president do impact the degree of interference that the agency will suffer. That is, the passage from the Cardoso to the Lula government increased the interference in the independence of the agencies. This result is robust, having been maintained in different specifications in models 2, 3 and 4. Put differently, in the Lula government the political interference increased by 0.97 compared to the Cardoso government, confirming the hypothesis that the president's preferences regarding the agencies' independence may have an impact on his choice of course of action.

The "formal" variable presents the expected sign but does not achieve statistical significance.¹¹ The expected negative sign is kept in the other models' specifications, confirming the hypothesis that the increase in the formal independence would be accompanied by a decrease in political interference.

The credibility variable also appears with the expected negative sign in both models it is included in. This means that, all else held constant, the values of agencies with high credibility costs have decreased by 0.108 points in the interference index. This result confirms the hypothesis that the government would interfere less in the agencies that are closely related to the privatization process. This means that the president takes into consideration the cost of interfering in agencies that have a need to signal independence to the market. In other words, considering the credibility cost, the president interferes less in the ANATEL,

the ANEEL and the ANP than in agencies that do not have such a high credibility cost.

The sector control variable does not present a meaningful result and is not significant at any considerable level. The Chamber of Deputies and Senate variables appear with different signs. Apparently, the increase in support in the Chamber of Deputies decreases the interference and the increase in the support in the Senate increases it. Thus, the Senate variable presents the expected sign but is not significant, and the Chamber of Deputies variable is minimally significant but in the wrong sign. This means that the impact of the support of the Legislature to the president and the ideological position of the legislator regarding the independence of the agencies must be investigated further.

Finally, the obligation of a contract between the agency and the ministry appears with a negative sign and is significant, indicating that the contract is responsible for a decrease in the degree of political interference in the agencies. Put another way, agencies that maintain a contract with the ministries have less political interference, all else held constant.

In one decade of regulation by independent agencies, Brazil established ten agencies in different periods. We also had two presidents, one of them the creator of the model. Thus, the comparison is limited. Including new variables in the index of political interference appears to be of fundamental importance to make it truer to the concept that it is expected to translate. Moreover, subsequent developments must also include questions regarding the content of policies in order to capture the influence on the decisions by regulatory agencies.

It is also important to evaluate the inclusion of more explanatory variables and a control group, considering that many other factors can influence the level of agency independence in practice. Another important point is to highlight the preferences of ministers regarding the independence of regulatory agencies. This is a sensitive point, given that agencies are necessarily linked to a ministry. However, to access this relationship, the debate has to address the problem of estimating ministers' preferences, something that is not trivial, and requires greater knowledge of the internal dynamics of the Executive branch, which is beyond the scope of this paper.

This paper has sought to contribute to the debate in order to systematically analyse the independence of regulatory agencies in Brazil and their relationship with the Executive branch, even with all the limitations presented here. However, further advances and more conclusive results on the topic will be possible only with the institutionalization of a research agenda on the theme, which appears to be at a very early stage.

Conclusion

The political independence of regulatory agencies is the most important dimension of regulatory governance from the viewpoint of the stability and institutionalization of this

new regulatory regime that has the autonomy of the bodies as its defining characteristic.

Independence has been a source of intense debate in the political and economic arenas, but is a topic not yet explored systematically in a specialized discussion. This study has aimed to analyse the political independence of regulatory agencies in Brazil, emphasising the nondeterministic relation between formal independence and *de facto* independence.

With this in mind, two indices of independence were created: the formal independence index and the index of independence in practice, as political interference. The formal index was based on what was produced and validated in the literature. The political interference index was built in order to capture the interference in the independence of the agencies by the Executive branch, constituting a proposal for a new indicator.

With the use of factor analysis, I created a single measure from three indicators that have proven to be important mechanisms of political interference: turnover of directors, budget and vacancy. Rankings of both indices were created in order to compare the performance of the ten national agencies in Brazil.

An analysis of formal independence showed that the law establishes high independence for national agencies, also indicating that there is some degree of homogeneity in the laws of agencies that were created at different periods to regulate very distinct sectors. The index of interference in independence showed that the interference is fairly low, but present in all agencies and also in the whole period analysed. An important result observed was the significant variation between agencies and in time.

Knowing the interference pattern in Brazilian regulatory agencies, the last section aimed to examine in an exploratory way the impact of the three independent variables derived from the literature review: the president's preferences, credibility costs and formal independence. For this, a linear model for panel data with random effects was estimated. Results showed that the change from the Cardoso to the Lula government positively impacted political interference. That is, there was greater interference in agencies in Lula's government compared to Cardoso's. Variables such as credibility costs and contracts were also relevant.

These results, as well as the index presented here, only indicate new paths and do not represent conclusive results on the determinants of political interference in regulatory agencies in Brazil. With many limitations, the results presented seek to contribute to the debate in order to systematically deal with this aspect of regulatory governance, which has significant effects on the institutionalization of this new regulatory regime.

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Notes

- 1 From the original in Portuguese: “as instituições políticas influenciam a estrutura de governança regulatória em função dos limites que estabelecem para a ação discriminatória dos governantes” (Melo 2001, 64).
- 2 Brazilian national agencies: Agência Nacional de Energia Elétrica (ANEEL), Agência Nacional de Telecomunicações (ANATEL), Agência Nacional de Petróleo e Gás Natural (ANP), Agência Nacional de Cinema (ANCINE), Agência Nacional de Transportes Terrestres (ANTT), Agência Nacional de Transportes Aquaviários (ANTAQ), Agência Nacional de Aviação Civil (ANAC), Agência Nacional de Águas (ANA), Agência Nacional de Vigilância Sanitária (ANVISA), Agência Nacional de Saúde (ANS).
- 3 Law number 9, 986 (Brasil, 2000b).
- 4 Brasil (1996; 1997a; 1997b; 2000a; 2000b; 2001a; 2001b; 2001c; 2001d; 2001e; 2005).
- 5 The final number excludes directors who left the agencies for reasons unrelated to politics, such as death or personal reasons.
- 6 From the original in Portuguese: “as despesas são bloqueadas a critério do governo, que as libera ou não dependendo da sua conveniência” (Câmara 2005).

- 7 5 The formula used for the transformation is:
$$F_i = \frac{Fi - F_{\min}}{F_{\max} - F_{\min}} \quad [2]$$

Where F_i is the i-th factor score, F_{\min} is the minimum factor score and F_{\max} is the maximum factor score.

- 8 Using Cardoso and Lula's terms as variables is potentially problematic because factors (other than the presidents' preferences) correlated with those periods might have affected interference in the agencies. However, after a thorough review of the literature and analysis of the Brazilian political environment, no other variables were found that could undermine the effect of the presidents' preferences in this particular case.
- 9 A fixed effects model might be more desirable, but inappropriate in this case because it would preclude time invariant variables.
- 10 The minimum and maximum values observed are -1.099 and 3.026.
- 11 Statistical significance is not a determinant factor because the data are the universe, rather than a sample.

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