The Limits OF THE OPEN ACESS AS A REGULATORY YARDSTICK IN THE Regulation of Utilities in Latin America

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Abstract

This paper contends that the identification of a pro-competitive agenda in the process of regulatory reform undertaken in many developing countries, particularly in the field of utilities regulation, ultimately rests on the vision held by the authority about the sources of market failures. Conventional Industrial Organization theory assumes that the exercise of market power by incumbent firms limits the access of potential competitive entrants, and therefore, government regulation should curb such power. However, the existence of market "power" is an inference from conventional "equilibrium" thinking on markets and competition, where such power is associated with the static conditions of markets, away from the efficient equilibrium epitomized by the Perfect Competition model. By logical inference, an alternative "market process" view that regards markets as entities subject to constant disequilibrium should lead to alternative normative conclusions. Under this alternative view, exploring the role of rules and institutions is essential for the analysis of "efficient" market outcomes. Such efficiency is related to the capacity of market participants to coordinate their productive activities, and complementary entrepreneurial synergies. This paper outlines an alternative network competition perspective, focused on the integration of complementary capabilities, as a regulatory yardstick. This view balances the rights of incumbent firms to exploit their rights, and the possibilities of third parties to integrate into the network concerned on a non-discriminatory basis, thereby preserving the investments of incumbents on a more equitable basis. It also explores the experience of selected Latin American countries in the development of this network competition approach.

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I. Introduction

In Latin America, most public services were provided by public monopolies until the mid-1980s, in sectors such as telecommunications, gas, water, electricity, and transportation. However, since then, most countries have undertaken institutional reforms to improve the efficiency of the sector, to reduce public deficits, and to increase consumer welfare.

The building blocks of these reforms were two-fold: first, allowing private investment and management to

improve the management of services, and reduce deficits, and secondly, at a later stage, the increase of consumer welfare through efficient regulation. Almost two decades after the process began, the reforms succeeded in bringing private participation to public utilities, but they did not succeed in promoting effective competition. This situation occurred in many instances due to the unqualified transfer of public assets to private hands, without changing the monopoly legal structure that governed the relationships between economic agents before privatization took place. Many thought that simply by changing from public into private ownership incentives to undertake a better service would automatically follow. Although significant improvements were achieved in many cases, optimal performance would not necessarily be warranted, as the experience would show.

In fact, during the initial stages of economic liberalization, most Latin American countries showed a poor record of competition in utilities. Several signals show the lack of competition:

- Price distortions. As a result of this phenomenon, tariffs are on average, higher in most countries of the region than in other countries. This is most evident in the telecommunication sector.

- The proliferation of state aids and subsidies to public enterprises. This is very common in the case of power distribution companies in Colombia, Brazil, and Venezuela, and water supplying companies in Brazil.

- The proliferation of vertically integrated firms operating in markets characterized by natural monopolies that often undertake cross subsidies. This is especially common in the electricity and water sectors. As a result of cross-subsidies, industrial consumers subsidize residential ones.

- The discrimination of customers.

- The impossibility for consumers to choose service suppliers.

As a result of poor regulation and government fiat, high concentration dominates Latin America´s industrial landscape in utilities and infrastructure industries both horizontally and vertically, thereby creating a synergy that stimulates the lack of competition in these sectors. For example, in the telecommunications sector, basic phone services (e.g. fixed phone) are often controlled by one company, simply because governments ensured legal monopolies to the winning parties after the bidding for privatization had taken place. Licenses for second operators are a recent phenomenon, which has been prompted in many cases by the force of public opinion. In Venezuela, for instance, CANTV enjoyed a legal monopoly from 1992 till 1999. In Mexico, Telmex holds an uncontested legal dominant position for the same reason, despite the increasing concern of public opinion.

Governments are too keen to engage in privatization processes, without much reflection on the regulatory aftermath that should be in place to keep distorting incentives at bay. As a result, they tend to maintain the same industrial market structure that used to prevail before privatization. A good example of this is the monopoly observed in the gas production industry. In Argentina, for instance, YPF holds around a fifty percent market share; Ecopetrol controls around seventy percent in Colombia, and Mexico's Pemex and Venezuela's Pedevesa control their entire markets. Curiously, in all these cases, monopoly is warranted in the name of "public interest".

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Today, it is clear that competition principles should be part of the body of utilities regulation. The question that arises is, how should that concern be properly reflected in the body of new regulations? In another work[1] I have stated that inefficient regulation in utilities stems from three different sources: a. The dynamics of the institutional reform process; b. The lack of effective competition policy, and, c. The lack of coordination between regulatory institutions and competition policy. Some authors emphasize that changes should be introduced into the set of rules governing the regulator of the industry concerned, as too many synergies were suspected to exist between regulatory agencies and the political interests behind them. Governments used to possess an undisclosed clout over these agencies, which made these to be perceived by the business community as mere instruments for accomplishing political, not economic goals. Evidently, this perception was a defeating force against anyone attempting to persuade new investors to come in to participate on equal foot, as property rights were rightly perceived to ultimately depend on the will of politicians, not on the rule of law. Much emphasis has therefore been placed on ensuring that objective, impartial, and professional regulatory authorities are set in place.

Little has been said, however, about the more vexed problems that a competition or regulatory authority, notwithstanding its impartiality and good faith, would have to face from the viewpoint of competition, to ensure a fair balance of private interests in the sector regulated. In other words, assuming these authorities are institutionally capable of doing a fair assessment of the position of competing firms before them, do they have predefined principles, and a transparent policy making agenda to ensure that competition is preserved?

The purpose of this paper is to present some reflections over the problem of the agenda that competition authorities have to develop in order to ensure proper institutional conditions for competition to develop in infrastructure services. Such institutional conditions entail, above all, a definition of rights between market participants of this industry. This paper contends that the criteria drawn from conventional industrial organization, which is used for qualifying the position of these participants in the market, and render tautological conclusions that provide no answer for the Authority to decide whom should be given the right to operate and under what conditions. These criteria emphasize the idea that "access" to the market is foreclosed whenever "natural monopolies" limit the possibilities for more than one firm to participate in the market, and that such condition is lost whenever technology innovation erodes the position of the incumbent firm, to a position where she cannot challenge other firms from entering the market. In our opinion, this view of the problem leads to self-contained normative prescriptions, because it places the possibilities of institutional restructuring in the hands of factors above the will of the regulator, namely, technological evolution; indeed, it gives regulators an entire discretion in determining whether an industry should be regarded as possessing insufficient technological advance to erode the position of incumbent firms presumably enjoying a "natural monopoly".

In its stead, we propose an alternative "network perspective" from which more meaningful conclusions could emerge about who-should-be-allowed-to-do-what. This perspective does not emphasise the idea of "accessing to a given market" but rather, that of developing "complementary capabilities" thus enabling the applicant party to connect to the network. The difference between both perspectives lies on the balance of rights allocated in each case: whereas in the conventional notion the potential entrant always appear to be "the victim" of the aggression exercised by a firm enjoying a "natural monopoly", in the case of the networks, it depends on whoever wants to penetrate the market to develop the proper means of connectivity, and therefore, the burden of evidencing misconduct from the opposite party would be reversed.

Let us explore these concepts more in depth.

II. Competing views about the regulation of utilities: The conventional market power approach versus the network Competition Perspective. Open Source regulation as a yardstick criterion

How would policy makers conceive the regulation of utilities? The selection of the regulatory agenda will ultimately depend on the perception of the regulator about the nature of markets and of the circumstances where she deems a "failure" to exist. In this regard, it is possible to distinguish two alternative views of regulation, which provide different policy recommendations for policy makers to follow.

1. I. De Leon. *The Role of Competition Policy in the Regulation of Infrastructure Industries: Some lessons from the Latin American Experience*, paper presented at the Seminar "Politicas de Competencia en Servicios de Infraestructura", Interamerican Development Bank, 23-24 April 2001, Washington, D.C.

2. C. Goldman and R. Corley. *Competition Policy in High-Tech Markets: A perspective for consideration by Developing Economies*, Paper presented at the Third Annual Latin American Roundtable on Competition and Trade Policy, Coral Gables, Florida, 3 March 2000, p. 5.

3. The Treasury, Ministry of Commerce (Ed.) "Regulation of access to vertically-integrated Natural Monopolies: A discussion paper", Wellington, New Zealand, 1995.

In the first place, the conventional "market structure" view of industrial organization considers the following guidelines:

- Markets should be regulated where natural monopolies exist.

- It is necessary to *supervise the incumbent's potential or actual restrictive behavior*. This includes, of course, controlling the conduct of the incumbent firm that is presumed to hold a natural monopoly. Supervision covers the control of tariffs and business conditions, to avoid the exploitation of consumers and the undue exclusion of competitors. This is the gist of the so-called "essential facilities" doctrine, under which regulation is "justified".

- It is also necessary to *control market structure*. In particular, it is necessary to exercise supervision of mergers and acquisitions, which may impair the chances of accessing alternative suppliers, which will be eliminated from the market as a result of these operations.

In the conventional analysis, competition authorities often stress the importance of introducing what they regard as "competition" principles for activities where free access to all is essential for the success of everyone involved. This is the case of the infrastructure sector. Competition *in their view* amounts to imposing measures on the party regarded to be infringing the law (the incumbent dominant firm) which de facto restrains his capacity for undertaking whatever business strategies he pleases to outdo his competitors. In a somewhat strange way, his efforts to challenge his competitors become curtailed by a predefined notion of competition which has been arrived upon by theoretical constructions. This is dangerous way of thinking, and yet, it constitutes the heart of competition policy analysis as it has been practiced since its origins in the Sherman Act.

This is a result of the emphasis that has been placed on the idea of "market power," particularly while the market is in the initial stages of its development. This is clearly evident in the special focus placed on price considerations as the expression of such "Power." Although the notion of market power also refers to the ability of firms to influence quality, variety, servicing, advertising, or innovation, "it is usually assessed primarily in terms of the parties' ability to set prices above competitive levels for a sustained period of time"[2].

The involvement of competition agencies is becoming widespread, and has encompassed activities such as airport systems, railway transportation, water supply, and public roads. Will privatization ensure that they will support themselves without public financing? Will market structures provide fair access to all, in downstream industries? Indeed, frequently these industries possess the features of a natural monopoly, thus deserving special regulation.

In this perspective, ensuring access to these sectors is essential, particularly to downstream industries where competition would be stalled if no access were available at the upstream level of the infrastructure network. It is necessary to focus on increasing access to markets for all firms and consumers, with special attention given to newcomers and firms with no market power. Special attention is necessary to give effective access to required inputs (information, technology, and competitively priced materials).

In transition economies, productive entrepreneurship could be affected if anti-competitive business behavior or government barriers are erected, thus foreclosing the access to services or information provided by access to an infrastructure network.

This is especially important in vertically integrated industries. In these cases the Baumol-Willig (BW) rule and other interconnection pricing rules will be evaluated on the basis of how well they contribute to overall economic efficiency. Essentially, the BW rule states that a firm seeking access should pay the incumbent a sum sufficient to compensate it for the opportunity cost of customers lost to the entrant including its foregone profits, if any. Hence the BW access price may include the monopoly profit that the incumbent loses by selling access in place of retail services[3].

Finally, scholars and policy makers often refer to the need of preserving an "open source" to incumbent firms asking for a right of way into the respective facility. In this way, they reproduced the old market access approach of antitrust policy, in a novel fashion.

III. The limits of the conventional market access view of Open Source

The conventional "access" view of Open Source does not conveys a faithful picture of the market relationships faced by entrepreneurs, since it places the emphasis of the analysis on the contention of firms fighting for scarce resources, thus ignoring important elements of the picture that should not be omitted, even though they may not appear so evident at first sight.

Viewing the problem as one of allowing –or denying access ("open source") to certain firms regarded as potential entrants, predictably places the policy maker into the position of

solving the vexing problem of whether the contested resource is sufficient for the two sides to enjoy. This is not the real problem that should be in the mind of any government authority interested in promoting competition, but rather is the problem faced by a regulator deciding on distributive grounds how much entitlement each side "deserves" over the contested resource. This view was clearly stated by the US Supreme Court of Justice, who concluded that the goals of the 1996 Telecommunications Act were not to create a market of resellers or to turn existing telephone networks into a permanently shared resource. Supreme Court Justice Breyer would emphatically put it in these terms:

> "It is in the *un*shared, not in the shared, portions of the enterprise that meaningful competition would likely emerge"[4] (Emphasis is the author's).

Yet, regulators almost unanimously think they *are* promoting competition by determining whether one competing firm should be given access to a resource that is already in the hands of another firm, or whether the latter should hold exclusive rights on the resource, since there are other existing facilities that could be used.

This conventional way of thinking the regulatory questions follows the logic of the neoclassical competition analysis. The conventional "access" view is forced to see the position of firms in the market as a contending one, in which the extent of individual rights of the incumbent firm is always bound to limit the possibilities of the potential entrant firm. This is so, because of the implicit normative deduction resulting from the positive analysis of markets under neoclassical terms. The neoclassical analysis is based on two related premises:

First, under this view, the use of social resources is limited by their alleged scarcity. Consequently, the role of regulatory intervention is to determine what party should be allowed to use such resources, and to what extent. Evidently, in the context of a world with scarce resources it is impossible to draw a different normative conclusion, except that the use of social resources by one firm excludes the other. In case of conflict between two sides, social welfare enhancing measures should be imposed on both parties to "organize" their access to the limited scarce social resource by way of intervention. Clearly, neither party enjoys full property rights over the social resource concerned, as government intervention pursuant to achieve social goals could always limit such rights.

4. AT&T v. Iowa Utils. Bd. 525 U.S. 366,429 (1999).

A second related premise follows from the first assumption of rights allocation under conditions of scarcity, namely, that governments can acquire the necessary informational tools enabling them to determine the extent to which one party should surrender her entitlement over the resource to another. In other words, the neoclassical view is assumed to possess the proper means for establishing the instances in which one party should be regarded "guilty" of breaching competition rules, and that it would be possible to determine the extent to which her right should be construed.

This view stems from the conventional neoclassical assumptions according to which resources are scarce and knowledge is available and plentiful. Reality, however, dictates exactly the opposite.

In the first place, assuming that the facilities over which the authority has to allocate rights are scarce, it is inaccurate, to say the least. However, the dynamics of competition does not itself limit to the rivalry of existing facilities, but in general, facilities that could be built and those that have already been built. This is so, because the incumbent firm is in fact pressed hard by the possibility that new networks displacing that on which he holds control through his entitlement on the physical facility concerned.

A pro-competitive authority would not consider the problem of access on to the physical facility as one that would determine the fate of competition. Assuming no contrived legal restraints on entry, competition is present at all times, both at the time of entry into the facility (Demsetz, 1968) as well as during the time when the facility is run by the incumbent firm. Instead, a pro-competitive authority would be concerned about developing networks that serve the connectivity of anyone interested in connecting to a network, either the existing one, or any other that could be developed in case that the incumbent decides not to allow anyone else to use his facility. As the case of Apple computers shows, there is always a risk for the incumbent firm to develop stringent access policies, which in the end could result in the impairment of his own standard, and eventual replacement by a more compatible competitor –i.e. Microsoft.

Thus, the problem of the Authority is not to sacrifice one right against another for the use of a given social resource; it is to determine the best possible arrangement enabling both parties –incumbent as well as potential competitor, to develop their "connectivity", both between them, as well as with their clients and consumers, and let the market decide which network has acquired more value, and therefore should be preferred.

Consequently, the conventional market access (open source) standard also places competition authorities into a quagmire: how should access be decided, not by reference of competitive but distributive standards. Here lies an insurmountable problem for the regulator to solve, under the conventional view, because it is intrinsically impossible to make a clear-cut determination of where and how property rights should be allocated, due to the kind of knowledge possessed by the Authority to make such determination. At least, it is a problem that cannot be solved on efficiency grounds, as they claim.

Generally, nevertheless, competition authorities strive themselves to find a criterion by determining whether the incumbent firm denying access to a potential competitor into the facility is dominant or not. In the affirmative, they assume that the negative represents a case of "abuse" of dominance which should be sanctioned, by imposing a fine, and of course, by letting the potential competitor to join the –so declared, joint facility.

The informational limitations of competition authorities to make this determination are quite obvious. Let us review the way conventional market analysis proceeds, to understand why.

In order to answer this question, neoclassical analysis proceeds by establishing whether the suspected infringing party possesses sufficient "market power" enabling her to impose conditions unilaterally on the rest of competitors and clients. In general, it is assumed that the more concentrated the market is found to be, the more likely that the investigated firm will be held liable, since all her market activity will be construed as a contrived plan to displace and exclude potential or actual competitors due to her "monopolistic intentions" –which will be assumed to exist, again, due to the concentration of the market in which the suspected firm operates.

Fortunately, Baumol's Contestability theory tamed the excesses of the conventional view. Under this theory, the actual existence of a single firm operating in the market should not lead the analyst into the conclusion that "market power" would accrue per se. Market competition would flourish, independently of the number of market participants (or indeed, of any other structural consideration), as long as entry barriers are low. For policy-making purposes, the stress would no longer be made on deriving conclusions from the level of concentration itself, to ascertain the degree of competition in a given market, but to check on the level of entry barriers.

But still, subjecting the existence of market power to an indeterminate number of indicia, which give the analyst the conviction that the dominant firm in the market did have the single capacity of abusing its position, by dictating to everyone else in the market here own conditions unilaterally, stems from an assumption that cannot be documented or evidenced as a legal case would require. These indicia are among others, the size of the market in which market power is suspected to exist, the existence of potential or actual rivals, etc. All these elements, record the past condition of the investigated firm, and thus, cannot be assumed to bear effects into the competitive future of the firms involved.

Consider for one moment the position of those alleged "victims" of the firm allegedly enjoying market power. Notice that this logic assumes that these firms are unduly constrained in their activity by what the one enjoying market power does to influence them. They are assumed to be, as it were, totally helpless to react against the "power" which "excludes" them from the market. In reality, however, the fact that the excluded party cannot overturn his fate is certainly not due to his idleness, or to the fact that she is legally constrained to react in order to outdo the apparently more "powerful" party. If idleness or a lesser entrepreneurial capacity was the reason for exclusion, then it is well deserved. If the source of exclusion is some legal rule, then market power cannot be blamed; instead, the legal rule should be overturned. What facts *do* show is that the firm interested to enter into the market is incapable of developing alternative business strategies or more enticing products or services to lure consumers into buying their own products, rather than those of the "dominant" firm. In the absence of any external forces, why should it be assumed that exclusion is the product of some contrived manipulation on the side of the party succeeding in the exclusion? The explanation for the exclusion may be simpler: a less efficient competitor cannot outdo a more efficient one in the preference of consumers.

The factual value of the elements considered in the market power analysis is entirely contingent to the economic theory embraced by the analyst. It is this economic theory which determines how market causalities between these elements should be construed, thereby pointing to a particular "fact", and consequently, to a given normative solution: either the firm has "market power" or lacks of it.

Yet, comparing the nature of cases examined under the "market power" conventional view with that of cases involving conflicting entitlements, is misleading. In the latter, there is confusion about the facts on which either party bases its claim, and the purpose of the judge is to ascertain those facts. A tenant may disagree with her landlord over the interpretation of a given contractual clause, but in the end, there is only one possible interpretation, as there is only one factual reality over which interpretation of the contractual

clause can be referred to. Either payment was effected or not; either major damage was caused to the flat or not, etc. In the case of conventional market power analysis, however, facts are construed on the basis of economic hypotheses, which render different alternative interpretations about market causalities, and such hypotheses are contingent on the personal views of the analyst.

As a consequence, the conventional analysis drives the analyst to take sides in the controversy, judging ex-post "facto" the rights of market participants without possessing hard evidence for it, and concluding, by way of mere speculation that concentration seals the fate of competition. The analyst will be inclined to disregard the position of the incumbent firm, which is also part of the social welfare equation, particularly if this one is operating alone in the market.

Due to its one-sidedness, the notion of "access" does not convey the necessary informational tools for regulators to decide whenever it is right to force incumbents to accept the presence of a third party.

Even more importantly, the informational tools demanded by this logic are impossible to satisfy due to the very nature of the analysis requested upon the analyst. Thus, in order to ascertain the "market power" of a given incumbent firm, one has to compare the position of the incumbent with that of an imaginary firm placed under a "perfect competition" setting. Clearly, there is a sophism implicit in such comparison, namely, that the "im-perfect" condition of the incumbent should have led her into a different –presumably, less anti-competitive, course of action. In reality, the existence of one firm in the market may be the consequence of nothing else but a set of institutional arrangements (better coordination of the incumbent with consumers vis-à-vis its potential competitors, less entrepreneurial competitors, high transaction costs enabling the permanence of a single firm in the market, etc.), that have nothing to do with the incumbent entrepreneur, except his better capacity to be more ... competitive!

Yet, regulators are too much inclined to lean on this perfection as a normative yardstick. Interpreting the 1996 Telecommunications Act in the United States, the Federal Communications Commission used a cost-based standard for "unbundled network elements" which ignored the historical costs incurred into by the incumbent firms. The standard, known as "Total Element Long Run Incremental cost" or "TELRIC" sets prices to be charged by incumbents to its competitors on the basis of only the incremental, forward-looking cost of an entirely hypothetical, ideally efficient, state-of-the-art network. As a result, TELRIC ignores historical costs that incumbents incurred in constructing their networks, even when the incumbents have yet to recover those costs through their regulated rates. It also ignores the actual incremental, or "forward-looking," costs that an incumbent will occur in improving or expanding its network. Unsurprisingly, the TELRIC methodology has produced prices well below even actual forward-looking costs that incumbents incur. As a result, innovations and the construction of other networks has been discouraged by such decision. In this connection, Alfred Kahn's disapproval of this methodology it is particularly enlightening[5].

Finally, the BW rule has done much to correct the excesses of the more orthodox neoclassical market access approach, by aligning the incentives of the potential entrant with those of the incumbent firm through a given access price which reflects the foregone profits lost by the incumbent as a result of letting the competitor joining into the facility controlled by the former. The only limitation of the rule is that it assumes the information of the incumbent and entrant regarding an optimal price, which is impossible to know in the medium and long run, in the light of the emergence of competing networks. The BW rule can only work reasonably well in short term scenarios, which are unlikely to exist in this field, due to the long term investment commitment of the entrepreneur who invests in the development of utilities.

IV. Network competition view of Open Source as a regulatory yardstick criterion

Surely, picturing a world of scarce resources, where information is plentiful, and assuming that real firms should behave like firms in an imaginary world of perfect competition, does not correspond to a fair examination of the realities of our complex world. In this world, firms and entrepreneurs are placed in a position where they always can look into new ways to lure consumers into buying their products, at the expense of those who, at one point of time, happens to hold a predominant position in the market.

In order to overcome the limitations of the conventional view, we assume that firms in the market seek to collaborate as much to compete, in order to discover new products and innovations. The "network" approach emphasizes the Kirznerian[6] dynamic nature of competition that characterizes these industries, where the position of one firm may simultaneously be that of a competitor and a partner. The implications of this perspective are also amenable with the theoretical perspective presented above, which emphasizes the integration of scattered knowledge through a better co-ordination, hence the role of improving the connection of potential users to networks.

The network approach does not assume that one party profits at the expense of another, but rather, that cooperation is maximized whenever they are free to undertake their preferred course of action. Sometimes this course of action will "exclude" some economic agents, but this will be offset by the enhanced cooperation that is achieved with other parts of the economic system. For instance, whenever a competitor displaces another it is because he is able to summon the willingness of consumers around his product, rather than that of his competitor. Cooperation between consumers and the winning producer is thereby enhanced.

In the case of utilities, the use of a network may require that some parties be excluded to preserve the enhanced quality of the service provided.

Related to this, the new perspective focuses on the competition that occurs between new innovations, systems and standards that are valuable to consumers, rather than on the individualistic view of isolated entrepreneurs outdoing one another. The development of such systems and standards may conflict with the traditional antitrust principles regulating horizontal and vertical business behavior, which is concentrated on the competiti6n that occurs between existing products. Strategies such as horizontal co-ordination, joint ventures, price discrimination, tie-in arrangements, and pricing below cost may prove efficient under the analytical principles underpinning "network competition".

Network competition, by contrast, highlights the conditions of efficiency that should predominate in the network to function adequately, with no preference for the position of either the incumbent or entrant firms. Therefore, it calls the attention of competition authorities to focus on research, development, and innovation as the primary measure of whether such networks are competitive. In the area of public services, the network condition of these industries is compounded with the existence of multiple structures at different levels of trade. In addition, the pre-eminence of multi-product firms that enjoy a considerable degree of vertical integration with activities characterized as natural monopolies presents regulators important challenges for the task of ensuring a competitive environment at all levels of the industry concerned.

In this perspective, it is interesting to note the emergence of the so-called "open source" regulation. Due to the dynamism that characterizes certain industries (particularly those with important high-tech components), regulators should ensure that incumbent firms do not distort the entry of new firms by innovating on the industry standards that turns future entry impossible for further entrants. "Open-code rests upon a license -upon a kind of law or regulation that controls how this open code can be used. Despite the monikers "free" and "open" this license is not forgiving. It is a fairly strict requirement about the uses to which free or open source technology can be put [...] The open-code movement thus uses law to keep code open. It grants people access to code on the condition that they pass the code along as unencumbered as they received it. (In practical terms) the law in open code means that no actor can gain ultimate control over open-source code"[7].

In policy terms, the network condition highlights important problems that regulators must take into account.

- *Private property on the network developed by the private entrepreneur.* This rule should be preserved always, as acting in any other way would unavoidably lessen the expectations of private entrepreneurs (incumbents and potential developers of parallel networks) about the integrity of their investments, thus discouraging them. Non-discrimination should be the only qualifying principle, as stated below.

- *Fair opportunity of interconnection to the network.* In sectors regarded as "infrastructure networks" it is crucial to ensure that the incumbent firm gives the new entrant non-discriminatory treatment vis-à-vis other competitors. The connection of any competitor at the upstream or downstream level is vital for promoting competition at these levels.

- *Open source access of common areas.* Only exceptionally, the law may declare some transit areas as "common or public goods," thus open for all to access. Therefore, even though the law should acknowledge exclusive rights to a holder of a physical resource of an essential input in the production process undertaken by other entrepreneurs at the upstream or downstream level, the law could prohibit any measures clearly addressed to impede the "connection" of a potential competitor.

5. In the U.S. Alfred Kahn is widely acknowledged as the "father" of deregulation in the airline industry in the 1970's. In regards with his criticism on the regulation process on the telecom industry, see his presentation, "Telecom Deregulation: The Abominable TELRIC-BS" presented at the Manhattan Institute [www.manhattan-institute.org/html/kahn.htm] Also, a through work in this area is found at J. THORNE. *The 1996 Telecom Act: What went Wrong and Protecting the Broadband Build* out Columbia University Conference, "The Broadband Economy", New York, 2001.

6. It was ISRAEL KIRZNER who emphasized the dynamic essence of market competition, and systematized through a rigorous analytical framework. See I. KIRZNER. *Competition and Entrepreneurship*, University of Chicago Press, Chicago, 1973.

7. L. LESSIG. "Innovation, regulation and the Internet", *The American Prospect*, March 27-April 10, 2000, p. 27.

This rule, however, should be reserved to those cases where the physical facility was built on public funds, and was later privatized in private hands. Evidently, in other cases, it is not possible to make such a qualification, except in the case where the regulator can determine objectively an intention to exclude the potential competitor on pure competitive grounds. The difficulties of finding such a case, in the light of what has been said above, should be borne in mind.

• *Preservation of the network quality*. In cases where free access is legally enforced, the law must determine who will be responsible for preserving the standards of the network, as excessive use of the network may impair its quality.

• The *elimination of cross-subsidies* between vertically integrated firms, which may exclude competitors at the downstream or upstream market, may be a solution, but due care must be exercised in avoiding the vertical disintegration of firms, as a radical separation could endanger the efficiency of the industry as a whole.

Evidently, the selection of either set of principles will depend on the particular view held by the policy maker about the nature of markets and of economic causalities. The dilemma faced by regulators in the area of utilities will be the same. In essence, the need to balance the difficulties of regulating natural monopolies, except through ex-ante requirements, charges regulators with the difficult decision of giving up long-term investments, which would result from furthering integration between all related activities in the industry, for the sake of preserving short-term alternatives to consumers, in the sense of ensuring access to not-so-efficient competitor firms.

As a general rule, the use of (intellectual and ordinary) property rights could prevent others from developing their full capacity, if these rights are given undue excessive protection in areas considered essential for all to access. The regulator should exercise particular care in defining the instances where the institutional conditions for limiting the access of third parties are in place. However, this is a determination that does not depend on the number of firms existing in the market. Rather, it depends on the speed with which new technologies, superseding prevailing standards, may develop new competing standards.

Of course, it will be necessary for the regulator to inspect and evaluate the industry concerned, and determine whether there are technological reasons suggesting such an evolution.

For all these reasons, the complex nature of the technical information that characterizes some economic sectors (i.e. telecommunications, electricity, financial services, etc.) demands the creation of expert regulatory commissions representing the interests of all parties involved (consumers, government, private businesses). The rationale for regulation in these sectors is progressively linked to the practical problems of managing the complexity of technical information for the benefit of all the actors involved, thus joining the more conventional justification based on the notion of natural monopoly markets created by alleged economies of scale. The goal of regulatory reform is to identify which scheme best serves these purposes.

V. The Latin American experience in the regulation of public utilities and infrastructure

In light of the principles outlined above, we review some selected experiences of infrastructure regulation where Latin American competition agencies have been involved.

A. Electricity Sector

The need of incorporating competition principles in high technology sectors such as electricity and telecommunications is present among Latin America competition agencies. These sectors have undergone important changes in many countries in the region, such as Guatemala, Venezuela, Argentina, Chile, and Brazil. Introducing competition principles for the definition of the regulatory framework of these sectors is necessary, as they facilitate the process of business adaptation taking place in the context of high technological standards and the quick pace of technological change, while ensuring the fairness of the access conditions to such facilities. The high technological requirements prevailing in these sectors, makes them prone to become "natural monopolies", due to the considerable costs involved in the service. HENCE, adequate design of pro-competitive regulation becomes essential for ensuring that the incentives of operators and governments will be consistent with the promotion of social welfare.

In these markets there are two crucial questions that regulation must deal with. The first question is about choosing the methodology to assess the prices to be charged for the service. This price must consider both the high technological demands of the service and the high sunk costs involved in building the network, which is too bur4ensome for numerous potential entrants to actually penetrate the market and tends to create the conditions of natural monopolies. Under these conditions, it may be difficult to price the services rendered, and thus some special

surveillance may be necessary to set administered pricing[8] in such a way as to simulate the effects of a competitive market[9].

Therefore, adequate regulation must discern the areas susceptible to competition, and foster a climate where competition can operate. Regulators must identify the lines of service where competition can be created, and those where natural monopolies prevail due to the existence of economies of scale. Electricity generation and gas production, for example, are sectors susceptible to competition, while electricity transmission and gas distribution grids can be natural monopolies, since for a certain size market a single distribution grid can be more efficient than competing, duplicative, or overlapping grids.

Besides setting prices, the definition of the conditions for accessing the network is necessary. Given that the existence of a natural monopoly gives market power to the operator of the utility, it is necessary to ensure that this power will not be misused by excluding potential upstream or downstream competitors whose access to the network is necessary. We have already examined the general rules applicable to infrastructure networking access. These rules may also be applicable by analogy to regulate the access to the utility service at the stage of defining the regulatory framework itself. Therefore, antitrust actions may be limited by establishing ex-ante conditions regulating the conduct of the operator, in its dealings with clients accessing the service before trouble arises.

Often, the laws regulating these sectors refer to the need for avoiding excessive concentration at levels where competition is possible. For example, in the Peruvian Supreme Decree 27-95 ITINCI of 19 October 1995, it is prohibited for firms enjoying a concession to operate the network (generation, distribution, or transmission of electricity) to be partners of other firms dedicated to the same activity.

By contrast, in Chile, the *ChRC* dismissed a petition to divest a dominant conglomerate in the sector, *Enersis,* an enterprise that integrated vertically power generation, transmission, and distribution[10]. However, the Commission also issued some guidelines for enhancing competition in this sector. First, the authority should pass a regulation to eliminate some loopholes in this market. Second, the company engaged in the transmission business, *Transelec,* should own its assets rather than just have their tenancy. Finally, distribution companies should offer energy through bids in order to enhance transparency and avoid discrimination.

Regulators must identify the lines of service where competition can be created, and those where natural monopolies prevail due to the existence of economies of scale.

8. Administered pricing is used in this work as a term to refer to the act of setting prices for goods and services by economic entities who hold market power, or by extra-market forces (such as regulators). "Administered pricing does not occur in a competitive market, where no one entity can have influence on market prices. Administered pricing, unlike prices, can be set at a fixed and specific level, and can be set without regard, at least initially, to supply and demand". See *Utility Pricing* and Access: *Competition for Monopolies*, OECD, Paris, 1991, p. 13. This report provides a good summary of the conditions that characterize the nature of utility market power and the alternatives for adequate pricing through the creation or simulation of competitive market forces; also, it considers the question of access to monopoly facilities.

9. Under such competitive market conditions, prices would have to be a direct reflection of the least cost means of providing a service to a given market, including proper internalization of appropriate external costs; also they would impose risk on economic decision-makers with the most control over cost; and they would have to be flexible, to meet changing market conditions. *Utility Pricing and Access...*, p. 16.

10. Resolution 488 of 11 June 1997.

B. Gas Industry

In the mid-1990s the first natural gas pipe between Argentina and Chile was set up. The *ChRC* issued proposals to ensure that the transportation and distribution of gas was conducted under competitive conditions. The Commission limited the concentration of cross-shareholding among the corporations engaged in transportation, distribution and big customers to fifteen percent, to avoid their individual control of upstream or downstream companies. Similar caveats were made in the energy sector, and particularly in the electricity market. Also, a fifteen percent cross shareholding cap was provided between distributors in different geographic areas to avoid horizontal integration. Further, it provided that a gas concession should not be granted on an exclusive basis. Finally, in regards to network access, it requires the operator to facilitate the interconnection among the different networks in a given area to avoid locking customers to a particular supplier. As for the supply itself, it should be offered under public, non-discriminatory conditions and it proposes to vest the Commission with powers to regulate and set up prices.

In Panama, the Commission prepared a study about an assessment of Competition in the Panamanian Fuel Distribution Industry. The objective of this study is to assess the level of competition existing in Panama's fuel distribution industry, based on observed prices and volumes directly transacted in the market between 1993 and 1997. On a scale from 0 (perfect competition) to I (collusion), the study estimates he level of competition at 0.3, which suggests that the industry was relatively competitive.

In Mexico, the Federal Competition Commission's (*CFCM* has also negotiated the conditions for introducing competition in the gasoline distribution. This sector was in the hands of Pernex, the Mexican state oil company, until recently. Today, Pernex retains legal monopoly rights over oil exploitation, but no longer has similar rights in the downstream industries, consisting of gasoline distribution and sale.

The Commission studied the gasoline market and found that there were less than four thousand station sellers in the whole country, that the geographic distribution of gasoline stations was uneven, and that few gasoline stations had very important market segments. Service quality was low, and there were no rules to open new gas stations. Also, there were many artificial barriers to marketing complementary goods and services, such as good and beverages, inside gasoline stations.

In order to modernize the sector, the competition Commission negotiated with Pernex for precise criteria for the establishment of contracts between Pernex-Refinacion and those individuals interested in operating gasoline service stations. In June 1993, they signed a consent agreement setting forth the necessary conditions to meet consumer demands more efficiently. In this agreement, they agreed to the following:

a. Set clear, simple requirements for application and acquisition of contracts to operate new gasoline stations;

b. Establish a commitment on the side of Pemex Refinacion to enter into contracts with anyone interested in opening new gasoline stations, provided that they meet certain technical, safety, environmental and image specifications;

c. Eliminate restrictions on the number f gasoline stations that can be opened in a specific area and any distance requirements that may have existed in the past between stations;

d. Establish that supply contracts between Pemex-Refinacion and third parties may be freely traded in a secondary market provided that the former is duly notified; and

e. Eliminate the sub-franchising system, thus allowing), the marketing of all goods and services in gasoline stations, other than prohibited products, such as alcohol or explosives.

These guidelines were later published in a "Simplified Program to Establish New Gasoline Stations"[11]. It is expected that these principles will introduce competition, in several ways. First, by providing the incentives to increase the number of gas stations, consumers will bear lower costs either because waiting times at stations will decrease, or because distances between stations will shorten. Second, the service quality will improve; widening the range of goods which consumers will be able to buy. Third, there will be new opportunities open for those interested in opening up new gasoline stations. All this will enable increased price liberalization in this market.

C. Telecommunications

The interface between regulators and competition authorities is particularly intense in the telecommunications sector. During the last decade the telecommunications sector in the region underwent two major breakthroughs, the long distance multi-carrier crashing the monopoly enjoyed by former state-owned firms operating the sector, and the setting up of the mobile telecommunications system. Often, competition authorities in the region have provided advice to telecom regulators on the way by which the process of liberalisation should be carried out.

In Mexico, privatizations and license auctions form a substantial body of the CFCM involvement in telecommunications. The criteria applied by the Commission to approve the participation of potential bidders are very similar to those applied in merger review. Given the scarcity of the radio electric spectrum, this resource becomes an essential input in the generation of several telecommunications services, particularly of fixed wireless telephones. It is important that its allocation be assigned according to competitive principles.

In this connection, the Commission must approve those companies willing to participate in the spectrum auctions. In this decision, the Commission must consider the relevant market(s) affected by the auction, the characteristics of the applicant companies, and the efficiencies of their acquiring the auctions frequencies. In addition, the Commission must establish the maximum amounts of radio-spectrum frequencies to be acquired by each company in an auction. For this purpose, the commission carries out an analysis of concentration indexes similar to those applicable in merger cases.

in fact, the Mexican case show how important is for competition authorities to get involved in the regulation of utilities in network industries. In 1990 the Government privatized Telmex, the Mexican telecommunications monopoly. Telmex' concession title granted this company a legal monopoly over long-distance phone services. Several years after privatization, the development of this company has been limited, and even though there has been an expansion in the service provided, there still is a large unsatisfied demand. The quality of the services and the inability of the company to repair failures in the system have prompted numerous complaints from customers. Similarly, the company offers few products and costs are high.
In order to improve the status quo, CFCM investigated the sector and concluded that the opening to competition was the best course of action to meet the objectives of enhanced efficiency and economic growth. In order to design the opening process, the Commission, together with the corresponding regulating authority and the Ministry of Communication and Transportation, has provided an important consulting role within the Government.

11. S. LEVY and R. DEL VILLAR. *Contribution of competition policy to Economic Development: The case of Mexico*, paper presented at the OECD Competition Policy 1994 Workshop with the Dynamic Non-Member Economics, OCDE/GD(96)59, Paris, 1996, p. 7.

12. Resolution 389 of 1993, on the guidelines for the operations of telecommunications service suppliers.

In essence, the CFCM reviewed the regulatory framework taking into account the experiences of Australia, the United States, New Zealand, Japan, and the United Kingdom. It also evaluated the proposal for opening the sector presented by Telmex. The Commission concluded that:

1. The number of competitors, either for basic phone services (long distance and local communication) should not be limited; and that Telmex should allow in time interconnection between competing companies in every technically feasible point and not only in a restricted group of them. In other words, it should allow every route to be open to competition.

2. Competing companies must be able to decide whether or not to interconnect to Telmex's network. By protecting this liberty, the CFCM intended to promote investment and infrastructure development. In addition, it allows the existence of medium-term, self-regulating interconnection tariffs, reducing the need for tariff control from the authority.

3. Companies should be able to compete in national and international long distance services, thus avoiding the existence of exclusivity agreements, which give a captive market to certain companies, thereby excluding potential entrants.

4. The new regulations must offer fair conditions to every competitor, regardless of its size. Interconnection charges should be the same for everyone. For this reason, it is essential to ensure the transparency of interconnection costs. Users must be able to subscribe to a company in order for them to be able to discriminate between quality and price of several competitors. Access must be gained through dialing the minimum number of digits, and companies should offer complementary services to users, such as operator or invoicing adapted to the clients' needs.

5. In order to avoid the creation of barriers to the entry of potential competitors, concessions and authorizations must be granted to all interested parties, mainly on the basis of technical considerations, which minimize discretionary margins, and concessionaries should not be discriminated or forced to pay different utilization rates.

These substantive competition principles in the telecommunication sector were ratified, albeit in a simplified form, by the Chilean *ChRC*[12], which determined the conditions for the long distance operations of concessionary carriers. Following these guidelines:

• Vertically integrated firms must preserve a separate legal status, so that transfer costs and other aspects arising out of their links are clearly identified; and

• Tariffs applied to accessing carriers will be non-discriminatory, and will be determined by the authority according to direct costs, in order to eliminate cross-subsidies between long distance operations and local ones.

These guidelines appear in most telecommunication laws recently introduced in Latin America.

In Venezuela, for example, the Comision Nacional de Telecomunicaciones (Conatel) asked the advice of *ProCompetencia* in preparing the Telecommunications Bill, which has recently been passed by Congress. The new legislation defines the functions of both entities concerning cases involving anticompetitive behavior in this sector. In this case, the competition agency retains its full involvement to prosecute restrictive behavior in this sector. In particular, *ProCompetencia* is in charge of deciding whether access to network infrastructure has been blocked by the incumbent firm, whether tariffs or other conditions set by the dominant firm are abusive, whether merger operations restrict competition, and whether firms engage in any other restrictive undertaking, such as a cartel. In any of these events, Conatel must supply the inputs necessary for facilitating the work of *ProCompetencia,* and must decide the existence of any wrongdoings on the basis of the opinion issued by *ProCompetencia*.

Other countries engaged in the revision of the legal framework regulating the telecommunications sector, such as Costa Rica, have vested regulatory bodies with special powers to investigate restrictive behavior, thus taking these away from competition agencies.

D. Railway Networks

In Brazil, CADE was involved in the regulation of the national railway system[13]. Before privatising the sector, the federal railway system was divided in six parts and given to private companies. CADE observed the need to restructure passenger and cargo transportation using different criteria, which were based on the specific market structure observed at each level. Compared to cargo, the transportation of passengers is more competitive, since there are other means of passenger transportation available at the towns with access to the railway network. Hence, both quality and prices are conditioned by direct competition from other means of ground transportation. Enhancing competition at this level requires rebuilding or repairing public roads and other transportation means. Private operators could also threaten competition, since railways constitute a natural monopoly, Since many private operators of the system also compete with their customers and users, special conditions should be imposed to prevent them from blocking their access on the basis of the "essential facility doctrine". As a report of the *Sistema Económico Latinoamericano (SELA)* noted[14], the experience of CADE in this sector emphasized less of a concern over the entry or exit of private railway operators. Rather, it concentrated on regulating the conduct of the firms already in the market in a manner aimed at maximizing social welfare.

E. Seaport and Airport Facilities

In Mexico, the CFCM examined the privatization of the Mexican port system. in particular, the commission was involved at the stage of public offering and by designing the conditions within which privatization would take place. DURING 1995-96 the government granted several ports operating rights to use their terminals and premises for the handling of cargo, as well as three terminals for passenger cruisers, and the administration of the ports of Acapulco and Puerto Vallarta. In all these cases, the commission stressed the need for preserving competitive conditions for operating the service, and for preventing the imposition of artificial entry barriers, the unfair displacement of competitors, and setting monopolistic prices. Among the conditions examined were the identification of the relevant market on each case, and the concentration levels before privatisation[15].

In Venezuela, *ProCompetencia* recently found that the International Maiquetia Airport had abused its dominant position in favouring the air carrier *Avensa,* at the expense of its main competitor, *Aeropostal,* but decided to impose no sanctions, as the airport voluntarily ceased to discriminate[16]. 16 Nevertheless, this case shows how competition principles could ensure that fair access is given to companies operating in airports.

13. See *Cade, Annual Report 1997*, Brazilia, 1997.

14. Sistema Económico Latinoamericano. *Privatizaciones, desregulación y competencia, un marco de análisis 12A a el estudio de casos en América Latina y el Caribe*, SP/RRPMR/DT n.º 2, Reunión Regional sobre Privatización y Marcos Regulatorios, SELA-AECI, Antigua, Guatemala, 22 y 23 de marzo de 1999.

15. Ibíd., p. 36.

16. Resolution SPPLC/053-99.

17. Resolution 048-98 and SPPLC/0 18-99.

18. Resolution SPPLC/032-99.

19. Articles 14 and 23, Law 19.542.

Also, two further cases show how essential facilities, such as ports, should be open to all operating companies on fair terms. In recent decisions in the Venterninales and ANSAC cases[17], *ProCompetencia* granted the claims of abuse of dominant position filed by Proquim, a local distributor of dense soda ash against American Natural Soda Ash Association (ANSAC). Proquim filed a complaint against ANSAC for offering the company dense soda ash at prices substantially higher than the sale price in Venezuela. Also, it objected to the agreements ANSAC had with its Venezuelan clients which contemplated the requirement of notifying ANSAC of any better offers of dense soda ash received from other suppliers. At the same time, Proquim had filed a claim against Venterminales, the operator of a port where all the dense soda ash consumed in Venezuela is discharged. Venterminales was accused of charging Proquim substantially higher prices for unloading dense soda ash imported from Europe than the prices charged to ANSAC. *ProCompetencia* ruled that ANSAC and Venterminales have a dominant position, since ninety-eight percent of the dense soda ash consumed in Venezuela comes from ANSAC and all such product goes through the port of Venterminales. Venterminales was found guilty of abusing its dominant position since evidence was found showing that it had charged substantially less to a competitor of Proquim who was a subsidiary of ANSAC. Thus, there was no technical reason for charging such high prices to Proquim for disembarking its product imported from Europe. A fine against of about US3.100,000 was imposed on Venterminales. *ProCompetencia* determined that ANSAC had also abused its dominant position when it had refused to sell dense soda ash to Proquim by charging prices substantially higher than the sales price. ANSAC reached an agreement with Proquirn under which it began selling Proquim , and promised to modify its agreements with local purchasers.

Also, in the Puerto El Guamache case *Procompetencia* found that the port-operating company *Consorcio Guaritico* had abused its dominant position. The firm refused to renew a contract to one of its operators, who was a competitor of one of its subsidiary companies in providing disembarking and storing services inside the port. *Consorcio Guaritico* enjoyed a dominant position in the management of the port as a result of a tender bidding process granted by the State government[18].

In Chile, according to the Ports Act[19], the *ChRC* should lay down general rules applying to port concessions and port mono-operators. On the basis of this provision, the *ChRC* issued a judgment laying down rules in order to avoid vertical and horizontal integration. 20 These rules set out special thresholds for the property of port operators for companies engaged in other shipping activities and also for operators

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in other ports in the same geographical region to avoid horizontal integration[20].

F. Public Roads

Finally, in Panama CLICAC has actively advised the Panamanian government in the design and implementation of A new regulatory framework for the use of transportation and the use of public roads. A text prepared for discussion by CLICAC, examines the characteristics of the preliminary draft legislation proposed as a regulatory framework for the Surface Transportation Sector and the particular characteristics of this industry in Panama. The aim is to evaluate whether the preliminary draft legislation is a suitable instrument for improving the economic efficiency of the sector, and to propose the changes necessary to accomplish this objective[21].

G. Water Supply Services

In 1997, Chile's *ChRC* cleared the acquisition of a water company (Agua Potable Lo Castillo, now Aguas Cordillera) by *Enersis,* the dominant player in the electricity supply market[22]. Despite the clearance, the Commission recommended that the conglomeration of public utility concessions should be subject to closer government surveillance. As a result of this Resolution, the government later passed the Sanitary Services Act, prohibiting water companies from integrating with gas, electricity and/or local telephone companies in the same concession area if they serve more than half of the population in that area. Also, this provision contains restrictions against horizontal integration with other water companies.

VI. Conclusions

This new role has come a long way from the old rationale of government economic regulation of sectors deemed to be "natural monopolies", such as electricity and telecommunications. In the past, it was thought that some operations of firms operating in these sectors did not display increasing returns to scale, and therefore, they should be regulated when only one firm could enter in the market. Monopoly rights were granted subject to the monitoring of regulated activities.

The evolution of technology is persuading scholars to abandon their preconceptions about the existence of natural monopoly, and the need of regulating them, in favor of a goal-oriented regulatory perspective. From this new perspective, policy makers concentrated their attention on defining the tools that would achieve the regulatory goals. These goals are now defined by the need to prevent *government* failures in the provision of public goods, rather than *market* failures. In this regard, GUASH and SPILLER contend:

> *Historically, regulatory interventions were often motivated by economic conditions no longer applicable, or by political considerations and interest group pressures to secure transfer of rents. Many sectors were viewed as either natural monopolies or as being if vital social or strategic interest, requiring significant regulation, if not direct public ownership. These rationales in many sectors are no longer considered valid. Changes in technology and experience, and the more organized voice of consumer groups, have called into question those arguments. Regulatory reform is also driven by the recognition that many existing regulations had become obsolete and even harmful to economic growth. In addition government failures may be as capable of creating inefficiencies as market failures. As such, the consequences of that type of regulation were an increase in the cost of goods and services and an overall significant welfare loss. As economies become more open, pressures on countries to become more competitive drive the call for regulatory reform to reduce costs and foster increased productivity, competitiveness, and growth*[23].

Thus, the introduction of competition principles in the regulation of utilities requires particular attention to the sort of public intervention, in a way that transparency and less discretion is ensured. Regulation today is based on technical concepts and is far more transparent than the old "strategic" reasons for subjecting the utilities to outright government intervention. For instance, under the principles of competition, governments should avoid any regulation that distorts market functioning beyond natural "causes". Thus, it is acknowledged today that such regulation should not introduce restrictions other than those unavoidable ones stemming from the condition of "natural monopoly", which affects a given sector or parts of it. Hence, there should be regulation (much less outright nationalization of assets) if there are sub sectors or activities in which competition can be monitored through conventional antitrust mechanisms. Thus, under the new rationale, monopoly regulation should be limited to utilities where "natural monopoly" conditions apply. In this way, the new rationale for intervention clearly excludes abstract considerations of "sovereignty" applicable to sectors considered "strategic" in the past, such as the exploitation of primary goods and minerals.

Regulation should ensure that an equilibrium is achieved for preserving the fair standing of anyone interested in entering the industry, without threatening it efficiency, which would be lost when access is forced beyond the natural capacity of the markets. In his opinion, such equilibrium could be achieved if certain parameters are preserved:

a. It is necessary to *select the proper choice of industry structure*. *Policy* makers should decide whether vertical separation is preferable to competitive access. Also, they should assess variables such as market size and density, the extent of network development, and regulatory capacity and design should affect the trade-off between potential efficiency gains from competition compared to the potential loss of co-ordination and scope of economies from separation. Compared to the conventional notion of "access" which is being used by policy makers, the notion of connecting to "networks" may provide a more accurate description of the dynamics that encourages firms to seek connection for a firm that enjoys a vertically integrated monopoly, or holds title for operating a utility service or an infrastructure.

b. Policy *makers should determine efficient pricing policies*. That includes how the uncertainties surrounding the measurement of marginal cost, elasticity of demand and other relevant economic parameters may affect the appropriateness of different pricing strategies.

c. *Definition of access pricing and interconnection charges*. This includes how high investment needs and scarce information affect efficient rules for access to bottleneck facilities such as the transmission grids for generators, transmission pipelines for natural gas producers, and track for rail service providers. Again, the Baumol-Willig rule could be tested for determining efficient market pricing.

d. Policy *makers should consider redistribution issues,* and incorporate, whenever possible, neutral competitive mechanisms for funding universal service. There are several considerations to be made: how should political and institutional endowments, fiscal conditions, consumer incomes and preferences, and industry features affect the design of support mechanisms to assist consumers who would otherwise be disadvantaged by lower income or remote location? Also, is it necessary to consider which mechanisms would be better to implement in order to achieve the desired redistribution goals most efficiently: tax revenues, broadly-based tax on sector industry revenues, cross-subsidized prices, etc? Finally, policy makers should determine the appropriate extent of subsidies, their sequence and delivery, in such a way as to minimize any distortions on competition.

The experience of many Latin American countries shows that the new status quo between government and individuals is not always easy to establish. Frequently, legislation retains too high levels of government involvement in running the sector, following political objectives rather than economic ones. Therefore, utility regulation still presents problems of definition of prices for the supply of the service for redistribution purposes and stimulates cross-subsidization, to the detriment of efficiency at each level of production. However, at times, privatization is done without the necessary regulatory warrants necessary to preserve consumer rights from unjustified price increases or quality deterioration of the service supply.

In regards to high tech industries, similar problems arise. The regulatory design must ensure that the rights of potential entrants in the industry are not lessened by the creation of entry barriers from incumbent firms, who may enjoy legal monopolies created by intellectual property rights. The lack of an optimal presence of competitors (potential or actual) may encourage incumbent firms to display market power. Adequate regulation should strike a delicate balance between the interests of consumers in keeping price increases at bay while preserving the economic incentives for investing firms to remain in the sector.

The preservation of competition often entails is sues embracing problems beyond the traditional problem of dominance. One can see that the new trend of legislation in this area incorporates initiatives of *regulatory reform* that encompass a wide range of issues, as they emphasize the general picture rather than viewing concentration as an isolated problem. Much emphasis is placed, for instance, on the need to preserve the rights of all those involved, namely, consumers, producers, and the State.

The need to preserve an adequate equilibrium has apparently settled on the creation of independent, technical commissions integrated by members appointed for fixed periods, where the interests of the groups involved in the supply and demand of the service, namely consumers, governments, and electrical operators, are properly represented.

In sum, efficient regulation should ensure that technology does not become a barrier to the entry of potential competitors in the market. For this purpose, it necessary to keep such barriers as low as possible, by making information concerning performance standards public and readily available to anyone interested.

20. Administrative opinion 1045.

21. "The Surface Transportation Sector and the Effect of the Preliminary Draft Legislation: Economic Analysis and Recommended Measures", in *Annual Report 1998*, CLICAC, Panama, 1998.

22. Resolution 494/97.

23. LUIS GUASH and P. SPILLER. *Managing the Regulatory Process: Designs, Concepts, Issues and the Latin America and Caribbean Story* (Washington, D.C.: World Bank, 1998), p. 1.