

**Independent Regulatory Agencies in Latin America Telecommunications Sector**  
**A comparative study**

Domingo Sifontes

School of Economics- University of Carabobo

[dsifontes@uc.edu.ve](mailto:dsifontes@uc.edu.ve)

**Abstract**

The rising of independent regulatory agencies is a common characteristic of Latin America Telecommunication sector after the liberalization and privatization process carried on during the eighties. The institutional and regulatory framework of the region vary across countries. In order to compare the different design of the telecommunication regulation, we use an independence index of regulatory agencies following Gilardi (2002) and Johansen (2003) methodology. This index is applied to thirteen Latin American countries. The results show that the most independent agency of the telecommunication sector in Latin America is the Bolivian agency, and the less independent is the Chilean agency. On the other hand, the most important factors in designing the regulatory framework are: the links between the government and the parliament, the financial and organizational autonomy and the regulatory competencies. The institutional design of Latin America telecommunication sector promotes more the technical and functional independence than the political power and regulated firms independence.

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## INTRODUCTION

The privatizing process of utilities carried out during the last 20 years in Europe and Latin America has involved the establishment of independent regulatory agencies. In that sense, Levine, Stern and Trillas (2002) state that the founding of independent regulators with clearly powers has been the main element of the privatizing process. This fact has implied to offer protection to the investors throughout the process of privatization. Such protection was not guaranteed by the government due to the utilities' characteristics.

The establishment of independent agencies shows up how important is the institutional framework design in the regulation policy. Bearing in mind that, we shall intend to analyze the role played by the level of independency in the telecommunications sector. For doing so, we are going to break down the evidence provided by 13 agencies from different Latin America countries. In that regard, the main objective of our work is to establish comparisons among countries in terms of the level of independence prevailing in each institutional framework. By using a formal index of independence, we shall measure the degree of independence associated with each regulatory agency. As Gilardi (2002) and Johannsen (2003), we shall take into account the independence of the political power in 2 dimensions: on one hand, for agency head and management board members, and by the other, for linking established among regulated firms.

This paper contributes mainly in two directions. First of all, it permits to set up comparisons among the telecommunication regulatory frameworks per country by using a formal independence index. In this way, we will analyze internal structure of agencies . Second, it takes a step ahead in the quantification of the independence of the regulatory agencies as input for modelling the influence caused by the independence feature over the performance of a specific regulated sector. It is important if we try to measure the effect of a regulatory agency in sectors as utilities..

The structure of the paper is as follows. First of all, a section containing a description and justification regarding the existence of independent regulators. Secondly, a revision of the empirical literature that involves the regulatory independence as variable of analysis is done. In the third section, it will try to give an operationalization of the independence of regulatory agencies in study. The fourth section will present the results. Finally, the last section concludes with some final comments as well as the future research regarding the regulatory agencies independency.

## **THE REGULATION AS A DESIGN PROBLEM: the importance of the regulatory agency**

The processes of regulatory reform, which have formed part of a more extensive agenda referring to the reform of the State, have placed of manifesto the importance of the regulatory design as a new vision of the State. The vision is based on deepening, to support and to complement to market.. In this way, the transaction cost arisen of the asymmetric information associates to bureaucratic-centralized management systems are reduced (Stark,2001). The main characteristics of the process have been:

- Prices liberalization and access to markets which have been restricted by barriers to entry.
- Transferring of activities from the public to the private sector.

This last aspect is referred mainly to the reform that have had the utilities as telecommunications, water, gas, electricity and transportation. In this case, according to Spiller (1998), the regulation is justified because these sectors are fragile and susceptible to the political manipulation (governmental opportunism). Thus, it is necessary to establish both a stable and credible institutional framework that provides to users public as well as private incentives to invest.

The main characteristic of utilities are: their technologies employ sunk assets, their technologies possess economies of scale and scope, and their products are massively consumed or have a public interest, -which includes many voters that can be become a group of pressure -, they are highly vertical integrated, and they have been considered as natural monopolies. These characteristics generate incentives to government to behave in an opportunistic way with respect to investor and to be appropriated of the sunk assets of the firm by administrative procedures. In this way, after carried out the investments, the government can try to diminish the flexibility to the incumbent in the fixing prices.

In this setting, if the investors anticipate the intentions of expropriation from the government, they will not invest. That is, this happens if the regulatory framework is not credible enough. If the government desire is promote investments, then it has to guarantee credible institutional agreements that limit the possibility of opportunistic behavior

This last aspect permits us to understand the rise and the need of establishing independent regulatory agencies: the passage of public monopolies to private does not put aside the problem of the allocative efficiency. On the contrary, privatization of public monopolies generates that the private incumbent get a dominant position what in turn it will allow behaving strategically. Thus, this fact suggests the need to establish new regulations to prevent the probable abuses derived from the

monopoly power and to create regulatory agencies in the sectors of public utilities privatized (Bel,1996). On another hand, Stern (1997) states that in most cases an effective regulation is synonym of an independent regulator and if this does not possess formal independence of the government, then it cannot be catalogued as such. The rise of independent agencies may give credibility to the regulatory framework and it will mitigate the processes of capture from different pressure groups.

Viscusi, Vernon and Harrington (1995) define the activity of regulation as “a limitation imposed by the public sector to restrict the elections of the economic agents”. In this sense, the intervention of the public sector is due to mainly by the existence of market failures. By taking into account this, the impossibility of achieving a Pareto solution justifies the public sector intervention. This will reduce the distortions of the market that affect negatively to individuals. This vision supposes the existence of a benevolent regulator who will foresight that agents with power market will affect the welfare of society when intending to obtain private benefits. This means to put aside possible relations among the public sector (regulator) and the firms (regulated).

The presence of regulation failure generates the capture of regulators from pressure groups. In other words, the decisions of the public sector can favor to the most influential groups in the regulatory process. The positive perspective of regulation (Stigler, 1971; Posner, 1975; Peltzman, 1976; Becker, 1983) is seen as a process of compensations among the parts that intervene in the economic activity and it will be regulated, where the final decision of the regulator, instead of being based on the maximization of a welfare function, it will have as an objective to maximize a certain political benefit that goes in favor of its individual interests. The main objective of the positive perspective is to explain who will receive the benefits of the regulation, which forms will adopt regulation and its effects on the allocation of resources. This is done assuming that the regulation is obtained for the industry and designed basically for its benefit (Stigler, 1971).

Given the possibility of regulatory capture coming from the industry or the consumers, then it is the important to bear in mind the design of the institutional framework for the regulating activity. Levy and Spiller (1993), assert that the regulation can be seen as a design problem in two parts: the rules of conduct of the regulation or basic design of the regulation (regulatory governance) and the incentives of the regulation (regulatory incentives). The rules of conduct of the regulation are mechanisms used to mitigate regulatory discretion. The incentives of the regulation refer to the different mechanisms utilized in the regulating activity for the establishment of optimum rates. These components are restricted by a country's institutional endowment namely:

- The country's legislative and executive institutions, and its interaction: this interaction determines the degree of discretionality caused by the rulers in the regulating activity.

- The country's judicial institutions: the existence of a judicial power fortified arises as an alternative to diminish the optional power of the executive and the legislature, given the incapacity of the procedures and administrative laws.
- The character of the contending social interests within a society and the balance between them, including the role of ideology
- The administrative capabilities: refers to the capacity that possesses the public sector to diminish costs of transaction during the regulating activity.
- Custom and other informal but broadly accepted norms that tacitly constrain the actions of individuals or institutions

The relation between these institutional characteristics and the design of the regulation mitigate the capture problem. This is based on the structure, organization and independence of the judicial power, the nature and structure of the Legislative and Executive Power and the informal norms. While the regulation is a design problem, the main objective of this will be to create clear rules that permit to generate credible commitments, and stimulate the investments. If these characteristics are complemented, it is expected that the regulatory design will be optimum and therefore the performance of the sector will be improved.

The regulatory design is displayed in the following way. See the next figure:

### **INSERT FIGURE 1**

By looking at this figure, we can notice that the institutional framework capacity to generate credible commitments in each country is a necessary condition to implement the design of the regulation. In that regard, the question is how to generate credible commitments for an effective regulation. In this way, the independence of the regulator arises as a condition to take into account when the regulatory design is established. The main reason to create independent agencies is that they help to stabilize the public decisions as well as they provide transparency to the regulatory process. Then, the independence refers to degree of autonomy that can have the regulator for make isolated decisions from political power and regulated firms, assuming that regulation of public utilities has as a purpose: to protect to the consumers from firms with power market, to protect the investors from the governmental opportunism and to promote the economic efficiency.

The regulatory agencies independence degree will vary from a country to another, mainly by country's institutional endowment, by the attributions given to the agency, by the qualified workers and by the available resources. At the same time, as in the monetary policy, regulatory practices undergo the same problem regarding the temporary consistency of the announcements of policies that will be carried out in the future. This problem brings to the following questions: how much discretion should be offered to regulator? Relatedly, we have the following issue: how should be directed to reduce the risks of the investor?

Bearing in mind that countries possess different institutional endowments, the discretionality will be different from by country and by sector. In this way, a high discretionality is more important in sectors with quickly technological changes and where the introduction of competition requires to be adapted to the market conditions, i.e. telecommunications sector. As is mentioned by Guasch and Spiller (1999), the regulatory discretion should be restricted by specific legislations, presidential decrees, contracts and administrative procedures. They assert that the level of commitment of the regulator depends on country's institutional endowment, assuming that each of these instruments represents a different level of credibility and commitment.

The problem of regulatory discretionality is important whenever the absent of clear rules of playing. Nevertheless, the accountability concept arises as an alternative to deal with the discretionality problem in the sense that the independence needs have to be associated with actions that permit to regulator to be accountable by its actions (Smith,1997). In this sense, the delegation of responsibility to an independent regulator implies give answers to its decisions to the public opinion.

The delegation of responsibilities to an independent regulator generates a potential democratic deficit because they are not chosen in electoral processes. In this sense, accountability intends to diminish this democratic deficit. In particular, it is considered that a democratic society only will be able to accept the extensive delegation of the economic policy to officials who not pass through the ballot boxes. That is, if they are accountable periodically respect to the representatives democratically chosen and to the citizenship in general (Sánchez,2002). Accountability brings transparency to the regulatory process by itself, if it not, it cannot be verified that regulation is done adequately.

Many countries have adopted diverse accountable ways for making more transparent their regulatory process. In this sense, we can mention:

- Mandates with extensive disposition to give explanations including decisions and publications on different cases and the reasons of their decisions.
- Prohibition of conflicts of interest
- Provision of effective agreements to appeal the decisions of the regulatory agency
- Delegation of the opinion on the conduct and efficiency of the regulators to external agents to the agency
- Permission of removal of the regulator in misleading cases to verify conducts or incapacity in the decisions taken.
- Make public the acts of the meetings carried out by the agency in a reasonable time limit of time.
- Avoidance a specific time for the regulator be able to complete its functions it can work for one of the regulated firms .

In this sense, accountability is an important point within the regulatory activity for reducing problems such as regulator discretionality, and the temporary inconsistency. The latter arisen from their announcements when they do not have capacity to generate credible commitments.

Another point to take into account in the design of the regulatory agencies is its internal structure and its legal form. Accordingly, it has to mention different forms that a regulatory agency can adopt:

- The agency incorporated to Ministry related to the regulated sector: it works as an undersecretary and does not possess own financial resources.
- Semi-autonomous agency: it has certain powers, but its decisions have to be revised by ministries or commissions
- Totally autonomous agency: many times, it has equal rank to ministries. They possess own financing and the workers are appointed for periods definite
- Agency included inside the structure of the sector: generally the incumbent is who to regulate
- Absence of regulatory agency, delegating to the courts of justice the functions pertaining to the agencies: the decisions in matter of regulation is taken for the courts of justice.

It can be observed that the form that is closest to the independence is the semi-autonomous agency as well as the totally autonomous agencies. The rest of them have some disadvantages. This is so due to the lack of objectivity concerning with their decisions. They tend to delay resolution problems and they do not possess own financial resources. The advantages in “theory” offered by the completely autonomous and semi-autonomous agencies are referred to the smaller risk of interest conflict and the independence of lobbyists who possess own financing and carry out a disinterested regulation from interest groups, namely: the government, the businesses and the consumers. In that regard, the aim of the paper is to establish the regulating activity in terms of Levy and Spiller (1993) and to focus on only of the of basic design of regulation, leaving a side the aspects referred to the incentives of the regulation.

### **Independence of regulatory agencies: previous studies**

The literature of the independent regulatory agencies has its main antecedent in the studies from ends of the seventies and principle from the eighties relating to the independence of the Central Banks as responsible for implementation of the monetary policies. Kydland and Prescott (1977), Barro and Gordon (1983), and Rogoff (1985) underpinned the theoretical bases in the environment of the independent central banking. Subsequently, empirical studies arose such as those developed by Grilli Masciandaro and Tabellini (1991), Cukierman, Webb and Neyapati (1992), Alesina and Summers (1993) and Cukierman and Webb (1995) who operationalize variables that allow analyzing issues regarding the independence of the central banks. The main conclusion of these studies is that

there is a negative relationship between the independence of the central banks and the inflation in the case of developed countries while these results are not corroborated for developing countries. It is probable that the institutional factors such as the lack of application of the norm is the possible cause of it (Sánchez,2002). In the regulatory literature exists several kind of studies intending to analyze the independence of the regulatory agencies in public utilities. For instance, we can mention:

Urbiztondo, Artana and Navaja (1998) carry out a study of the autonomy of the Argentine regulatory agencies by presenting an analysis of the relationship between the design of the agencies and the economic context in which these work on. For doing this, they establish differences between the aspects relating to the design and context, Regarding the design, they point out the following: the composition, stability, financing supervision and attributions of the agencies, the stability of the hierarchical charges and restrictions of employment, the supervision of their tasks and the flexibility of the legislation. On the other side, the contexts aspects are linked to the number of regulated firms, competition degree among them, visibility of the decisions of the regulator and the intensity which are affected different interest groups. Given the limited variety of decisions produced from regulatory agencies, the approximation carried out by the authors was to analyze different decisions made by the agencies to date, concluding that telecommunications regulatory agency has the smaller independence degree respect to political power and though there is a fast growth in the number of regulated firms.

Stern and Holder (1999) discuss the main problems that affect the regulatory design in infrastructure industry and its implications for the regulatory activity in several countries of Asia. In this case, the authors employ an evaluation criterion for the regulatory systems, based on six criteria that in their opinion characterize the main elements of the economic regulation design. The aspects are divided into: aspects of institutional design of the regulation (regulatory governance), i.e. clarity of roles and objective, autonomy, accountability as well as aspects related to the regulatory practice (informal accountability), i.e. participation, transparency and predictability. These aspects were used in the “survey of regulatory practice for infrastructure industries in developing Asian countries” carried out for the Asian Development Bank.

These characteristics describe the probable degree of political independence and the processes that make increase the acceptance of the regulatory framework with respect to the firms, consumers and governments. On another hand, it may give us the form in which firms and governments’ disagreement concerning how the regulation is being carried out. For doing so, they prepare a questionnaire that provides the regulatory evaluation of the infrastructure industry in Asia. This study was conducted in six countries: Bangladesh, India, Indonesia, Malaysia, Pakistan and Philippines. The sectors studied were: electricity, gas, telecommunications, transportation and water. The regulatory framework is evaluated according to the six indicators discussed previously. By using a qualitative classification from A to E,

the author aim to see in what extent the firms are capable of investing in each sector. In each case, “E” is regarded as the best attribute while “A” means an unfavorable environment for the foreign investment. This is so given that the regulatory bases are not provided by it. “B”, “C” or “D” mean that improvement in the environment of business for the private investment.

The results show a similar behavior around “C” for the majority of the countries except Indonesia whose performance is deficient in all the items. In terms of independence, the regulator of electricity and telecommunications in India possess the highest levels (independent), being deficient the performance of the others regulators in the rest of the countries (not independent). With respect to the clearness of roles and objectives in the regulation, the results point out that the highest qualification is “C”, which it is not clearly established completely the separation between regulators and the political power. This issue helps us to think that the probability of capture of agencies will be variable, tending to be high because it does not exist a definition of roles and regulatory tasks. It is important to emphasize that this is not a study properly on the independence of the regulatory agencies in Asia. Nevertheless, when we analyze the basic design of the regulation, the autonomy turns out to be an important issue because it comprises a more complete mechanism as accountability and transparency. These are important factors at the moment to establish the independence of the regulatory agencies. For Latin America, Gutierrez (2003a) operationalizes a regulatory framework index for telecommunications sector based upon the same principles of Stern and Holder (1999). In this case, the author studies 25 countries of Latin America and the Caribbean during the period 1980-2001 concluding that the efforts of the countries in the region for building an institutional environment for the regulation in the sector has been suitable.

Baudrier (2001) estimates an econometric model by using “Ordinary Least Squares”, OLS, to measure the growth of the rate of investment in the telecommunications sector using data referring to 30 African and Latin-American regulators during the period 1990-1999. This work suggests that countries in which both industry and political pressures over the independence of the regulator are relatively low, then it is shown a relative better growth rate of basic telecommunications infrastructure deployment. The results imply that independent regulation does matter in having a relative positive impact on the growth of the rate of telecommunications penetration, but a large fraction of the variations in the investment in telecommunications keeps being unexplained by the model, meaning that the set of explanatory variables used in the regression could be refined and/or extended.

Wallsten (2001) measures the effect of privatization, competition and regulation on telecommunications performance in 30 African and Latin American countries during the period 1984-1997. The results indicate the existence of a positive correlation between privatization and the establishment of an independent regulator. However, the privatization itself is associated with few benefits . Again,

this study emphasizes that the regulatory independence is important characteristic as a whole. That is to say, it is not enough with having an independent regulator, but also it must exist some conditions in order to obtain favorable results relating to the existence of independent regulators.

Gilardi (2002) develops an index to measure the independence of 33 regulatory agencies in 7 European countries and 5 sectors. The idea is to verify the credibility hypothesis, that is to say, that the governments delegate powers with the intention to increase the credibility of their policies. From this viewpoint, the need of credibility would explain delegation. The index is focused on the formal independence of the agencies and is divided into 5 dimensions, namely: A) agency head status, B) management board members status, C) relationship with government and parliament, D) financial and organizational autonomy and E) regulatory competencies. The results point out that the sectorial and institutional characteristics as well as its interaction can explain the variation of regulatory agencies among countries and sectors, corroborating the importance of the regulatory design.

Pargal (2003) determines the importance of the regulatory framework as a determinant of the private investment in infrastructure by using data on the private and public investment in sectors such as: water, energy, telecommunications and railroads between 1980 and 1998 in nine Latin American countries. For measuring the regulatory framework, the author utilizes different variables such as: the existence of regulations (norms) to govern the liberalization process. In addition, he uses a set of dummy as a proxy to regulatory independence (regulatory environment). The issues considered are: if the agency is autonomous, if it is adhering to a department, if its financing comes from the government, the size of the agency, form to appoint to regulator and if the regime of tariffs is price cap or return rate. The results show that the most important institutional determinant for the private investment is that have been approved liberalization laws in different sectors.

Gutierrez (2003b) using data corresponding to 22 Latin-American countries during the period 1980-1997 investigates the effect a specialized regulatory body has on telecommunications sector performance. The author approach the regulatory framework index of the sector in each country that involves the elements of the regulatory governance. The results indicate that the more developed the regulatory frameworks is, the higher the positive impact is over the efficiency and development of the sector.

Gual and Trillas (2003) operationalize a regulatory independence index in 37 countries for 1998 with the intention to measure the determinants and the impact of sector reforms. The index developed does not measure the formal independence exclusively. It also takes into account related variables with the incentives of the regulation as licenses, rates, universal service, interconnection among others. The results show that the countries where the institutional endowment constrains less the behavior of the executive bodies are more prone to create truly independent

regulatory agencies. On the other hand, the evidence is weak when verifying whether the creation of the regulatory agency has a positive effects on network penetration. In this way, if it take account the endogeneity of regulatory independence, the effect of the regulatory agency is weak.

Ocana (2003) carries out a comparative study of the regulators of the energy sector for the OCDE member analyzing what countries have in common relating their regulatory agencies. In addition, the author inspects what explains the variation in the powers and the independence of the agencies? The analysis suggests that the difference among the regulators is owed not only to administrative and legal structure of the countries, but to the regulatory structure adopted in each country.

Johannsen (2003) analyzes the establishment and development of the regulatory agencies of the sector energy on 8 European countries. The author measures the formal independence of the agencies following the Gilardi's methodology (2002). He concludes that the countries in study converge in formal objectives of the different regulatory frameworks of the electric sector. On other hand, the 75% of the regulatory bodies are commissions or collegial bodies. Also the regulatory power of the agencies could be very weak due to that in some cases the governments have worried more creating an independent regulator that of doing an independent regulation.

Levi-Faur and Jordana (2004) analyze the notion of the rise of the regulatory State in Latin America using data of the creation of the regulatory agency on 19 countries and 12 sectors for the period 1979-2002. They explain the distinction between national and sectorial patterns in the diffusion of the independent regulatory agencies. The authors consider the effects of the establishment of the regulatory agencies in all the sectors of all the countries and in the same sector for different countries. The operationalization of the establishment of the regulatory agency is done through a dummy that takes value of 1 for each year, sector and country when the agency was created and 0 for the previous years to its creation .

The studies presented up to now allow us to summarize that in the literature that analyzes the independence of the regulatory agencies exist studies of descriptive character that permit to make comparisons among regulatory agencies of different countries respect to the structure of the same. Econometrics studies that take into account the independence of the regulatory agencies as variable explanatory of the performance of specific sector, these studies take the variable as dummy (1 if exists regulatory agencies and 0 if does not exist). On the other hand, there are econometrics studies that develop independence index to have a more exact measure of the variable and thus try to explain the factors that impact in the independence of the agencies.

## Methodology and data

Based on Gilardi (2002) as well as Johanssen's work (2003), it is build a formal independence index in telecommunications sector corresponding to 13 Latin American countries . This index will be composed for 6 dimensions: A) agency head status, B) management board members status, C) relations with the government and the parliament, D) financial and organizational autonomy, E) Relations with the regulated firms and F) regulatory competencies, which totalize 25 questions. Each question has multiple answers that go from a minimum of 2 to a maximum of 6. The indicators and associated values to these dimensions are presented in the appendix. Each indicator is codified buy using a scale 0-1, being "1" the greatest level of independence. With the intention to generate a global indicator, we have implemented a two-step procedure: the indicators to level of the dimensions are added (A, B, C, D, E and F) which correspond to the value of each one a mean of the corresponding indicators. Then, dimensions are aggregates being the final value of the index again an average of the dimensions taken into account. For this case particularly each dimension will have the same weight. The indicators associated to these dimensions are presented in detail in table 3.

To collect the information and to codify the index 2 methods were utilized: reading of the different laws and norms that regulate telecommunications sector in each one of the countries in study . On the other hand, the questionnaires were sent to the different regulatory agencies<sup>1</sup>. The countries involved in the study are those that through the analysis of the regulatory frameworks of the sector the questionnaire can be completed.

## Results

The table 2 shows the values for each one of the dimensions that conform the general index on the 13 countries analyzed in alphabetical order. The formal independence index is shown in the last column to the right. The results point out that Bolivian regulator (SITTEL) is the most independent while the Chilean agency (SUBTEL) is the less independent.

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<sup>1</sup> It is important to emphasize that the majority of the web pages of the different agencies, do not place the e-mails of its executives, nevertheless, they have a service of suggestions by which communication can be established. By this way, only the entities of Peru – OSIPTEL- and Chile-SUBTEL- gave answer to the questionnaire. For all the other countries read and analyzed the effective regulatory frameworks.

**Table 1****FORMAL INDEPENDENCE INDEX**

	<b>Agency Head Status</b>	<b>Management Board Members Status</b>	<b>Relationship with Government and Parliament</b>	<b>Financial and Organizational Autonomy</b>	<b>Relationship With Regulated Firms</b>	<b>Regulatory Competences</b>	<b>Formal Independence Index</b>
BOLIVIA	0,90	0,84	0,84	0,88	0,50	1,00	0,83
COLOMBIA	0,44	0,50	1,00	1,00	0,08	0,25	0,55
COSTA RICA	0,64	0,64	0,92	0,88	0,88	0,25	0,70
CHILE	0,46	0,58	0,59	0,25	0,08	0,25	0,37
EL SALVADOR	0,62	0,62	0,92	0,88	0,83	1,00	0,81
GUATEMALA	0,45	0,56	0,75	0,88	0,17	1,00	0,63
HONDURAS	0,55	0,55	0,92	0,88	0,50	1,00	0,73
PANAMA	0,71	0,67	0,67	0,88	0,33	1,00	0,71
PARAGUAY	0,59	0,59	1,00	0,71	0,33	1,00	0,70
DOMINICANA	0,55	0,60	0,75	0,88	0,54	1,00	0,72
PERU	0,34	0,34	0,84	0,92	0,42	0,25	0,52
URUGUAT	0,62	0,62	0,50	0,75	0,58	0,25	0,55
VENEZUELA	0,38	0,38	0,58	0,88	0,75	1,00	0,66

**Table 2**  
**Descriptives**

	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min.</b>	<b>Max.</b>
<b>Agency Head Status</b>	0,56	0,15	0,34	0,90
<b>Management Board Members Status</b>	0,57	0,13	0,34	0,84
<b>Relationship with Government and Parliament</b>	0,79	0,17	0,50	1,00
<b>Financial and Organizational Autonomy</b>	0,80	0,17	0,25	0,88
<b>Relationship with regulated firms</b>	0,46	0,26	0,08	0,88
<b>Regulatory Competences</b>	0,71	0,38	0,25	1,00
<b>Formal Independence Index</b>	0,65	0,13	0,37	0,83

To individual level the results reveal following information<sup>2</sup>:

**Bolivia (SITTEL):** the Bolivian regulatory agency has a degree of independence catalogued as very high (0.83) being this the major degree of independence of countries in the study. By analyzing each dimension in the index, it can be stated that the institutional design weighs highly the independence of the political power, the decisional autonomy and the regulatory competencies. Instead of that, the independence of the regulated firms obtains a low value (0.50). Nevertheless, in this item, it obtains a greater value to the mean.

**Colombia (CRT):** the Colombian regulatory agency has a medium degree of independence (0.55) being located under the average of the general index for the countries included in the sample. With respect to political power, it can be asserted that the institutional design of the agency takes into account in an average way this factor, being the values of this dimension under the mean for the 2 first dimensions and being greater to the mean for the third, nevertheless, in decisional terms the value is high and greater to the mean. Regarding the independence of the regulated firms and the regulatory competencies, the values are very low. Given the results, it can be concluded that the design of the CRT weighs more the internal autonomy that the independence of the political power and the regulated firms.

**Costa Rica (ARESEP):** the value obtained by ARESEP is regarded as middle (0.70) being greater to the mean. The design of the agency weighs in a high way the internal autonomy and the independence of the regulated firms. The independence of the political power is weighed in a middle way while in terms of regulatory competencies the importance is very low. It is observed then that the design of ARESEP favor the internal and financial autonomy in greater extent, and the relations with the regulated firms are more important than the relations respect to political power.

**Chile (SUBTEL):** the sub-secretary of Chilean telecommunications is the agency reporting the least independent index in the sample. It possesses a degree of independence of 0.37, which is considered as a low value. The institutional design of Subtel reflected that the dimensions less weighed inside the index are the relations with the regulated firms, the internal autonomy and the regulatory competencies which are catalogued as very low. On the contrary, referring to the political power, the importance is middle being the major value that concerning with the relations with the government and the parliament (0.59).

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<sup>2</sup> According to the results obtained it was decided to classify the independence of the regulators as very low if the result of the index is among 0-0.25, low among 0.26 – 0.50, middle among 0.51 – 0.75 and high among 0.76 – 1.00

**El Salvador (SIGET):** the degree of independence presented by the Salvadorian agency is considered as high (0.81). The institutional design of Siget pays greater attention to the internal autonomy, to the regulated firms and the regulatory competencies. The independence of the political power is catalogued like middle and greater to the mean.

**Guatemala (SIT):** This agency presents a degree of independence regarded as middle (0.63). In this case, it is paying greater attention to the internal autonomy which is catalogued as a high and the regulatory competencies. In addition, the independence of the regulated firms is catalogued like very low (0.17). With respect to the independence of the political power, the value is catalogued as middle and it is smaller to the mean.

**Honduras (CONATEL):** the institutional design of CONATEL reflected a degree of medium independence (0.73) being greater to the independence average presented by the countries studied. The regulatory competencies present an important priority in the establishment of the roles of the regulatory agency like the internal autonomy, being high this value in all the cases. In this sense, it is observed that the independence of the political power is greater than the regulated firms.

**Panama (ERSP):** The formal independence degree of ERSP is (0.71) being greater to the mean. In the design of the agency, it is observed that the main priority are the regulatory competencies and the internal autonomy. The independence of the political power shows a medium value. With respect to the regulated firms, the value is low corroborating that the design of the agency pays greater attention to the independence of the political power. Nevertheless this aspect is not more priority than the internal autonomy.

**Paraguay (CONATEL):** the degree of independence of the Paraguayan agency is medium (0.70), weighing similarly the internal independence and the political power. In this sense, the values of these dimensions are greater to value average. The independence of the regulated firms does not represent a priority in the design of the agency being the value of this dimension below the average. At the same time, in all the dimensions of the index is obtained greater values than the averages except in the relations with the regulated firms.

**Dominican republic (INDOTEL):** presents a degree of medium independence (0.72) favoring the internal autonomy and the regulatory competencies. With regard to political power, the regulated firms present a medium value being more weighed the first one that the last one.

**Peru (OSIPTEL):** it presents a degree of independence below the mean in comparison with the countries included in the study, (0.52) which is catalogued of middle. In the institutional design, a high priority is observed respecting to the decisional and internal autonomy. For the rest of the dimensions composing the

index, it is observed that the political power presents a greater priority than that representing the independence of the regulated firms in the design of the agency.

**Uruguay (URSEC):** it presents a independence degree catalogued as middle (0.55). The independence degree of URSEC gives greater importance to the internal autonomy than to the independence of the political power, the regulated firms and the regulatory competencies. On the other hand, only in the referred to political power and the regulated firms the values are greater to the mean.

**Venezuela (CONATEL):** the Venezuelan agency presents a middle independence degree, (0.66), which is slightly greater than the average. In its design more attention is put on the regulatory competencies, organizational and financial autonomy and the independence of the regulated firms. Respecting to political power presents a low value being below the average of the countries considered in the study.

A more general analysis of the data allows us to state that in terms of averages the independence of the regulatory agency in telecommunications sector of the countries in study is 0.65 and the dispersion goes from 0.37 (Chile) to 0.83 (Bolivia). In addition, we can notice that 8 countries possess independence index greater than the overall mean (Bolivia, Costa Rica, El Salvador, Honduras, Panama, Paraguay, Dominican Republic and Venezuela) being this mean representative of the data set.

In terms of the relations that each regulatory agency has regarding the political power, it is observed that for the - agency head status - the dispersion goes from 0.34 to 0.90 being the mean of this indicator 0.56. In this sense, 6 countries present greater values in comparison with the mean (Bolivia, Costa Rica, El Salvador, Panama, Paraguay and Uruguay). With regard to management board members status, the value average is 0.57 and the dispersion goes from 0.34 to 0.80 in this dimension. 8 countries present greater values respecting to the mean (Bolivia, Costa Rica, Chile, El Salvador, Panama, Paraguay Dominican Republic and Uruguay). Referring to the relations between the agency and the Government and the Parliament is observed that the dispersion goes from 0.50 to 1.00, being the mean 0.79. In this case, 7 countries possess greater values respecting to the overall mean (Colombia, Costa Rica, El Salvador, Honduras, Paraguay and Peru). These dimensions the mean are representative of the data set.

The three first dimensions<sup>3</sup> reflect the independence of the political power from the regulatory agency, that is to say, these establish who chooses the members of the

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<sup>3</sup> It is important to clarify that though is certain the questions of the 2 first dimensions are equals and at first sight would be able to be handled as a single dimension in the questionnaire, it was decided to leave them separated since in 6 of the 13 agencies studied these dimensions throw different results, showing thus the existing diversity in the composition of the agencies and in the design of the regulatory frameworks of the sector.

executive body as well as what type of obligations acquire the agencies with the Executive Power and Legislature, respectively. Furthermore, these refer to what capacity to act independently agencies have.

The dimension referred to the organizational and financial autonomy presents a degree of dispersion that goes from 0.25 to 1.00 with a mean equal to 0.82 being this the highest value of all the dimensions composing the index. For this dimension, 9 countries show values superior to the sample average (Bolivia, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Panama, Dominican Republic and Venezuela). This section reflects the functional independence of the agencies, that is to say, the freedom that they have to make decisions from a financial as well as administrative point of view. In this case, the mean is also representative of the dataset.

With respect to the relations between the agencies and the regulated firms, it is noticed that the dispersion goes from 0.08 to 0.88 with a mean of 0.46, being this the lowest value of all the dimensions taken into account. Seven countries has greater values to the mean (Bolivia, Costa Rica, El Salvador, Honduras, Dominican Republic, Uruguay and Venezuela). These dimension reflected the independence of the regulatory agency from the regulated firms. For this case the mean is not representative of the dataset.

Concerning the regulatory competencies, the results show a dispersion that goes from 0.25 to 1.00 with a mean of 0.71. 8 countries have greater values than that reported by the mean (Bolivia, El Salvador, Guatemala, Honduras, Panama, Paraguay, Dominican Republic and Venezuela). This dimension allows us to approach to the regulatory tasks carried out by the different agencies. For this case the mean is not representative of the dataset.

As seen previously, it is possible to state that the telecommunication regulatory agencies in Latin America show different degrees of independence, and this is an indication of the diversity prevailing in the design of the regulatory frameworks in the region. From the results, it has to mention that there is not a clear pattern relating to the independence of the agencies. Nevertheless, we can assert that the organizational and financial autonomy is the dimension that show the major value in terms of average in comparison with the rest of dimensions compiling the index. On the other hand, it is observed that the independence of the political power and the regulated firms is not the main element to take into account in designing agencies, and regulatory frameworks in the sector. Nevertheless, 10 of the 13 agencies analyzed (77%) weigh in great extent measure referring to the independence of the political power on the independence of the regulated firms, only Costa Rica, El Salvador, and Venezuela show greater values in the dimensions corresponding to the independence of the regulated firms.

Among the dimensions constituting the independence of the political power, the most important in the design of the agencies is the relation that possess the agencies with the Government and the Parliament. For all the countries except Bolivia, this dimension achieves greater value that presented by the two first dimensions.

## **Final comments**

This study analyzes the independence of the regulatory agencies by using a theoretical point of view. On the other hand, we have done a first approach since the comparative point of view from a formal independence index for the regulatory agencies on thirteen Latin American countries in the telecommunications sector . The independence of the regulatory agencies arises of the need to make an effective, transparent and therefore impartial regulation in the sectors that have been subject to liberalization and subsequent privatization. In this sense, the telecommunications sector has had deep changes in the last fifteen years in its structure at world-wide level and one of the main characteristics is the establishment of independent regulators. This characteristic is easy to establish in theoretical terms, nevertheless, in practice to arrive at this condition is not so simple.

On the other hand, it is important to add that the index developed measures the formal independence of the agencies. That is to say, the established in the different regulatory frameworks of the sector on the countries in study and not the present or real independence of the agencies. A form to measure this dimension would be to create a methodology of analysis to examine the different cases and sentences in which the regulatory agency has been and to try compile historical information on the decisions. The formal independence by itself is a scale of measurement that will permit us to establish if an entity is more independent than another, in this sense, the index does not express something beyond.

The results obtained by the index show that the independence of the regulatory agencies for telecommunications sector is a point to take into account in the institutional design of the sector. In this way, in the institutional design exist dimensions that are more priority than other, according to this is observed that, the independence of the political power is more important for the agencies than for the independence of the regulated firms, but not more important than the organizational and financial autonomy. Furthermore, inside the dimensions that constitute the independence of the political power the most important one is the capacity to be accountable and to act that have the agencies, corroborating thus the results obtained in Johannsen (2003).

The independence of the regulated firms and the political power is an important factor in the establishment of the agencies as long as in principle this may guarantee a more disinterested regulation in political terms (Fernandez: 2000,

127). Nevertheless, it is observed that the design of the regulatory agencies of the sector in Latin America does not weigh mainly this factor. In this setting, some questions arise, for instances: can a regulator indeed to be impartial when the relations with the political power and the regulated firms are not priority? Both dimensions are equally important? The probability to be captured from the State and the industry, can be mitigated with institutional designs that do not favor these conditions?. The questions will be more difficult to respond in the measure that countries not have adequate designs of regulation and the independence of the agencies be introduced like a final objective more than as a middle to arrive at a goal. The investigation in the area should advance in trying to respond these questions by means of concepts that permit operationalize the independence of the regulatory agencies. Thus, it has to be analyzed the importance of this variable in the regulation of the sectors to study.

## APPENDIX

**Table 3**  
**Formal independence of regulatory agencies: operationalization**

<b>DIMENSION</b>	<b>INDICATORS</b>	<b>NUMERAL CODING</b>
<b>A) Agency head status</b>	<b>1) Term of office</b>	
	over 8 years	1,00
	6 to 8 years	0,80
	5 years	0,60
	4 years	0,40
	fixed term under 4 years or at the discretion of the appointer	0,20
	no fixed term	0,00
	<b>2) Who appoints the agency head?</b>	
	the management board members	1,00
	a complex mix of the executive and the legislature	0,75
	the legislature	0,50
	the executive collectively	0,25
	one or two ministers	0,00
	<b>3) Dismissal</b>	
	dismissal is impossible	1,00
	only for reasons not related to policy	0,67
	no specific provisions for dismissal	0,33
	at the appointer's discretion	0,00
	<b>4) May the agency head hold other offices in government</b>	
	no	1,00
	only with permission of the executive	0,50
	no specific provisions	0,00
	<b>5) is the appointment renewable?</b>	
	no	1,00
	Yes ,once	0,50
	yes, more than once	0,00
	<b>6) Is independence a formal requirement for the appointment?</b>	
	yes	1,00
no	0,00	
<b>7) Term of office</b>		
over 8 years	1,00	
6 to 8 years	0,80	
5 years	0,60	
4 years	0,40	
fixed term under 4 years or at the discretion of the appointer	0,20	
no fixed term	0,00	

<b>B) Management board members status</b>	<b>8) Who appoints the management board members?</b>	
	the agency head	1,00
	a complex mix of the executive and the legislature	0,75
	the legislature	0,50
	the executive collectively	0,25
	one or two ministers	0,00
	<b>9) Dismissal</b>	
	dismissal is impossible	1,00
	only for reasons not related to policy	0,67
	no specific provisions for dismissal	0,33
	at the appointer's discretion	0,00
	<b>10) May management board members hold other offices in government?</b>	
	no	1,00
	only with permission of the executive	0,50
	no specific provisions	0,00
	<b>11) Is the appointment renewable?</b>	
	no	1,00
Yes ,once	0,50	
Yes ,more than once	0,00	
<b>12) Is independence a formal requirement for the appointment?</b>		
yes	1,00	
no	0,00	
<b>C) Relationship with government and parliament</b>	<b>13) Is the independence of the agency formally stated?</b>	
	yes	1,00
	no	0,00
	<b>14) Which are the formal obligations of the agency vis-à-vis the government</b>	
	none	1,00
	presentation of annual report for information only	0,67
	presentation of annual report that must be approved	0,33
	the agency is fully accountable	0,00
	<b>15) Which are the formal obligations of the agency vis-à-vis the parliament</b>	
	none	1,00
	presentation of annual report for information only	0,67
	presentation of annual report that must be approved	0,33
	the agency is fully accountable	0,00
	<b>16) Who, other than a court, can overturn the agency's decision where it has exclusive competency?</b>	
none	1,00	
A specialized body	0,67	
the government, with qualifications	0,33	
the government, unconditionally	0,00	
	<b>17) Which is the sources of the agency's budget?</b>	
	external funding	1,00

<b>D) Financial and organizational autonomy</b>	government and external funding	0,50
	government	0,00
	<b>18) How is the budget controlled?</b>	
	by the agency	1,00
	by the accounting office or court	0,67
	by both the government and the agency	0,33
	by the government	0,00
	<b>19) Who decides on the agency's internal organization?</b>	
	the agency	1,00
	both the agency and the government	0,50
	the government	0,00
	<b>20) Who is the charge of the agency's personnel policy?</b>	
	the agency	1,00
	both the agency and the government	0,50
the government	0,00	
<b>E) Relationship with regulated firms</b>	<b>21) May the agency head/management board members held a position in the industry / industrial associations in the years preceding to the appointment?</b>	
	no	1,00
	yes, but no within the last two years prior to the appointment	0,67
	yes	0,33
	yes, and they can hold a position in industry during their term of office	0,00
	<b>22) Are there provisions restricting the agency head's / management board member's possibilities of accepting a job in the industry after the term?</b>	
	yes, regulators are not allowed to take positions in the regulated industry for several years after finishing the term	1,00
	yes, regulators are not allowed to take positions in the regulated industry for up to a year after finishing the term	0,50
	no	0,00
	<b>23) Are there provisions forbidding discussions of pending cases with stakeholders?</b>	
	yes	1,00
	no	0,00
<b>24) Are there any provisions forbidding that the agency head / management board member have any personal or pecuniary interest in the industry(sector)?</b>		
yes	1,00	
no	0,00	
<b>F) Regulatory competences</b>	<b>25) Who is competent for regulation in the sector?</b>	
	the agency only	1,00
	the agency and another independent authority	0,75
	the agency and the parliament	0,50
	the agency and the government	0,25
	the agency has only consultive competencies	0,00

**Table 4**  
**Characteristics of the regulatory agencies in study**

Country	Name of Agency	Year of Creation	Type of Agency according to the law
Bolivia	Superintendencia de Telecomunicaciones (SITTEL)	1994	Independent Institution
Chile	Subsecretaria de Telecomunicaciones (SUBTEL)	1977	Ministry
Colombia	Comisión de Regulación de Telecomunicaciones (CRT)	1992 1994	Independent Institution
Costa Rica	Autoridad Reguladora de Servicios Públicos (ARESEP)	1996	Independent Institution
El Salvador	Superintendencia General de Electricidad Y Telecomunicaciones (SIGET)	1996	Independent Institution
Guatemala	Superintendencia de Telecomunicaciones (SIT)	1996	Technical organism of the Ministry of Communications, Transports and Public Works
Honduras	Comisión Nacional de Telecomunicaciones (CONATEL)	1995	Decentralized State organization
Panamá	Ente Regulador de Servicios Públicos (ERSP)	1997	Independent Institution
Perú	Organismo Supervisor de la Inversión Privada en Telecomunicaciones (OSIPTEL)	1991	Independent Institution

República Dominicana	Instituto Dominicano de Telecomunicaciones (INDOTEL)	1998	Decentralized State organization with functional, jurisdictional and financial autonomy
Uruguay	Unidad Reguladora de los Servicios de Comunicaciones (URSEC)	2001	Decentralized organization from Executive Power
Venezuela	Comisión Nacional de Telecomunicaciones (CONATEL)	1991 2000	Independent service without legal personality assigned to the Infrastructure Ministry, with autonomy of administrative, financial and budgetary management

Source: Gutierrez ( 2003<sup>a</sup> ), and legislation from the countries

- First year shows the year of creation; additional years date modifications that changed or restructured the regulatory agency

# Figure 1 REGULATORY DESIGN

**Are domestic institutions capable  
of providing credible commitment?**

No Yes

**Regulatory reform  
Alone may fall**

**2. Do institutions require very specific  
substantive rules to be credible?**

No Yes

**Process regulation  
May suffice**

**3. Is administrative  
Capability strong**

No Yes

**Only simple rule  
may be used**

**Complex regulatory  
rules may be used**

Source: Levy y Spiller (1993)

## REFERENCES

Abdala, M y Spiller P: *Instituciones, contratos y regulación en Argentina*. Temas Grupo Editorial S.R.L 1999.

Alesina A. y Summers L. (1993)" Central Bank Independence and Macroeconomic Performance: Some Comparative Evidence. *Journal of Money, credit and banking* 25 (1993) 2 pp.151-62

Barro & Gordon, 1983, "Rules, Discretion, and Reputation in a model of Monetary Policy", *Journal of Monetary Economics* , 12: pp101-20.

Baudrier, A. (2001):" Independent regulation and telecommunications performance in developing countries". Conferencia Anual ISNIE. Berkeley, 13-15 de septiembre 2001.

Becker G. (1983)" Theory of Competition among Pressure Groups for Political Influence". *Quarterly Journal of Economics* 98(3) 1983 pp.371-400

Bel Germa (1996):" Privatización y desregulación: Cuando la liberalización no basta para aumentar la competencia" En Bel, G.(comp.) "*Privatización, desregulación y ¿competencia?*".Editorial Civitas, Colección Economía. pp.17-32

Byer C (2004):" Measuring regulatory independence: a Caribbean consideration" paper prepared for the Second OOCUR Annual Conference "Independent and Transparent Regulation in the Caribbean" 3-5 November Jamaica.

Cukierman, Webb y Neyapati (1992)," Measuring the Independence of Central Banks and Its Effect on Policy Outcomes" *World Bank Economic Review* vol. 6(3), pp. 353-98.

Cukierman A y Webb S (1995)" Political Influence on the Central Bank: International Evidence". *World Bank Economic Review* vol. 9(3), pp. 397-423

Fernández M. (2000)*La competencia*. Madrid. Alianza Editorial. Capítulos V y VI

Gilardi F. (2002)" Policy credibility and delegation to independent regulatory agencies: a comparative empirical analysis". *Journal of European Public Policy* 9(6) December 2002: pp.873-893.

\_\_\_\_\_ (2003):" "Evaluating Independent Regulators", paper prepared for the Programme on Regulatory Reform of the Organisation for Economic Cooperation and Development (OECD), Paris

Gonec ,R., Maher M. y Nicoletti G(2000):" The implementation and the effects of regulatory reform: past experience and current issues". ECO/WKP(2000)24.Economic department working paper, OECD.

Grilli, V.; Masciandaro, D. y Tabellini, G. (1991): "Political and Monetary Institutions and Public Financial Policies in the Industrial Countries", *Economic Policy*, vol. 13, pp. 341- 392

Guasch, J y Spiller, P (1999): *Managing the regulatory process: design, concepts, issues, and the Latin America and Caribbean story*. The World Bank, Washington D.C. pp37-54

Gual J. Trillas F: 2003" Telecommunications policies: determinants and impact" Working paper N° 510 IESE Business School Universidad de Navarra.

Gutierrez L(2003a)"Regulatory governance in the Latin American telecommunications sector". *Utilities Policy* 11 pp 225-240

\_\_\_\_\_ (2003b)" The effect of endogenous regulation on telecommunications expansion and efficiency in Latin America". *Journal of regulatory Economics*; 23:3 pp.257-286.

Johannsen K. (2003)" Regulatory independence in theory and practice: a survey of independent energy regulators in eight European Countries" Institute of Local Government Studies AKF Forlaget. Denmark

Jordana, J y Sancho D (1999)" Reforma del Estado y telecomunicaciones en América Latina". *Instituciones y Democracia*, No5 pp. 1-32

Kydlan F y Prescott E (1977), "Rules rather than discretion: The inconsistency of optimal plans" *Journal of Political Economy* 85, pp. 473-490.

Lasheras, M: *La regulación económica de los servicios públicos*. Editorial Ariel S.A, Barcelona.1999.Capítulos I y II

Levi-Faur D. y Jordana J (2004)" The Rise of the Regulatory State in Latin America: a Study of the Diffusion of Regulatory Reforms Across Countries and Sectors June Working Paper N° 61. Centre on Regulation and Competition. University of Manchester.

Levine, P. Rickman ,N y Trillas, F (2000)"Regulatory independence: measurements and effects" Regulation Initiative Working paper series, No37. London Business School

\_\_\_\_\_, Stern, J y Trillas, F(2002)" Independent regulators: lessons from monetary policy. Regulation Initiative Working paper series, No52

Levy, B y Spiller, P (1993): “ Regulation, institutions, and commitment in telecommunications: a comparative analysis of five country studies”. Proceedings of The World Bank Annual Conference on Development Economics.

Martín, N y De la Fuente J (2000)” Un nuevo enfoque teórico en el análisis de la regulación industrial: la política de costes de transacción”. Documento de Trabajo 08/00. Departamento de Economía y administración de empresas. Universidad de Valladolid

Ocana C (2003)” Trends in the management of regulation: a comparison of energy regulators in member countries of the Organisation for economic Development and Co operation”. *International Journal of Regulation and Governance* 3 ( 1):pp.13-32

Pargal, S (2003):” Regulation and private sector investment in infrastructure: Evidence from Latin America”. World Bank Policy Research, Working Paper 3037.

Peltz S (1976)” Toward a more general theory of regulation” *Journal of Law & Economics* 19(2). Pp. 211-40

Posner, R (1974): “ Theories of economic regulation”. NBER, Working paper series, No 41.

Posner, R (1975) “The social costs of monopoly and regulation”. *Journal of Political Economy* vol. 83(4), pp. 807-27.

Quintanilla E (2004)” Autonomía institucional de los organismos reguladores: revisión de la literatura”. Documento de Trabajo N° 14. Escuela de Administración de negocios para Graduados. Lima-Peru.

Rogoff, K (1985), "The Optimal Commitment to an Intermediate Monetary Target", *Quarterly Journal of Economics* vol. 100(4), pp. 1169-89

Sánchez, I (2002): “Independencia y credibilidad del Banco Central Europeo” en García Pilar(2002): *Nuevos tiempos para la vieja economía Europea* Valladolid Editorial Lex Nova. 65-84

Sifontes D.(2003) “ Regulación económica y agencias regulatorias independientes: una revisión de la literatura” Tesina presentada en el Departamento de Economía Aplicada IV, Universidad Complutense de Madrid. Mimeo.

Smith, W (1997):” Utility regulators- The independence debate”. En Public Policy for the private sector, No 127 The World Bank Group.

\_\_\_\_\_:" Utility regulators-roles and responsibilities". En Public Policy for the private sector, No 128 The World Bank Group.

\_\_\_\_\_:"Utility regulators- Decision making structures, resources, and start-up strategy". En Public Policy for the private sector, No 129 The World Bank Group

Spiller, P (1998):" El por qué de la regulación de los servicios públicos". Cuaderno N° 2, Fundación Sociedad y Gobierno. Argentina.

Spiller P y Tomassi M (2005)" The institutions of regulation: an application to public utilities. En: Menard CY Shirley M(eds). *Handbook of new institutional economics*. Berlin: Springer. Chap. XX

Stafilidou, M (1996):" Cross-country survey of telecommunications regulatory structures". PSD Occasional Paper N024, Private Sector Development Department. The World Bank

Stark, C (2001): " Regulación, agencias reguladoras e innovación de la gestión pública en América Latina", en Spink P., Longo F. y otros *Nueva Gestión Pública y regulación en América Latina. Balance y Desafíos*. Caracas. CLAD, 2001.255 pp.

Stern, J (1997):" What makes an independent regulator independent?. *Business Strategy Review*,1997 Volume. 8, , Issue 2, Summer, pp 67-75

\_\_\_\_\_ y Holder S (1999):" Regulatory governance: criteria for assessing the performance of regulatory systems. An application to infrastructure industries in the developing countries of Asia". *Utilities Policy* 8(1999),pp33-50

\_\_\_\_\_ y Trillas, F (2001):" Telecom Regulation: Lessons from independent central Bank". *Business Strategy Review*, 2001,Volume12 Issue4, pp17-28

Stigler, G (1971)" The theory of economic regulation". *Bell Journal of Economics*. Volume. 2(1), pp 3-21

Urbiztondo, S. Artana D. Y Navajas, F (1998):" La autonomía de los entes reguladores Argentinos: Agua y cloacas, gas natural, energía eléctrica y telecomunicaciones. BID. Research network working paper.

Viscusi, K Vernon, J y Harrington, J: *Economic of regulation and antitrust*. The MIT Press, Second Edition, 1995. Capítulos I Y II

Wallsten, S (2001): "An econometric analysis of telecom competition, privatization, and regulation in Africa in Latin America". *The Journal of Industrial Economics*, VOL. XLIX, No 1, pp.1-19

Wallsten S, Clarke G, Haggarty L, Kaneshiro R, Noll R, Shirley M y Xu L(2004)  
“New tools for studying network industry reform in developing countries: the  
telecommunications and electricity regulation database”. World bank policy  
Research Working paper 3286.