

Effective Regulation in Latin American Countries. The cases of Chile, Mexico and Peru¹.

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Introduction

After more than a decade that most of the countries in the Latin American region initiated a deregulation process in their telecommunications sectors we find that although they followed the examples set by developed nations which were the pioneers in the design of the modern telecom industry, each country adapted these guidelines to their political and economic context. Most of these deregulation processes led to the design and enactment of new regulatory frameworks, the creation of independent regulatory agencies, the privatization of formerly state-owned monopolies and the promotion of competition in infrastructure deployment and in service offerings.

The variety of paths followed by each Latin American country led to different sector performances in each country; today we observe different degrees of market concentration, infrastructure deployment and service coverage in the region. Following the literature on regulatory institutions, the argument in this paper is that these differences may be explained, to a significant degree, by the effectiveness of regulatory institutions (Levy and Spiller, 2002; North, 2005). Institutions, understood as rules, norms, beliefs, organizations, property rights, contract enforcement and the rule of law (North 1990), have played a key role in the development of the telecommunication sector.

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Regulatory policies use norms, rules and contracts to provide incentives which seek to align the firms' decisions to the more general objectives of society (public interest). The possibilities of success are crucially dependent on the effectiveness of institutions where the regulatory process takes place. An effective regulatory institution delivers policies that are transparent, predictable and credible (Noll, 1999).

This paper will provide a snapshot of the telecommunications industry in three different countries in the region (Chile, Peru and Mexico) and examine the impact of institutional design and implementation on different outcomes. The objective is to identify elements of regulatory institutions that have been the major enablers of telecom industry, and those which have been its major inhibitors. We will focus on the role of specialized regulatory agencies building on the index "Regulatory Framework Index" developed by Gutierrez (2003). Through the evaluation of the telecommunication law, this index identifies four characteristics in a regulatory agency: (1) autonomy and independence, (2) accountability, (3) clarity of roles and objectives, (4) transparency and participation that contribute to an effective regulation. Using these characteristics as analytical lens we will evaluate the effectiveness of regulation in Chile, Mexico and Peru. A case study approach will enrich the findings of more general empirical studies by analyzing whether the regulatory policies in each of these countries follow the law; by understanding the process of policy implementation beyond that of policy design.

The main conclusion of this document is that clarity of roles as well as transparency and participation seem to be key characteristics of a strong regulatory design. In the case of Chile, even when there is not an autonomous regulatory agency, the telecommunications institutional framework is efficient, open and transparent and this has led to a strong performance. In Mexico, the regulatory agency is not autonomous, since it depends on the Ministry for day to day decisions. Moreover, the regulatory agency COFETEL, is not legally endowed with mechanisms to provide a transparent and inclusive decision making process. All

this is reflected in the fact that there are significant barriers to entry. Finally, Peru's institutional design presents, in many ways, the text book suggestions; the regulatory agency is autonomous and the decision process is open and transparent. However, according to its own agency, OSIPTEL (2002) there were errors in the policy process that led to the late start of competition and more importantly the competition framework is incomplete and inadequate to address the entrance of new operators to the market. Today the Peruvian market is very concentrated.

The first section of this paper presents some of the main results in the literature of telecommunications reforms while the second will offer an analysis of regulatory institutions in each of these countries. The third section presents a comparative analysis of the regulatory institutions of the countries studied as well as their market outcomes. Finally, we will offer conclusions of the analysis undertaken and identify further lines of research.

Regulation from an Institutional Perspective

The telecommunications regulatory policy faces the difficult objective of influencing firm's decisions in order to align them with the public interest. Regulatory policies use norms, rules and contracts to provide incentives and the possibilities of success are crucially dependent on the effectiveness of institutions where the regulatory process takes place. An effective regulatory institution delivers policies that are transparent, predictable and credible. (Noll, 1999).

The regulatory objective is for firms to offer low prices and high quality services; however, it is important to promote investment and technological innovation, which requires reasonable profit rates. An additional challenge is given by the nature of regulation that includes information asymmetries between regulators and firms, and the fact the all contracts are always incomplete. (Laffont & Tirole,1993)The complexity of these objectives in addition to the general weaknesses of institutional

frameworks has contributed to an inefficient regulation in most of the Latin American region.

Even though most of the countries in the region, privatized monopolistic operators, opened the sector to competition and created specialized regulatory agencies, there are significant differences in the nature of the reforms implemented in each country. Empirical studies in this thematic area have addressed the effect of each of these reforms on market outcomes. Wallsten (2001 and 2003), finds a positive relation between privatization – independent regulatory agency and the main telecommunication performance variables. Moreover, he supports the thesis that exclusivity periods have a negative effect on tariffs (increasing them) and a decrease on telecommunications investment. Noll (2002) undertakes an evaluation of the Mexican telecommunications' sector and concludes that even when privatization had a positive impact on market performance, the sector has not reached its potential due to regulatory inefficiencies.

These studies highlight the importance of introducing competition when the state owned monopoly is privatized, and they also identify the sequence of reform and the efficiency of regulatory institutions as significant variables affecting outcomes. When analyzing regulatory institutions, a key variable identified as having a positive effect on performance is the creation of a specialized independent regulatory agency. Even though numerous countries established a specialized independent agency there is a difference between the policy design (what is established in the law) and the actual policy implementation.

More recently, empirical studies have tried to capture these differences by constructing indexes that account for the specific country variables and evaluate the effectiveness of the regulatory framework: Ros (1999), Gutierrez and Breg (2000). Jordana and Sancho (1999) developed two indexes, the "*Índice de Fragmentación Regulatoria*" (IRG) and the "*Índice de Apertura del Mercado*" (IAM). The first one measures the dispersion among government organizations in charge

of telecommunications' regulation, that is, how regulatory activities are divided among governmental agencies. The second evaluates the level of competition allowed as a result of reform.

Gutierrez (2002) develops a "Regulatory Framework Index" (RFI) that measures how regulatory governance has evolved for a sample of 25 countries in the Latin American context. RFI is decomposed into eight sub indices that are useful to evaluate the general regulation policy and core regulatory body characteristics. The general regulation policy includes legal mandate and separation of regulatory and operating activities. Whereas, the core regulatory body concept includes autonomy/independence, accountability, clarity of roles and objectives, and transparency and participation.

Gutierrez understands agencies' autonomy/independence as "those mechanisms that allow the regulatory body to be free from undue political intervention, whether from industry or the government" (a. Gutierrez 2002, 231). In order to measure this concept, he uses two variables: financial and budgetary independence, and the ease to remove first level officers (commissionaires).

By "accountability" the author refers to those strategies used to guarantee that regulators behave according to their legal mandate, since the regulators credibility is also affected by the way stakeholders protect their interests. He measures accountability through the presence or absence of mechanisms to resolve disputes.

Clarity of roles and objectives in this index is identified by the unambiguous establishment of a responsible entity for regulatory functions; that is not to have duplicity of responsibilities between the regulatory agency and the telecommunications ministry. Moreover, whether or not an agency has an advisory role or has the capacity to take decisions must also be clearly established. Clarity of roles and responsibilities is included by identifying whether the agency has the

ability to impose fines and set tariffs for basic telecommunications services. Finally, transparency and participation provides the possibility to minimize the potential collusion between regulators and regulated firms. Regulatory process should include: a clear specification of the rules of game and public hearings.

This index provides a useful analytical lens to evaluate the effectiveness of regulatory agencies in the three countries under study. The questions that arise from this index, and which will be analyzed in the following sections, are:

1. Are regulation policies predictable and transparent?
2. Beyond formal rules, does the agency take its decisions on an independent and autonomous way? Or are there cases of interference from other authorities?
3. Is the regulator subject to accountability? Does it accomplish its obligations on accountability issues?
4. Do the authorities have a clear role in their intervention? Do they accomplish this role?
5. Are the operators allowed to participate in the design of policies? Which mechanisms are established for that purpose?
6. How does the regulator make its decisions known to the public?
7. Have regulator agency chair authorities been removed from their positions in the past? Was it justified?
8. What are the mechanisms to resolve disputes?
9. Does the regulator face any kind of budgetary constraint? How problematic can they be?

Telecommunications Reform in Latin America

An examination of privatization and competition reform in Latin America shows that three waves of reforms took place in the region between 1980 and 1998. These processes follow two complementary lines of action: on the one hand,

governments privatize their telecommunication operators and on the other hand they open different segments of telecommunications markets to competition. Finally, they embed these new economic relationships onto new institutional arrangements. In this study we will focus the analysis on Chile, Mexico and Peru as they represent first, second and third wave of privatization processes and market liberation. This choice will offer some insights as to the possibility of leaning lessons from the starters to the late comers.

Most of the telecommunications reform in Latin America took place in the nineties; however, there is an important exception in the region: Chile. This Andean country began its reform in 1982 with the enactment of a sector law with a clear pro-competition spirit; however, it didn't offer regulatory tools to allow new operators to compete. It was not until 1988 that the Chilean sector was opened to competition and sold to "Grupo Telefónica" from Spain.

At the beginning of the nineties, a second wave of privatizations began in Argentina Venezuela and Mexico. In Mexico, "TELMEX", the state owned monopoly, was sold to the joint venture between the Mexican group "Grupo Carso", Southwestern Bell and France Telecom in 1990. The sequence of reform followed introduced uncertainties as it was first privatized without the enactment of a specific law or the establishment of a regulatory agency. Six years later, the Federal Telecommunications Law was promulgated and a regulatory agency created. Moreover, it enjoyed a long period without substantive competition: from 1990 until 1996 when the sector was opened in the long distance segment of the market.

Finally there is a third wave of privatizations in the region: Nicaragua, Bolivia, Brazil, Colombia, Peru and others started their privatization process in the middle – end of nineties. Peru sold its two state owned company to "Grupo Telefonica". In 1997 a process of market liberalization took place in Peru. As it can be seen in

table 1, many countries followed a slow path in opening their markets to substantial competition; in fact they did it incrementally.

Table 1. Privatization and liberalization years

Country	Privatization	Liberalization				
		Local	Long Distance	International	Mobile	Value Added
Mexico	1990	1997	1997	1997	1989	1989
Nicaragua	1998				1993	
Argentina	1990	2000	1999	2000	1988	1987
Bolivia	1995	1995	2000	2000	1988	1988
Brazil	1998	1998	1998	1998	1997	1991
Chile	1988	1994	1994	1992	1988	1985
Colombia	na	1995	1997	1998	1994	1992
Peru	1994	1999	1999	1999	1990	1994
Venezuela	1992	2000	2000	2000	1991	1991

Source: Sancho and Jordana 2002.

These waves of privatization, liberalization and regulation processes offer a constant opportunity for other countries to learn from the achievements and limits of the first reforms. (Sancho and Jordana, 2002). In other words, it could mean that countries that entered a late privatization process are more likely to implement a more effective reform than those in the first wave of reform.

Almost all governments in the region had to create new institutions in order to regulate the new relationships among different actors involved in the newly created markets. There were numerous issues to address in the telecommunications sector agenda: interconnection, facilities leasing, numbering, set of tariffs, quality standards distribution of costs among others that became controversial topics to be regulated (see table 2).

The governance structure that was created to address these issues in Latin American took two paths of action: 1) the creation of independent agencies following the developed country model or 2) the accommodation of regulation into their traditional institutional framework, usually in telecommunications ministries. Most of the countries chose to create an independent agency following the New

Public Management suggestions in vogue in those years (Sancho and Jordana, 2002).

Table 2. Ministry and Independent Agency Main Characteriscs

Ministry	<p>The regulator is an entity inside the Telecommunications Ministry. It shares with the Ministry, infrastructure, organization, information, etc.</p> <p>It is very receptive with issues from government.</p> <p>It is perceived as less objective.</p>
Independent Agency	<p>It has control and independent action, even when its decisions could be subject to Ministerial revision.</p> <p>It favors policy consistency stability over the time.</p> <p>It offers a perception of neutrality during a conflict period.</p>

Source: Our own with Sancho and Jordana’s information.

In this document we analyze three countries with two different types of regulatory bodies. Chile decided to stay within a Ministry entity, while Mexico and Peru created two independent agencies that coexisted with traditional government structures.

CASE STUDIES

The analytical lens we are going to follow in the country analysis builds upon the RFI results. According to the variables measured in the index, as depicted in Table 2, Peru is the country that displays the strongest performance in terms of institutional strength while Mexico and Chiles’ regulatory agencies have some deficits.

Mexico’s agency (COFETEL) does not have clear mechanisms for solving disputes, which has created a conflicted regulatory environment. Moreover, it does not have mechanisms to explain policy decisions or provide information used to design policies.

Table 3. Main Characteristics of Regulatory Agencies in selected Countries

Country	a) specific tax to regulatory agency	b) removal of regulators	c) empower to set tariffs	d) enforcement to fine operators	e) clear mechanism of solving disputes	f) a mechanism to explain or publicize decisions	Average
Chile	0	0	1	1	1	0	0.500
Mexico	0	1	1	1	0	0	0.500
Peru	1	1	1	1	1	1	1.000

Source: Gutierrez (2002)

CHILE

The telecommunications reform in Chile started with the enactment of the General Telecommunications Act (LGT) in 1982. Its goal was to eliminate the monopoly and to promote the entry of new operator in order to encourage competition in local telephony. Although the Act specified the free access to the local telephony network it had some failures, especially in the subjects of interconnection, which hindered the competition. This situation forced the reform of the Act in 1994. The Subsecretaría de Telecomunicaciones (SUBTEL) is the regulator and it is part of the Ministry of Transport and Telecommunications, however, it is fairly autonomous from political interference. Its powers cover the design of telecommunications policy and the regulation of this sector. Among its specific tasks are managing and controlling the use of radio spectrum as well as the procedures for establishing tariffs (Serra and Fischer, 2006). The LGT gives SUBTEL the power to implement sanctions when some operator violates the regulation, the sanctions can be a fine, a suspension of the operation or even the revocation of the licence.

SUBTEL and the other agencies as well as the Ministry and the competition authorities do abide by their respective areas of responsibility. In general, the Chilean regulatory system is transparent and its policies are reasonably predictable. In case of disputes, a commission composed of three members (one representative of the company, one of regulator and a third person appointed by them), is formed to settle the differences in approaches trying to avoid lengthy and costly trials.

Even though the LGT established network unbundling obligations, in practice this represented no advantage for new operators; it also established regulation of all tariffs and rates but some legal vacuums finally only applied to long distance services. Meanwhile the charges applied by fixed operators during 1994 – 1998 had to be negotiated freely by the interested parties. The provisions of the Act introduced procedures and detailed rules on interconnection so that the negotiating position of new operators was substantially improved, the number of disputes was reduced and proceedings related to interconnection were simplified (Rivera, 2003; Fischer and Serra 2006).

These rules established the right of every operator to interconnect and the obligation to accept such interconnections; all the services that fixed phone companies provided to long-distance carriers were subject to regulation. In September 1995, SUBTEL presented a detailed procedure and deadlines (three months) to accept the interconnections between phone companies.

In 1999 SUBTEL set tariffs and obtained a public offer from the biggest operator, Telefónica; in theory it implied less complicated interconnection negotiations between companies. However, this public offer never was applied, and instead, the regulator decided to design a regulation which was never finished (Mena, 2006). Another important policy was the introduction of a Multicarrier system, which encouraged the competition in long distance by giving the consumer the right to choose the operator to terminate his or her calls (Rivera, 2006).

In that same year SUBTEL tried to introduce competition in local telephony and Internet by granting three national licenses of 100MHz in the 3.4 MHz to 3.7 MHz band. (Wireless Local Loop, WLL). But the operators wanted regional concessions, with smaller monetary guarantees. In May 2000, before corporate claims, the Antitrust Commission issued a precautionary measure paralyzing the contest by two years. SUBTEL set new bases, reducing the bandwidth by half (50MHz), increasing to four licenses per geographic area, and segmenting the scope of

regions. Finally Entel was the only company that participated in the auctions, winning a concession in each area; the rest of the bandwidth remains without tender (Mena, 2006).

In 2000, SUBTEL established a procedure intended to distribute directly 30MHz in the 1900MHz band, between companies that already operated in the 800MHz band, according to criteria of technical and economic efficiency. One of the established companies filed a lawsuit and the antitrust authority ordered that the regulatory agency should use a bidding mechanism to determine who would get the spectrum. The outcome of the contest was the delivery of 30 MHz to operators in the 800MHz band, as originally stated, but with a delay of several years (Mena, 2006)

One of the biggest problems faced by the authorities was Nextel's application for offering digital trunking; this new technology allows the provision of voice, data and internet services. SUBTEL gave Nextel its authorization to start with interconnection negotiation . But the mobile operators (Entel, BellSouth, Smartcom and mobile phones) argued that SUBTEL was changing the rules of the game to allow Nextel the provision of mobile services without having a license. The mobile operators appealed to many instances but at the end they failed to prevent Nextel operations (Rivera, 2003)

In 2000 the agency established two mechanisms to enhance transparency: inviting industry representatives to participate in discussions with SUBTEL for establishing new rules, and creating a Consultative Committee (CC), composed of representatives of telecommunications companies interested in supporting SUBTEL by providing information and writing drafts of rules and technical standards (Rivera M, 2003) (after issuing rules and technical standards without consulting the industry).

Concerning tariffs and pricing, SUBTEL has tried to establish a cooperative atmosphere with operators, but the General Telecommunications Act requires that tariff determination is carried out without public participation. Regarding the prices for final and intermediate services (which today are fixed by SUBTEL), an open question consists in whether or not there should be an independent permanent panel of experts participating in these matters. Even though currently there is a committee for pricing discrepancies, its opinion is not binding on the regulator.

There is still an unresolved issue in the determination of access charges. They are currently asymmetric: higher for established operators and lower for new participants. This system has facilitated the entry of new companies, but there exists some concern that it could possibly undermine efficiency. In addition, Telefónica has sued the Government based on the fact that the system will cost additional \$ 237 million in access charges.

MEXICO

Telecommunications reform in Mexico was part of a full scope reform that consisted in a shift from a closed to an open economy, from having strong government intervention in many activities, to a reduced public role. It started in 1990, when the national telephone company, Telmex, was privatized. In the mobile segment of the market, competition began upon the granting of 9 regional and only one national licence for Telcel, a Telmex's subsidiary firm. However, full scale competition was postponed until 1996 and 1998, when long distance and local service competition was introduced.

It was not until 1995 when the Federal Telecommunications Act (LFT²) was enacted with the provision of establishing an independent regulatory agency. The Federal Telecommunications Commission (COFETEL) was established in 1996, as

² Due to its Spanish name: Ley Federal de Telecomunicaciones.

a decentralized administrative body of the Ministry of Transport and Communications (Secretaria de Comunicaciones y Transportes, SCT) with technical and operational autonomy.

Even though the LFT was originally designed to regulate networks and not services, licensees have been awarded by lines of business meaning that the operators need one concession for each service they want to provide (Jalife, 2004). Moreover, the process by which concessions are granted has been quite inefficient. Even though the law defines a period of 120 days as the maximum to analyze applications, COFETEL may request additional information on, say, day 119, a fact by which an additional 120 day period is initiated. Besides, SCT can add more delays in the granting of licensees or concessions³.

Spectrum allocation mechanisms are also a source of inefficiencies and uncertainties in the Mexican telecomm sector. For example, there was a ten year period between a recent auction for spectrum auction (in 2005) and the previous one. This delay caused an increase in the price of this resource, a reduction in incentives for innovation, and a decrease in incentives for investments. Even though it is legally possible to commercialize spectrum, these uncertainties originated a speculative secondary market.

While the LFT endows SCT with the authority of designing telecommunications development policies as well as some regulatory and administrative duties; COFETEL is responsible of issuing technical reports and give its opinion on regulations changes such as new concession and sanctions on operators.

³ In 2002, a Government Auditing Office found that the average delay for a concession was over 4 years, while for the so-called permits it was of 238 days. The report notes that “the SCT did not comply with the deadlines set out the LFT, and that COFETEL exceeded the deadlines for the issuance of opinions (ASF, 2003: 101).

Indeed, the existence of COFETEL as a decentralized body of the SCT, combined with ambiguities in their responsibilities has led to numerous conflicts among these agencies and has created legal uncertainties, inefficiencies, and costly administrative structures. An example is the inability to implement asymmetrical regulation rules to the dominant carrier, Telmex. The antitrust agency first issued a declaration of dominance in 1997 and after a dispute, the court solved in 2006 in favor of Telmex because the data was no longer current. .

Table 4. Issuing: SCT and COFETEL

	SCT (Ministry)	COFETEL
Policy maker	X	
Regulator	Takes decisions	X Gives an opinion
Duty on reporting its activity		SCT
Regulator Budget		Imposed by SCT
Designation of Regulator Chief		Executive Branch through SCT
Capability to veto decisions from regulator		SCT
Radio diffusion regulation.	SCT, SEGOB y SEP	
Spectrum Allocation for Radio Diffusion	SCT	

Due to the new context of technological convergence, a new telecomm reform was implemented in April 2006. In it, COFETEL remains a decentralized administrative body of SCT, with full autonomy to issue resolutions, but without power to grant licensees. This became evident, for example, in 2007 when COFETEL announced the program for bidding frequencies for mobile telephony and Wi-Max, but SCT decided to modify it, arguing that COFETEL did not have the authority to do so. Five months later SCT reviewed the process and reissued the original program.

The public participation (mainly operators) in the policy design and implementation in this sector has increased in recent years by soliciting their opinions. For example, this process has been used in the cases of the Convergence Agreement (2006), and more recently, public consultations were conducted for proposed resolutions on number portability and on a Technical Plan for Basic Interconnection and Interoperability, which addresses the asymmetry in negotiating power of

operators and includes aspects not covered by the LFT for interconnection and interoperability.

The history of interconnection agreements in Mexico has been characterized by disagreements and legal disputes between companies, and between companies and the authorities. The LFT enables companies to determine interconnection agreements (tariffs) within 60 days after its application. If an agreement is not met, SCT will determine the rate of interconnection. This not only has caused lengthy legal disputes but also the establishment of a panel of disputes in the World Trade Organization (WTO) and problems with the United States government (García and Pick, 2004 Ramirez, 2005)

The strict application of the LFT by COFETEL seems to be the speediest way to promote the development of the telecommunications industry. For example, the regulatory structure for launching convergence exists, it only needs the adequate application of legal principles contained in the various regulations, rules, granting of titles established in the LFT.

PERU

In Peru, the general policy design of the telecommunications industry, the basic technical plans, the administration and monitoring of the radio spectrum, as well as the granting of licenses fall under the jurisdiction of the Ministry of Transport and Communications (MTC). OSIPTEL, which was established in 1994 as a part of the regulatory reform process, is the telecommunications regulatory agency that has technical, administrative, economic and functional autonomy and it is also the administrative resource for solving disputes between operators. The law, by which OSIPTEL was created, established mechanisms to provide it with financial autonomy. And regarding the designation of OSIPTEL officers (for 3 year periods), it must be mentioned that in the past, they have frequently been people close to

the Executive Power, a fact which is perceived as diminishing the autonomy of this regulatory body⁴.

Even though the functions of OSIPTEL and the MTC are apparently clearly separated, there are areas that originate confusion and a lack of coordination. One example is the access to the market: while the Ministry is responsible for granting the concessions, implying entry to the market, OSIPTEL is the one which regulates the market conditions.

An additional entity involved is the Special Committee on Telecommunications – PromCepri- that responsible for granting licenses and undertakes biddings to grant concessions for infrastructure -- including telecommunications. The PromCepri functions now are developed by the Proinversión the agency in charge of promoting investment.

Even though according to some experts, the regulatory framework for telecommunications is reasonably clear, and without ambiguities, the legislative framework concerning competition is perceived as incomplete and inadequate to address the entrance of new operators to the market as well as the emergence of new technologies (Barrantes and Pérez, 2006). Telecommunications was the only sector, in which the supervision of competition is under the responsibility of a sector specific regulator, rather than being under the jurisdiction of a competition or antitrust agency, which caused some duplicity of functions and loopholes. For example, OSIPTEL was responsible for supervising market competition, possibly identifying unfair advertising or other competition inhibiting actions, as long as their origin was inside the telecommunication market. However, OSIPTEL could not possibly intervene, if the anticompetitive behavior had its origins outside the telecom sector. To avoid situations of this nature, OSIPTEL was declared to be⁵

⁴ According to the Law, the Executive branch has the power to remove them.

⁵ In the *Ley Desarrollo de Funciones y Facultades*
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competent "to deal with any dispute arising as a result of actions or omissions affecting the market for public telecommunications services".

Even though deadlines are seldom met (see Barrantes (2007)), a license should theoretically be granted in Peru within 50 days of applying for it (this period could be extended to 70 days). However, when the authority considers that the information submitted by the applicant is insufficient, this period can be invalidated.

In order to solve some of the most important problems in the telecommunications sector regulation, the Peruvian Government decided to simplify procedures for granting licenses, to promote the deployment and growth of new applications and services, to ensure regulatory flexibility and an efficient use of network resources and to encourage the entry of new operators. All this was achieved through a general concession, which, if granted, gives the right to offer any public telecommunications service (Barrantes, 2007)

During the period of limited competition there was no specific regulation on interconnection, a fact which caused problems to operators that needed access to Telefonica del Peru's fixed network to offer their services. Telefonica del Peru took advantage of this legal vacuum by imposing their own conditions. But at the beginning of the period of reforms, two emblematic disputes for interconnection and roaming between Telefonica and Tele 2000 (BellSouth and then bought by Telefonica Moviles) were resolved. The first was resolved in a "calling party pays" scheme. The second required a ministerial decision, related to the auction of band B to provide mobile service in the provinces (Barrantes y Pérez, 2006).

One of the most important decisions within the CTT was to establish mechanisms to make changes in the regulatory framework, without the need to modify the complete framework, because a larger reform would delay the entrance of new operators and generate larger uncertainty.

The participation of the private sector in the board of directors of OSIPTEL has generated diverse opinions. For some, this was a good sign of transparency and an important component of legal certainty, while others think that representatives of users were acting motivated by opportunistic interests. As a matter of fact, it occasionally happened that these representatives disclosed classified information. Other observers noted that the experience was not positive because in their opinions, there are more appropriate means to ensure participation of business and consumers in designing regulatory policies (Alcazar y Pollarolo, 2000).

In terms of implementation Peru had a late start in the introduction of competition, and according to OSIPTEL (2002) this was due to policy errors. There were delays in the granting of concessions, the requirements of points of presence (the obligation to provide service in five cities with infrastructure and, within two years, have a switching center in each city) was inflexible, the selection mechanisms for operators by customers were too difficult (originally only by pre-subscription, and call by call after two years), the fact that the billing was not considered an essential facility, the lack of agreement on paying one time investments required for interconnection of facilities operators and the process of concessions and delays in defining terms for interconnection.

Performance Analysis from a Comparative Perspective

This paper evaluated the effectiveness of regulation by analyzing whether the regulatory policies in each of these countries follow the law and by identifying the process of policy implementation beyond that of policy design. We used as exploratory variables those identified by the index “Regulatory Framework Index” developed by Gutierrez (2002). Through the evaluation of the telecommunication law, this index identified four characteristics in a regulatory agency: (1) autonomy

and independence, (2) accountability, (3) clarity of roles and objectives, (4) transparency and participation as contributors to an effective regulation.

Despite the fact that the regulator is part of the Ministry of Transport and Telecommunications, it is fairly autonomous and even though political interference may occur occasionally it is usually not the case. SUBTEL and the other agencies as well as the Ministry and the competition authorities do abide by their respective areas of responsibility. In general, the Chilean regulatory system is transparent and its policies are reasonably predictable. In case of disputes, a commission composed of three members (one representative of the company, one of regulator and a third person appointed by them), is formed to settle the differences in approaches trying to avoid lengthy and costly trials.

The participation of stakeholders in the design of policies and regulation is allowed, mainly by using public consultation, which provide SUBTEL with input from interested or affected parties. In 2008 SUBTEL began operating a blog to receive input on sector policies. In addition, all decisions and documents issued by SUBTEL as part of the proceedings before the Court of Defense of Free Competition, have been made public. The commission's officers have never been removed from office.

OSIPTEL has been characterized as one of the regulators in the region with greatest autonomy in making decisions and implementing the existing regulations. The regulatory framework in Peru is predictable and transparent. Most policies and/or regulations are respected and enforced. OSIPTEL has a website, as well as public hearings. The role of the authorities involved in the telecommunications sector is clear and generally respected. Policy design and implementation is open to the participation of stakeholders through the use of preliminary drafts of standards. The decisions taken by OSIPTEL are published, and there are mechanisms to resolve possible disputes.

Even though officers of OSIPTEL have not been removed, they have sometimes
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been substituted, due to resignations for personal reasons. OSIPTEL faces some budgetary problems because of restrictions on amounts and on freedom of expenditure.

COFETEL does not have full autonomy from SCT, and many of its functions are limited to issuing opinions. In Mexico, not all sector policies and regulations are transparent or predictable. Sometimes the LFT and its additional rulings have contradictions. The regulatory framework has obligations of transparency and accountability on the side of COFETEL, which must also align its actions with the Law of Transparency and Access to Public Government Information.

The role of those involved in the sector is not always clear, especially in the case of the Ministry and COFETEL. A lack of coordination between the regulator and the antitrust commission has also frequently been observed. Recently external participation in designing policies has been possible, since COFETEL has issued requests for opinions in several topics. In Mexico commissioners have never been removed although they have resigned and there are no specific mechanisms to resolve disagreements between the regulator and operators.

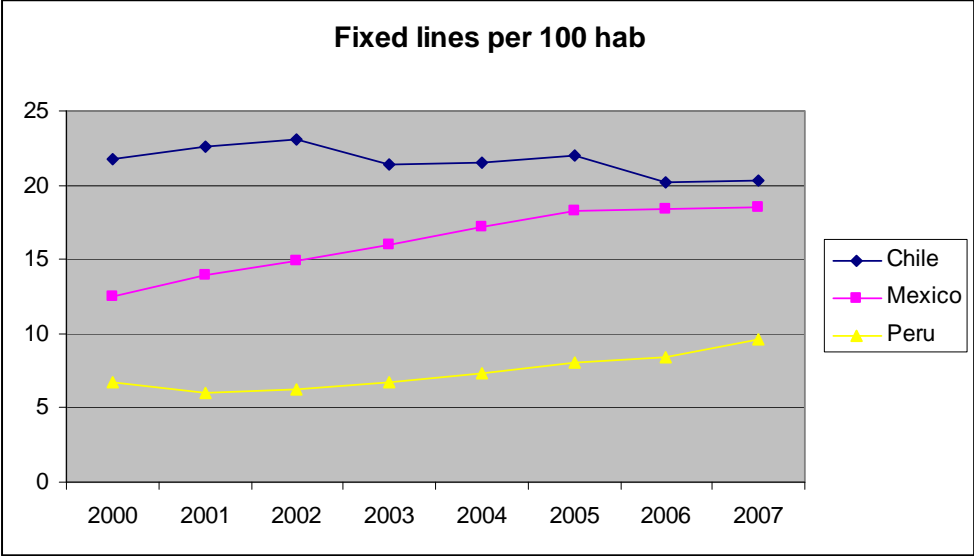
The following section presents an overview of the main market indicators with the aim of exploring some association between institutional strength and performance of the sector.

Penetration and Market Structure in Fixed Telephony

In terms of fixed telephony penetration Chile is more advanced than the other two countries; however, as shown in Graph 1 Mexico has shown a higher rate of growth in the last three years; by 2007 it was very close to Chile. Peru keeps growing, but its penetration level is consistent with its significantly lower GDP. The

moderate growth since 2005 in Chile and Mexico is probably due to a substitution between fixed and mobile services. As can be seen in Graph #, mobile services penetration increased dramatically in all three countries since 2003. It is interesting to note that in mobile penetration Peru is not so far behind Mexico, while Chile shows the highest penetration.

Graph 1. Fixed Teledensity: Chile, Mexico and Peru

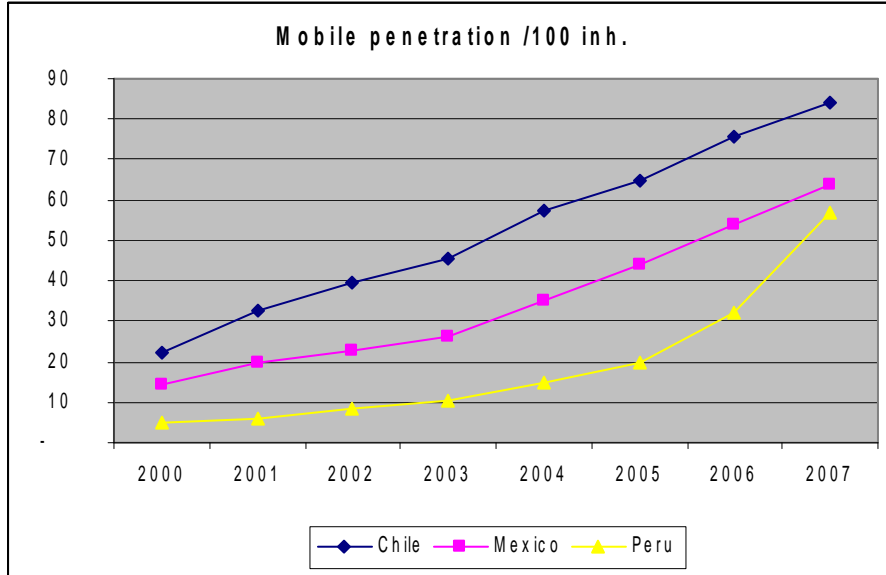


Source: ITU (2007)

Penetration and Market Structure in Mobile Telephony

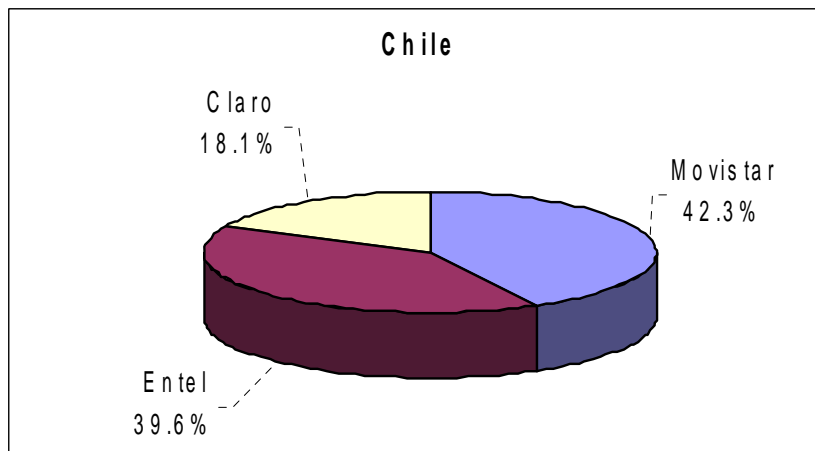
As shown in graph 3, Chile is the country with the most competitive mobile market, since there does not exist a single operator with an absolute control. While Movistar has a slightly higher share of the market, it is followed closely by Entel .

Graph 2. Mobile penetration: Chile, Mexico and Peru



Source: ITU 2008

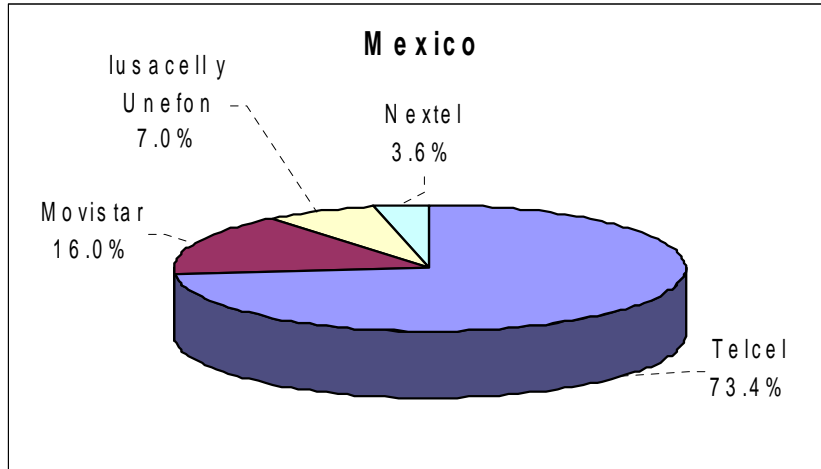
Graph 3.. Chile: Mobile Market Share



Source: Subtel (2008)

Mexico has a very concentrated structure, heavily dominated by Telcel (Grupo Carso and America Movil), who accounts for 73% of the total.

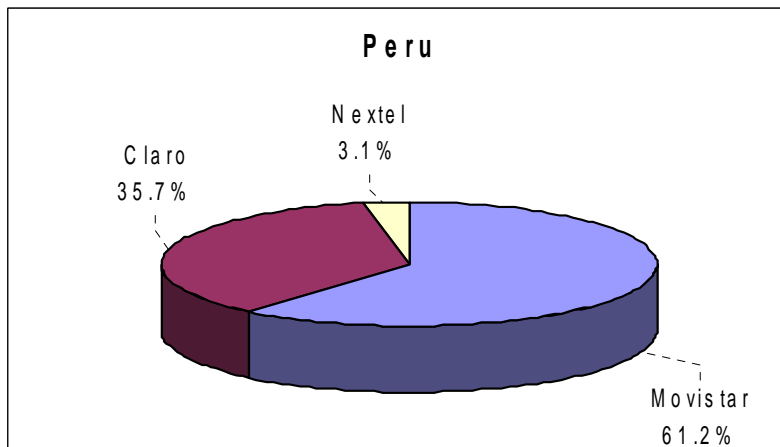
Graph 4.. Mexico: Mobile Market Share



Source: COFETEL (2008)

Peru's mobile market is also very strongly concentrated. As shown in graph xx the mobile telephony market is controlled by Telefonica Movistar. There are other two operators Nextel and Claro, owned by Grupo America Movil from Mexico with 36% of the market share. Interestingly enough, Mexico and Peru have the same dominant players, but in a reverse position; América Movil has a dominance in Mexico, while Telefónica holds the majority of the market in Peru (see graph 5).

Graph 5. Peru: Mobile Market Share

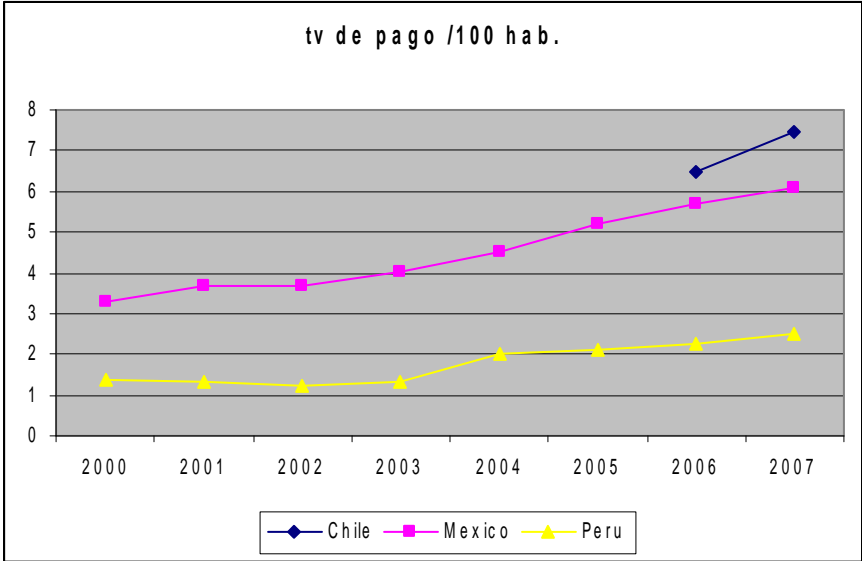


Source: OSIPTELI (2008)

Restricted TV Penetration and Market Share

In the segment of restricted TV, Chile keeps showing a higher penetration although it is closely followed by Mexico, and Peru is far behind. (see graph).

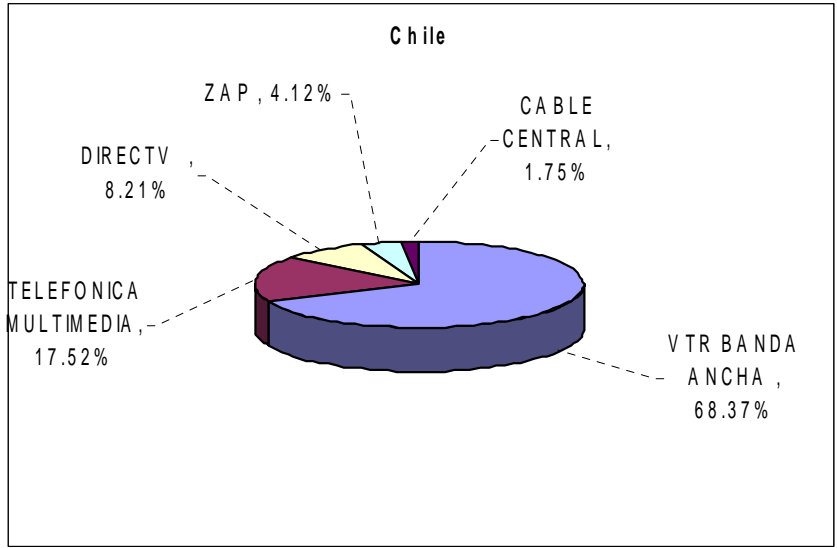
Graph 6. Chile, Mexico and Peru: Mobile Penetration



Source: SUBTEL, COFETEL and OSIPTEL (2008)

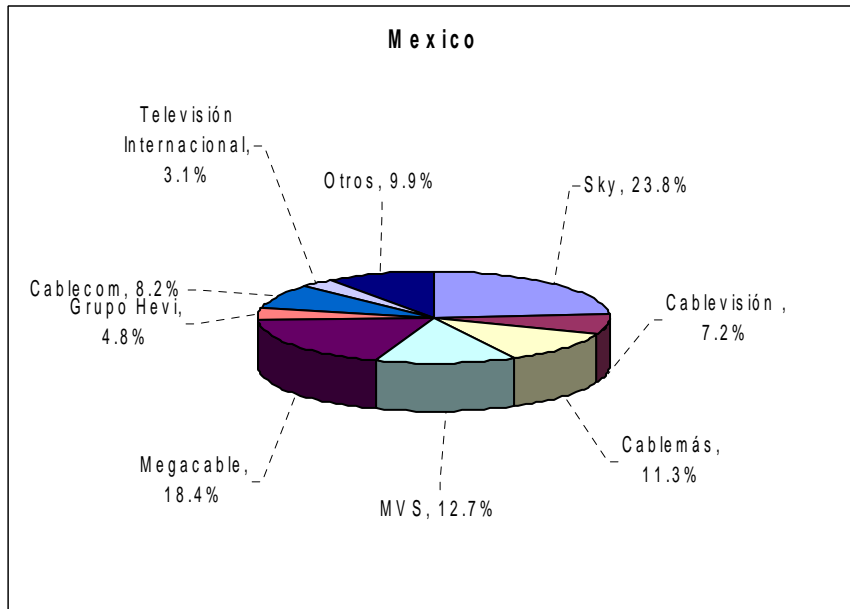
Market behavior for this platform is very different from the one in mobile telephony. Chile and Peru have very high concentrated markets, in each country there is one firm that holds more than half of the market share. On the other hand, the Mexican market displays a strong competition; the firm with the highest share controls just 24% of the total market and there are more than nine operators offering similar services.

Graph 7. Chile: Restricted TV Market Share



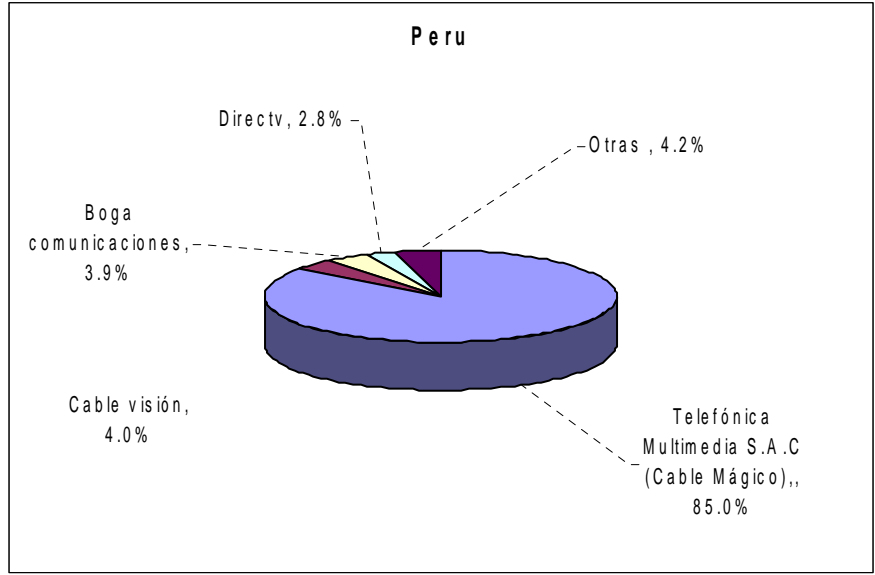
Source: Subtel (2008)

Graph 8. Mexico: Restricted TV Market Share



Source: COFETEL (2008)

Graph 9. Peru: Restricted TV Market Share

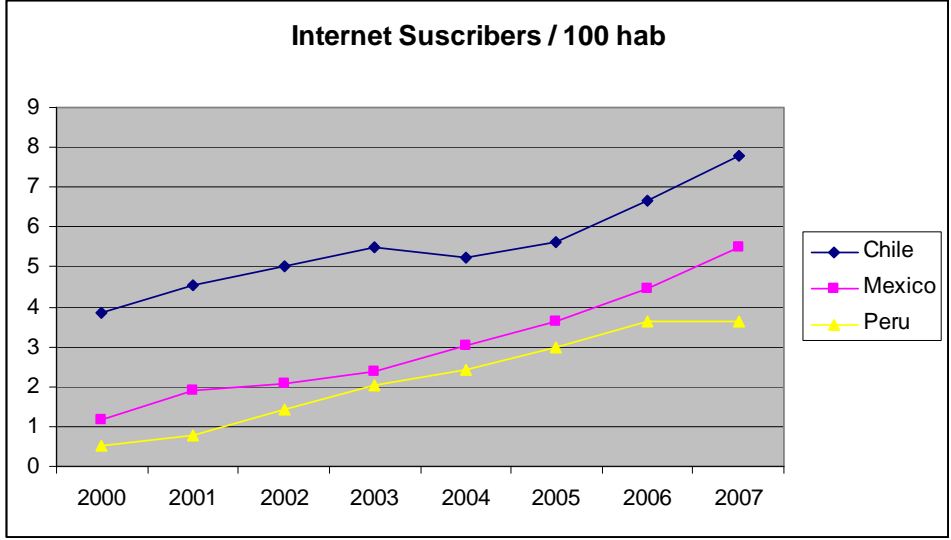


Source: COFETEL (2008)

Internet Penetration and Market Share

As can be seen in Graph 10, Chile is the country with the highest penetration of Internet. Mexico and Peru have similar penetrations, but growth in Mexico has been dramatic in the last two years, while Peru shows a moderate growth.

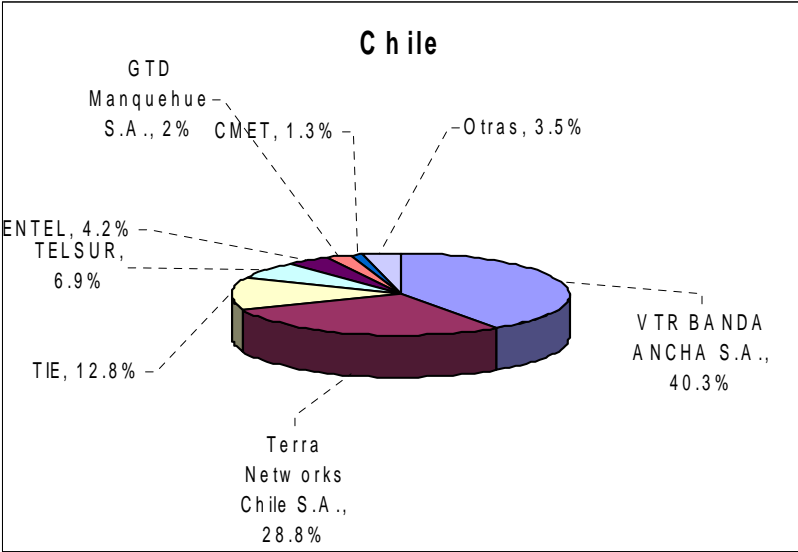
Graph 10. Chile, Mexico and Peru: Internet Penetration



Source: ITU 2008

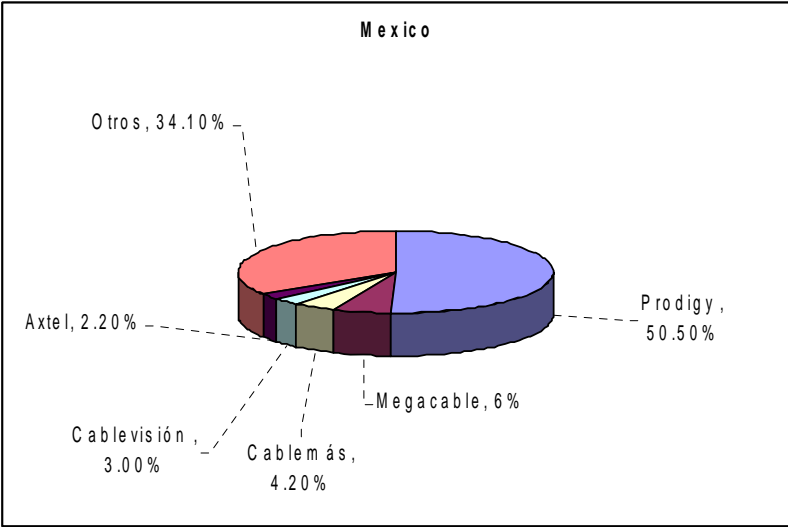
The Internet market is very competitive in Chile and Mexico, but not in Peru where Telefonica controls 90% of the market share. In Chile, there is strong competition between Internet firms; the largest company holds 40% of the market. Finally, Mexico has a competitive market also but with less firms; Prodigy from Telmex controls 50% of the market.

Graph 11. Chile: Internet Market Share



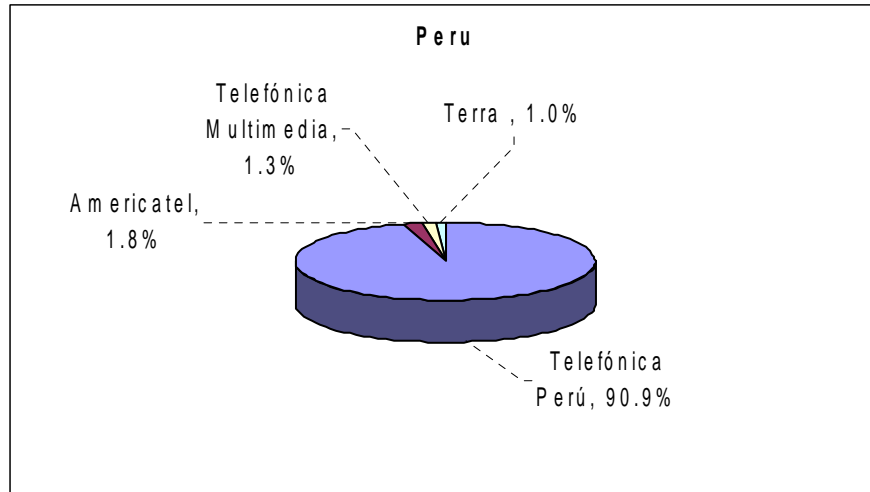
Source: Subtel (2008)

Graph 12. Mexico: Internet Market Share



Source: COFETEL (2008)

Graph 13. Peru: Internet Market Share



Source: Osiptel (2008)

Herfindahl – Hirschman Index (HHI)

The number of firms in a market does not always provide a clear account of market concentration, as it does not identify the market power each player has. To obtain a more precise perspective we use the Herfindahl-Hirsch Index (HHI) to measure and compare market concentration.⁶

Based on HHI, Mexico and Peru show high concentration levels in the fixed segment markets; in both countries the incumbents hold more than 90% of the market share. In the Chilean case the incumbent maintains 65% of the market share but the level of concentration has been decreasing in recent years.

In mobile telephony, as can be see in table #, Chile has the lowest concentration although the level of concentration has increased after the purchase of BellSouth by Telefonía. In Peru there has also been a significant increase in market concentration. In Mexico, despite the entry and efforts of new entrants, the market is still dominated by Telcel.

⁶ The Herfindahl – Hirschman Index (HHI) is a measure of market concentration and thus of its structure. It is the sum of the participation of the firms in the market and takes the value of 0 and 10000. Zero denotes no concentration while 10000 reflects a fully concentrated market. For more details see Miller Richard A. (1972).

In the Internet market, even though there have been new operators entering the Chilean market, the larger firms like VTR and Terra have increased their market share. In Peru, in a four years period the degree of concentration was more than doubled, after Telefónica increased its market share from 46% to 90%. In Mexico the level of concentration has been declining; the entry of new players and the use of new technologies has in this case led to this decrease. Telmex’s main competitors are the TV cable companies that offer broad band services, although only in the major cities.

In the restricted TV market, Mexico has the lowest level of concentration, even after the latest mergers (Televisa, Cablemas, TVI). In Chile the level of concentration is diminishing rapidly, while in Peru, as in its others markets, the level of concentration grew considerably during the period under study.

Table 5. HH Index

Herfindahl - Hirschman Index								
Year	2003	2007	2003	2007	2003	2007	2003	2007
Country	Fixed		Mobile		Internet		Restricted TV	
Chile	5866	4511	2796	3687	2431	2702	8040*	5070
Mexico	9239	8489	6256	5694	5450	3781	1749	2489
Peru	9335	9281	3629	5032	3061	8689	6458	7282

Source: elaborated by the authors based on regulator web pages, 2005

Although in the Chilean case there has been an increase in the level of concentration in the mobile and in the Internet markets, the overall level of competition is strong. In the Mexican case, the mobile and fixed telephony segments of the market face significant challenges for the regulatory and for the antitrust authority especially considering the convergence of networks. The Peruvian case shows that Telefónica has increased its market share in all segments of the telecommunications industry.

Prices

Concentration levels are usually associated with tariffs, as shown in table xx. Chile and Mexico have lower tariffs than Peru in the fixed and mobile telephony services, while Mexico has higher prices than Chile. An exception to this is the Internet market where Chile, is the most expensive of the three.

Table 6. Basket Prices for Telecommunication Services

Chile	
Price Basket for fixed (US\$ per month, residential 2006)	9.7
Price Basket for mobile (US\$ per month 2006)	11.4
Price basket for Internet (US\$ per month 2005)	25.6
Mexico	
Price Basket for fixed (US\$ per month, residential 2006)	16.1
Price Basket for mobile (US\$ per month 2006)	14
Price basket for Internet (US\$ per month 2005)	20
Peru	
Price Basket for fixed (US\$ per month, residential 2006)	19.6
Price Basket for mobile (US\$ per month 2006)	22.9
Price basket for Internet (US\$ per month 2005)	23.6

Source: The World Bank (2008)

Conclusions

The objective in this document was to identify elements in the structure and the operation of regulatory agencies that in the past have functioned as enablers of telecommunications industry in Latin America and those that have been its major inhibitors. Based on the cases of Chile, Mexico and Peru, we discussed the effectiveness of the different regulatory frameworks, by analyzing whether the design of regulatory institutions was adequate and the degree to which policy design and implementation follows the law. Each of the three institutional designs and policy implementations under analysis had different degrees of strengths and weaknesses.

In the case of Chile, the fact that their telecommunications institutional framework is efficient without an autonomous regulatory agency, questions the importance of independent agencies. The more important characteristic is probably independence from political issues. In general terms, the decision making process is open and transparent and there is a high level of credibility. However, there has been a lack of coordination between the involved independent agencies. The early reform implemented in Chile did not begin smoothly; among other problems, it took a very long time to resolve conflicts between operators, a fact which delayed the entrance of new companies. However, the period of adjustment included a learning process that led to a much better coordination between the involved agencies.

In the case of Mexico we found a regulatory agency that is not autonomous, which depends on the Ministry for day to day decisions. Moreover, the regulatory agency COFETEL, is not legally endowed with mechanisms to provide a transparent and inclusive decision making process; there are no public hearings, for example. However its operation is based on a pro-competition telecommunications law, including some recent amendments, and more recently, new officers have made some progress in the design and implementation of regulatory policies. Still, a proper application of the law would be very desirable. There are still some significant barriers to entry to this sector, such as insufficient spectrum bands assigned and a lack of implementation of asymmetrical regulation for the dominant operator.

Peru's institutional design follows, to a significant degree, the text book suggestions; the regulatory agency is autonomous and the decision process is open and transparent. However, according to its own agency, OSIPTEL (2002) there were errors in the policy process that led to the late start of competition. From an institutional perspective, there was a lack of coordination among regulatory and competition agencies and more importantly, the legislative framework concerning competition is perceived as incomplete and inadequate to

address the entrance of new operators to the market as well as the emergence of new technologies.

The lack of an autonomous agency does not appear to impede Chilean telecommunications development. Undoubtedly Chile exhibits the strongest market performance, with higher penetration levels, the smallest market concentrations and the lowest tariffs, with the exception of the Internet market. Other variables such as accountability and openness to the participation of stakeholders have surely contributed to this strong performance. Mexico, despite its weak institutional design, namely the agency's lack of autonomy and accountability, could have a stronger market performance if it would follow the law more strictly. A more proactive regulation would increase competition by auctioning more spectrum and having a check on market power. And finally, Peru, despite the fact that it is a small country with a low national income, has obtained a high rate of growth in most of its penetration indicators. However, the high market concentration and high tariffs are a result of a weak competition framework.

However, at this point these results should be considered preliminary; further research is required to verify them. It would also be very desirable to identify and establish additional relationships between market variables and regulation and policy design. A more in-depth analysis through interviews with key players in each country as well as the addition of more Latin American countries would enrich this study.

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