OECD Review of Telecommunication Policy and Regulation in Mexico

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Foreword

This study was carried out by the OECD Directorate for Science, Technology and Industry (DSTI) under the auspices of the Committee for Information, Computer and Communications Policy (ICCP Committee). It was requested by the Government of Mexico, at the behest of the Federal Telecommunications Commission (*Comisión Federal de Telecomunicaciones*, COFETEL), through the Mexican Ministry of Transport and Communications (*Secretaría de Comunicaciones y Transportes*, SCT), both being in charge of representing Mexico at the ICCP Committee.

The OECD review of telecommunication policy and regulation draws on responses by the Mexican authorities to a questionnaire and on the results of an extensive series of interviews with major communication stakeholders during a fact-finding mission in Mexico. The report was peer reviewed by the ICCP Committee on 27 October 2011, with Dr. Mónica Ariño (Ofcom, United Kingdom) and Mr. François Lions (Arcep, France) as the lead peer reviewers. It was finalised in early November 2011 and reflects developments up to that time.

The review was drafted by Mr. Dimitri Ypsilanti, Head of the Information, Communications and Consumer Policy Division (ICCP Division) within DSTI, and Mr. Agustín Díaz-Pinés, economist at the ICCP division, with the assistance of Professor Patrick Xavier, Curtin Business School, and contributions from Professor Martin Cave, London School of Economics, and Mr. Tony Shortall, Director, Telage.

The review was made possible by the support from the SCT and Cofetel. The OECD Secretariat wishes to thank, in particular, Minister Dionisio Pérez-Jácome Friscione, Minister of Transport and Communications and Undersecretary Héctor Olavarría Tapia, Undersecretary for Telecommunications in the SCT, and President Mony de Swaan Adati, President of Cofetel and their staff for organising the mission and interviews and providing additional factual information throughout the review process. The OECD also wishes to acknowledge the assistance of Ambassador Agustín García-López Loaeza and Minister Sergio Lozoya Granier, from the OECD Mexican Delegation for their support in the review process.

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Introduction

OECD countries have recognised the increasing role played by the telecommunications sector as a means of improving productivity and economic growth while enabling governments to improve provision of public services. Mexico, with the lowest GDP per capita in the OECD, a high inequality of income distribution, and a relatively high rural population, needs the socio-economic boost provided by greater access to more efficient communication services, in particular high speed broadband. The welfare loss attributed to the dysfunctional Mexican telecommunication sector is estimated at USD 129.2 billion (2005-2009) or 1.8% GDP per annum.

This report reviews telecommunications policy and regulations in Mexico and puts forward a number of recommendations. These recommendations are not new, reflecting to a large part best practice frameworks already in place in many OECD countries which have helped develop competition in those countries.

Ensure low barriers to entry and "contestable" telecommunication markets

- Foreign investment restrictions on fixed-line telecommunication operators in Mexico should be eliminated. The current review of these restrictions should aim at total elimination of existing foreign investment caps.
- The existing concession system should be reformed to a simpler class-licensing regime except where there are resource scarcity constraints, such as spectrum. Where existing obligations remain, these should be effectively monitored and enforced. Entry of resellers should be simplified and encouraged and entry of mobile virtual network operators facilitated by requiring obligatory national roaming requirements**.**

Ensure that regulations and regulatory processes are transparent, non-discriminatory and applied effectively

- The current legal system, which allows the courts to suspend and overturn policy and regulatory decisions systematically, is harming the public interest and needs reforming. Proposals include setting up special judicial panels to hear court appeals on telecommunication issues where the judges have knowledge of the telecommunication sector or creating a specialised Federal Court that can deal with appeals in this sector. The most rapid way to stimulate a change in behaviour of market participants is to ensure that the regulator's decisions remain in force until the appeal process has run its course.

Institutional issues: Policy and regulatory functions

- Measures need to be put in place to eliminate the so called "double window" and separate responsibilities for policy formulation (Ministry) and regulatory and market monitoring functions (regulator).
- The regulatory authority should have greater independence and autonomy in carrying out its responsibilities, which are to ensure that the telecommunication market is competitive and delivers public policy objectives.
- The regulator should have greater budgetary independence and should have a clearly identified source of funding that will meet its needs.
- The regulatory authority should be empowered to impose meaningful fines that are sufficiently high (much higher than at present) to act as a deterrent and ensure that regulations are adhered to and regulatory objectives met. It should also have the power to request information from firms so as to carry out its responsibilities and sanction firms that do not meet reasonable requests.
- Quality of service indicators should be published on a regular basis. At the wholesale level, firms with dominant power should provide service level agreements to new entrants providing relevant indicators for access to leased lines and other network elements.
- The regulatory decision-making process should be more transparent and include publication of the reasons for decisions, and provide an opportunity for stakeholder comments to be made and considered. Formal public consultation and transparency procedures should be established for Cofetel based on internal rules that Cofetel needs to follow in order to enhance the speed of response to complaints and requests, and in carrying out its other responsibilities.

Reform regulations to stimulate competition and eliminate them except where clear evidence demonstrates that they are the best way to serve the broad public interest

- Cofetel should be authorised to regulate interconnection tariffs *ex-ante* to foster competition among operators as well as facilitate sector development and growth, providing regulatory certainty and a level playing field in the mobile market.
- The fixed line incumbent, Telmex, should be required to consolidate local dialling areas as determined by Cofetel.
- Cofetel should be authorised to declare bottlenecks and essential facilities and to establish non-discriminatory conditions for access to these facilities. Access to essential facilities should include local loop unbundling of the incumbents local loops, including collocation at cost-based pricing.
- Cofetel should be empowered to undertake market reviews, declare that a player or players have significant market power and put forward appropriate remedies, including asymmetric regulation.
- Telmex should be authorised to provide television services only when it is subject to adequate asymmetric regulations and there is evidence that it is complying with them and not resorting to judicial challenges to delay or suspend their fulfilment.

- The renewed efforts by Cofetel to move forward with the transition to digital terrestrial television are welcome and continued efforts should be made to ensure that the process moves forward rapidly to ensure that the transition is complete by 2016. In this context the licensing of new DTT broadcasters (including one or two additional national licenses) should move forward**.**
- Cofetel should have the authority to impose functional, and, if necessary, structural, separation of an operator that continues to abuse its dominant power and to help ensure that there is equal access and equivalence of inputs.
- Responsibility for setting and administering the price cap scheme used to regulate Telmex's end-user prices should be under the responsibility of Cofetel. The price cap framework needs to be changed so that Cofetel has the sole responsibility for determining the "X factor" in the cap and it should be strengthened through the use of sub-caps such that average prices borne by consumers do not remain high because the sharp fall in some prices where competition exists.
- The practice of registering prices by telecommunication operators should not be necessary other than wholesale prices of operators with significant market power.
- Sufficient spectrum should be released to meet the growing demand for mobile broadband data service. Care should be taken in the auction design to ensure that a single firm does not emerge having dominance in the mobile broadband data market. To facilitate the development of the broadband market the Government should auction more of CFE's "dark fibre".
- Legal changes are needed in order to promote efficient infrastructure sharing and to remove barriers to obtaining rights of way, since the current framework has not been effective.
- The government should clarify the policy on universal service, and articulate explicit plans on how to implement this policy.
- Consumers can play an important role in developing market competition if they are empowered. Profeco and Cofetel should clarify their roles and responsibilities and action should be taken to facilitate consumers in switching service provider.

Shortcomings and challenges

The lack of telecommunication competition in Mexico has led to inefficient telecommunications markets that impose significant costs on the Mexican economy and burden the welfare of its population. The sector is characterised by high prices, among the highest within OECD countries, and a lack of competition, resulting in poor market penetration rates and low infrastructure development. As highlighted above, the resulting loss of benefit to the economy is estimated at USD 129.2 billion (2005-2009) or 1.8% GDP per annum. While there has been growth in mobile, fixed, broadband and pay-television markets, Mexico does not compare favourably with other OECD countries that have developed more open and competitive markets and distributed ensuing benefits to consumers.

The Mexican telecommunications market is dominated by a single company with 80% of the fixed line market and 70% of the mobile phone market. Insufficient competition has resulted in poor market penetration (subscribers per 100 inhabitants) for fixed line, mobile and broadband markets, ranking Mexico 34th, 33rd, and 32nd

respectively, of the 34 OECD countries. Relative to other OECD countries, Mexico is ranked last in terms of investment per capita. Profit margins of the incumbent nearly double the OECD average.

Consolidation in the cable TV market has resulted in a few firms as the major national players. Despite the limited geographical coverage, their bundled offers (double- and triple-play) provide an increasingly competitive response to the incumbent in urban areas.

Unlike most OECD countries, pro-competitive decisions have been slow to emerge in Mexico and, when taken, have been frustrated by ineffective regulatory and legal systems. While in recent years there have been clearer and more forceful initiatives to foster a more competitive environment, all market segments feature a dominant firm, with a large market share gap between its closest competitors. The sector regulator (Cofetel) lacks sufficient enforcement power and autonomy to perform its role. A lack of clear division between policy formulation and regulatory functions, in addition to inconsistent inter-agency procedures, has multiplied the opportunity for legal challenges and has created confusion within the industry, constituting barriers to market entry and effective competition. A greater transfer of power to Cofetel is needed, along with more accountability, and transparency, if it is to be an effective regulator.

One of the main barriers to competition is that decisions are either not enforced or suspended by the courts, which also diminishes effective development of regulations. Dominant operators have exploited the weak institutional framework, by abusing Mexico's unique legal injunction system, whereby regulatory decisions under judicial review are summarily suspended, in favour of the plaintiff. Mexico is the only OECD country where this is the rule, not a very rare exception. This system not only encourages legal challenges, but provides financial gain for the incumbent, while causing economic harm to new entrants.The current process must be amended to allow for decisions to remain in force until a court decides otherwise.

Many key steps have been taken to establish a pro-competition regulatory regime in the Mexican telecommunication sector. However, greater development is urgently needed in areas such as *ex-ante* regulation, including access and/or asymmetric regulation to address the growth opportunities within broadband, in line with OECD best practice. Asymmetric regulation is necessary to curtail the market power of incumbents, but despite finding the incumbents dominant in the market, appropriate regulation has not been applied. *Ex-ante* regulation in OECD countries, whether asymmetric or not, is applied to remedy enduring bottlenecks, where network facilities would be uneconomically duplicated, or infrastructure sharing, where entrants must purchase services from incumbents. In Mexico, there are a large number of areas where new entrants have no facilities and interconnection is costly. The local loop of the incumbent in those areas should be considered as bottleneck facilities. The inability to mandate, or at least set out, reasonable conditions for infrastructure sharing is arguably one the main bottlenecks that prevent competition.

In the case of Mexico, existing processes fall seriously short of OECD best practice with respect to regulatory certainty and timeliness. For example, interconnection rates in OECD countries are usually set *ex-ante*, which delivers a better outcome in terms of legal certainty and actual implementation of the decisions. In 2009, Cofetel issued a comprehensive Technical Plan considered OECD best practice, including: adoption of open network architectures, non-discrimination, unbundling of unnecessary service elements, ensuring network capacity and rate requirements. However, injunctions granted

to several operators ignored the public interest arguments put forward by Cofetel resulting in a suspension of the Plan.

Convergence of telecommunications and audiovisual services is a challenge to regulatory frameworks in most OECD countries; more so in Mexico, however, where it may also provide an opportunity to address ineffective competition. The implementation of digital terrestrial television needs to be accelerated while ensuring a balanced outcome for the affected stakeholders and avoiding exclusion.

Mexico needs a forward thinking broadband plan to ensure a competitive Next Generation Access market. Some countries have adopted various separation remedies (functional, operational and vertical) to avoid market dominance and ensure competitive service offers, as most areas may only support one player. The power to impose such remedies, if necessary, should be available to the telecommunication regulator.

Given the lack of geographic coverage of fixed lines in Mexico, wireless networks are likely to be a key in delivering the economic benefits of broadband. The key challenges are thus the provision of capacity and a more balanced, competitive structure in the industry. The incomplete reach of fixed broadband also implies an uncomfortable situation whereby spectrum could be simply released to dominant mobile operators. Therefore, new spectrum awards should be designed with the goal of creating a more competitive structure in the mobile sector.

The recent auctioning of some dark fibre capacity belonging to the national electricity company was an important step towards creating more competition in the backhaul market. More fibre should be made available on the market.

Significant barriers to infrastructure sharing are encountered by new market entrants in Mexico, including the lengthy permit granting procedure, the need to request rights of way and, the fact that there is no requirement for operators to share their own passive infrastructure, such as ducts and cell towers, making deployment a major barrier to competition.

The restriction of foreign ownership places Mexico among only three OECD countries with similar laws. This restriction is detrimental to creating effective competition, leads to a lower local investment performance, reduces the effectiveness of competition, and slows the diffusion in new technologies.

The unsatisfactory performance of telecommunications markets in Mexico is due in part to the relentless use of injunctions, in particular by the fixed and mobile incumbent, which cannot be addressed by a dysfunctional legal system and has replaced, to a large extent, the right and responsibility of government to implement economic policy and regulation. When commendable efforts have been made towards reform of policy and regulatory frameworks, the ability to implement recommendations has been frustrated by legal processes.

Chapter 1

The telecommunication sector in Mexico

Chapter 1 describes the chief elements of a largely inefficient telecommunications industry, which features among the highest consumer prices in the OECD, little competition, and low market penetration rates at a significant cost to the economy and welfare of the Mexican population. The chapter clearly attributes this outcome to the failure of an effective policy and regulatory framework, and the behaviour of an incumbent operator with significant market power.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

1.1. Introduction

This report aims to review policies and regulations in the telecommunication service sector in Mexico and put forward recommendations aimed at furthering regulatory reform and stimulating market competition and investment in the sector, as a building block for the future development of the Mexican economy. OECD countries have recognised that the communications sector, and in particular high-speed Internet access provided by fixed and wireless broadband, represents a key infrastructure for improving productivity and economic growth, and enabling governments to improve significantly the provision of public services.

Governments across the OECD have put forward broadband plans that aim to achieve national geographic coverage and improve speeds of broadband delivery (see OECD, 2010a). One important focus of these plans is making high-speed broadband available in remote areas and overcoming barriers to broadband adoption. The policy and regulatory reform in the communications sector therefore concerns the provision of high-quality telephony services at efficient prices and extension of telephony service coverage. However, it also has significantly wider economic and social implications for the growth of the Mexican economy, for industry expansion and social cohesion. The broadcasting sector, in particular with the development of digital terrestrial television, is also playing an increasingly important economic role, and the shift to digital TV is helping to liberate spectrum for use by high-speed mobile broadband services.

Audiovisual services, especially cable, free-to-air or satellite television, also play a key role in shaping the telecommunications industry, and play an increasingly important role as technological convergence develops. The broadcasting industry does not fall directly under the scope of this report, but is addressed in connection with current developments in convergence. More specifically, current trends tend to blur what used to be a clear line of separation between both industries. Telecommunication operators have entered the broadcasting sector as television services providers, and broadcasters are increasingly willing to provide telecommunications services. This situation creates challenges and opportunities for both market players and regulators.

Mexico, in particular, needs the economic boost which high-capacity Internet access can provide. It has the lowest GDP per capita among OECD countries, equivalent to 31% of the GDP per capita of the United States, and has a very uneven distribution in regional GDP per capita (see *OECD Factbook*). GDP per hour worked (labour productivity) is 2.5 times less than the OECD average and represents (with Chile) the lowest among OECD countries. While Mexico's population growth rate is above the OECD average, it has a relatively low population density (although higher than the US and the OECD average). At the same time, 36% of the population is rural in Mexico, compared to the OECD average of 26%. Mexico is also characterised by relatively high inequality in income distribution. In terms of the sectoral contribution to value added, services represent 61%, industry 36% and agriculture just above 3%.

OECD's Economic Survey of Mexico (2011) highlighted implementation of structural reforms, including in network industries, as a key requirement for long-term growth, raising productivity and improving the pace of convergence towards average OECD living standards (OECD, 2011a). Relative to other OECD countries, the telecommunication sector in Mexico is characterised by a high level of concentration, weak competition, a relatively poor level of infrastructure development, high prices and

low take-up of services. Policy changes and regulatory reform can play a large part in improving these benchmarks.

Since the late 1990s, when competition was initially introduced in the Mexican market, there have been positive developments in the telecommunication market. However, these changes are far from sufficient when compared to developments in other OECD countries.

1.2. The national context for telecommunications policies

Inefficient telecommunication markets impose a significant cost on the Mexican economy and the welfare of its population. The Mexican telecommunication sector is characterised by high prices, which result in low penetration rates. Prices, as shown in Section 1.4, are among the highest in the OECD. Penetration of both fixed and mobile telecommunication services is among the lowest in the OECD (see Section 1.4). Broadband development and penetration has long been among the weakest in the OECD. At present, Mexico has the third lowest broadband penetration in the OECD.

The poor development of telecommunication infrastructure in Mexico is due to a large part to lack of effective competition, and the resulting high level of market concentration. In turn, this has implications for consumers, leading to lower levels of consumption as a result of high prices across the range of telecommunication services. This has resulted in a significant welfare loss for users in Mexico. This welfare loss is incurred by existing users who are overcharged in their use of telecommunication services, and from the welfare loss resulting from unrealised subscriptions to telecommunication services. Consumer welfare loss in the Mexican telecommunication sector over the period 2005-09 is estimated at USD 129.2 billion, or an average of USD PPP 25.8 billion per year. The latter amount is equivalent to 1.8% of Mexican GDP per year (or USD PPP 240 per capita per year). Given the very skewed distribution of income in Mexico the burden of this loss in consumer surplus weighs significantly on a large segment of Mexico's population. Rural populations in particular are the most impacted by this welfare loss. As socio-economic indicators clearly have an influence on telecommunications uptake, the analysis accounts for wealth (GDP per capita) and other factors, such as education, to estimate the loss in consumer welfare. Consequently, it cannot be argued that current uptake levels are due to socio-economic factors alone.

The estimated loss in consumer surplus results from two components: overcharging of existing consumers and unrealised subscriptions. Consumer overcharge constitutes 52% of the total average loss in consumer surplus for 2005-09 (USD PPP 13.4 billion); unrealised subscriptions account for 48% (USD PPP 12.4 billion). The following tables show the calculated consumer welfare loss by telecommunication service (Table 1.1) and the estimated loss in consumer welfare by service area (Table 1.2). The growing digital divide is an important economic and social issue that needs to be tackled. Annex C provides further details with respect to welfare loss.

Table 1.1. **Estimated average annual loss in consumer welfare (in USD PPP million) resulting from excessive pricing of telecommunication services in Mexico, 2005-09**

Type of telecommunication	Overcharge of existing consumers	Unrealised subscriptions	Total
Fixed telecommunication	6 510	7 039	13 549
Mobile telecommunication	7 260	2 747	10 007
Broadband	918[1]	4 070	4 988
Total	13 386	12 449	25 835

Note: The loss in consumer surplus suffered by existing consumers because of low broadband speeds is not quantified.

Table 1.2. **Estimated average annual loss in consumer welfare (expressed as a percentage of Mexican GDP) resulting from excessive pricing of telecommunication services in Mexico, 2005-09**

Type of telecommunication	Overcharge of existing consumers	Unrealised subscriptions	Total
Fixed telecommunication	0.4%	0.5%	0.9%
Mobile telecommunication	0.5%	0.2%	0.7%
Broadband	0.1%	0.3%	0.3%
Total	0.9%	0.9%	1.8%

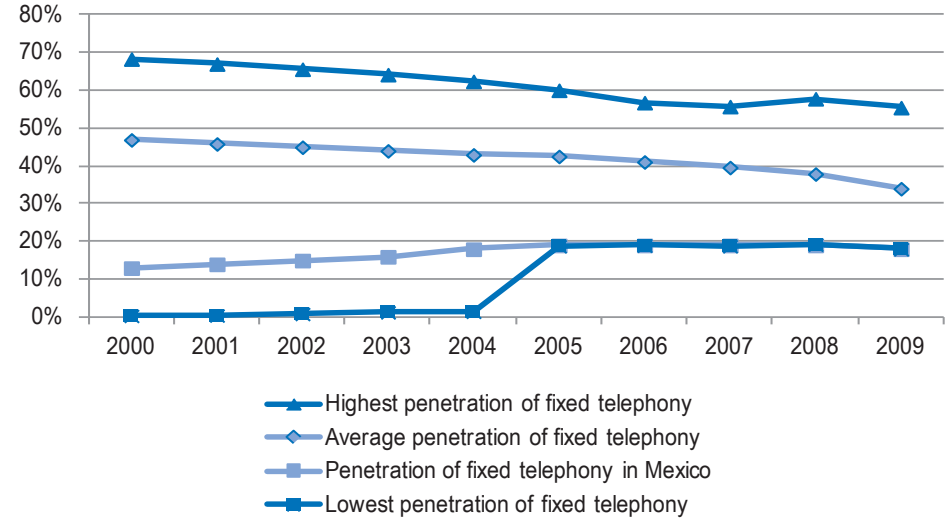
The foregoing does not imply a lack of progress in the development of Mexico's telecommunication markets. Areas of growth include: fixed lines and their take up,[1] the development of the mobile market, the entry of cable television companies into the telephony market (from 2007), and price declines. There has been improvement in institutional operation and, in recent years, a greater commitment to implementing regulatory reform. However, the data indicate that other OECD countries that opened their markets to competition at about the same time showed significantly more progress in reaping the benefits of competition and distributing those gains to consumers. In addition, progress in Mexico in terms of geographic availability of infrastructure and services has been quite uneven.

1.3. Telecommunication market participants, market performance and the regulatory regime[2]

The telecommunication sector in Mexico is the 11th-largest in the OECD with around USD 26.6 billion in revenue in 2009 (OECD, 2011b). Telmex, the incumbent fixed-line telecommunication operator, is the 30th-largest telephone carrier in the OECD, roughly comparable in size to OTE in Greece or Portugal Telecom. In terms of total number of fixed lines, Mexico is the eighth-largest in the OECD, but 34th in terms of fixed lines per 100 inhabitants (Figure 1.1). In the mobile sector, Mexico is the fifth-largest in total number of subscribers but, in terms of mobile subscribers per 100 inhabitants, Mexico is 33rd of the 34 OECD members (Figure 1.2). Similarly, in the broadband market Mexico

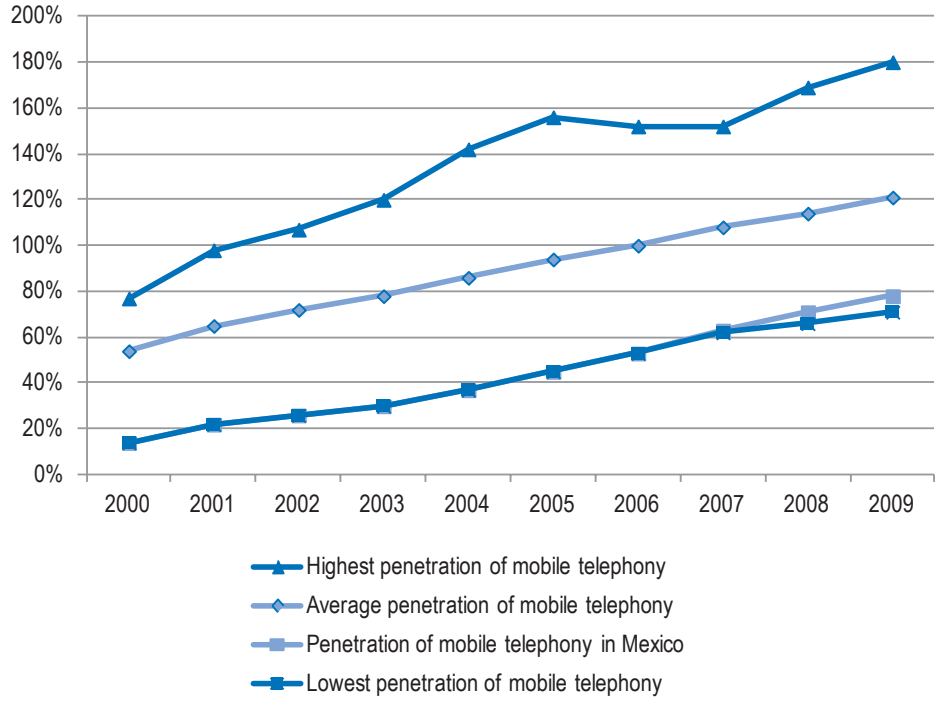
was tenth in terms of total subscriptions and 34th in terms of subscribers per 100 inhabitants by the end of 2009 (Figure 1.3). Broadband penetration has experienced faster growth in 2010. Mexico was ranked 32nd (10.45) in December 2010, with a slightly higher penetration than Chile (10.40) and Turkey (9.77). By the end of 2004 it was 0.98 (OECD average 9.71).

Figure 1.1. **Fixed access paths per capita: Mexico compared to the other OECD countries**



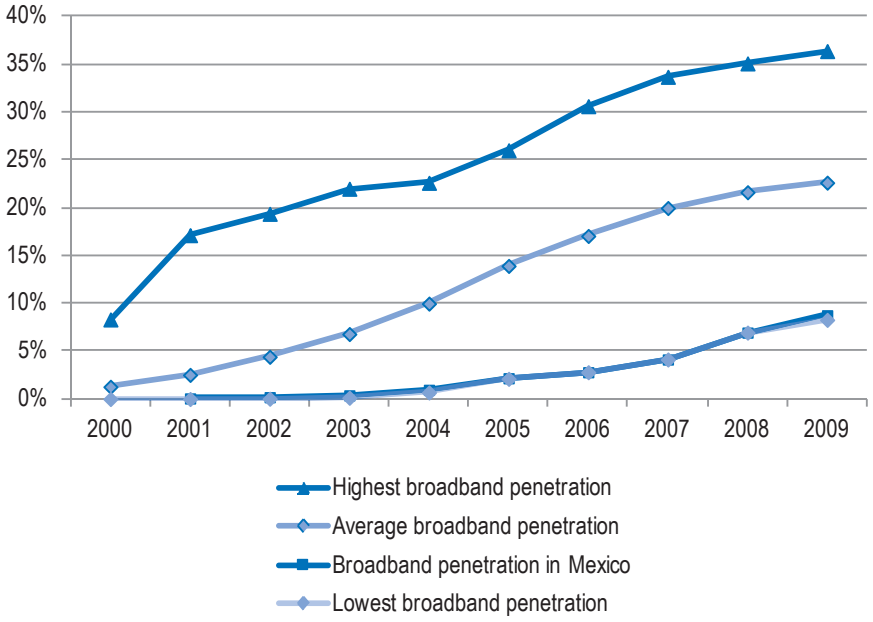
Source: OECD (2011b).

Figure 1.2. **Mobile subscriptions per capita: Mexico compared to the other OECD countries**



Source: OECD (2011b).

Figure 1.3. **Broadband subscriptions per capita: Mexico compared to the other OECD countries**



Source: OECD (2011b).

Telecommunication market participants and markets

Market participants

Market concentration is extremely high with Telmex, the incumbent fixed-line operator, having 80% share of the fixed market (in terms of subscriber lines), and Telcel, the incumbent's mobile affiliate, accounting for 70% of mobile subscribers. Telefónica of Spain and Nextel (owned by NII Holdings in the United States) are the only foreign operators directly involved in the Mexican market.

Fixed lines

The fixed-line market has 25 players providing local service and 62 long-distance providers. Many of these companies come under the ownership structure of the major national players. The main national operators are briefly described in the following list and Table 1.3.

Table 1.3. **Key market participants in Mexico's telecommunications sector, 2011**

Company name	Ownership	Market
Alestra	Onexa (100%, itself 100% owned by Grupo ALFA)	Fixed-line telephony (local, domestic long-distance, international), data, broadband
Axtel	Citigroup (10%), others (*e.g.* Tomás Milmo)	Fixed-line telephony (local, domestic long-distance, international), data, broadband. Acquired Avantel in 2007
Bestel	Televisa (100%)	Fixed-line telephony, corporate communications
Cablemas	Televisa (100%)	Cable, TV, broadband, telephony
Cablevision	Grupo Televisa (51%)	Cable TV, broadband, telephony
CFE Telecom	CFE (state-owned enterprise, 100%)	Leased lines, corporate communications, wholesale connectivity
Dish	MVS (100%)	DTH
GTAC (Grupo de Telecomunicaciones de Alta Capacidad)	Grupo Televisa (33.33%), Megacable (33.33%), Telefónica (33.33%)	Managing consortium of the CFE dark-fibre concession (wholesale connectivity)
GTM	Telefónica (49%), other (Mexican) investors (51%)	Long-distance services
Iusacell	Grupo Salinas (50%), Grupo Televisa (50% pending regulatory approval)	Mobile, Unefon merged in 2007 (kept as stand-alone brand)
Maxcom	Bank of America, Equity Partners (80%), Vazquez Arroyo Carstens family (16.34%), individuals and employees (3.66%)	Fixed-line telephony (local, domestic long-distance, international), data, broadband
Marcatel	Controlled through STI Telecom	Fixed-line telephony (pre-paid long distance in US)
Megacable	Teleholding S.A. (48.9%); Gupo Financiero Scotiabank (28.1%)	Cable, TV, broadband, telephony
MVS	HM Capital Partners, Familia Vargas, Bolsa Mexicana de Valores	
Nextel Mexico	NII Holdings (100%)	3G, Enhanced specialised mobile radio (ESRM)
Sky Mexico	Grupo Televisa (59%), News Corp (30%), Liberty Media (10%)	DTH
Telcel América Móvil	América Móvil (100%: América Móvil is controlled by Carlos Slim Helú and members of his immediate family, who, taken together, own a majority of the common stock of América Móvil)	Mobile
Telefónica Mexico (Movistar)	Grupo Telefónica (100%) owns a stake in GTM (see below)	Mobile
Teléfonos de Mexico (Telmex)	América Móvil (59.5%). AT&T keeps a relevant stake. América Móvil has the majority power to designate all board members. América Móvil announced a tender offer to purchase all outstanding shares of Telmex in August 2011 in order to obtain 100% ownership (pending regulatory approval)	Fixed-line telephony (local, domestic long-distance, international), data, broadband
Televisa (Since April 2011, 50% owner of Iusacell, pending regulatory approval)	Grupo Televisa (100%), owns Cablevisión (51%), Cablemás (100%), TV1(~50%), Sky (59%)	Broadcasting programming
Total Play Telecommunicaciones S.A. de C.V.	Grupo Salinas	Broadband, fixed-line telephony, cable
TV Azteca	Azteca Holding (56%), free float (44%)	Broadcasting programming
Uninet	Telmex (100%)	ISP (largest MPLS network in Mexico)
Other local and regional cable companies	Various ownership structures	Cable TV, broadband, telephony. Local and regional coverage

Source: Company and interview data.

- **América Móvil (Telmex):** Prior to 1990, Telmex was the monopoly incumbent. In 1990, Telmex (which was nationalised in 1972) was partially privatised through sale of a controlling interest to a consortium led by a Mexican conglomerate, Group Carso, which included Southwestern Bell and France Telecom as minority foreign partners. As part of the privatisation, Telmex was granted a Concession, which expires in March 2026.[3] The Concession allows Telmex to provide voice, data, text, sound and video transmission services. Notably, Telmex is not allowed to provide television services over its telephone/broadband network either directly or indirectly. Telmex was given a monopoly in the provision of long distance and international service until 1997, to allow the company time to achieve network expansion targets and "rebalance" its rate structure before new firms were allowed to compete with it. Telmex was required to expand the number of basic service lines by a minimum average annual rate of 12% during 1990-94. Telmex's Concession also contained conditions requiring an accounting division of fixed-line local calls and long-distance (international and domestic) calls; prohibition of monopolistic practices; an obligation to reduce the waiting period for repairs and installation, improve the quality of service, and improve services in rural areas (at least one telephone service to each town with 500 inhabitants or more by 1994); automatic switching services for all communities with more than 5 000 inhabitants; and 2 public payphones for each 1 000 persons (increasing to 5 per 1 000 persons by 1998). Telmex must also provide regulators with four-year working plans and is subject to specific price regulation based on a price cap system applied on the weighted average of a basket of regulated services. After 1995, automatic switching had to be made available in all communities with at least 100 requests for it, and improvements had to be made in quality of service, particularly regarding response to reported failures. AT&T is a minor but significant shareholder in Telmex, as a result of SBC participating in the privatisation process in 1990.
- **Axtel**, the second-largest fixed-line operator, has 5% of the fixed-line market. It offers local, long distance, broadband and data services, such as virtual private lines, dedicated private lines, frame relay and web-hosting. Axtel's business plan focused on competing with Telmex in local telephony by bypassing phone lines and using fixed wireless communications instead. In 1999, the company began operating in Monterrey, and expanded to Guadalajara and Mexico City in 2000. In December 2006, Axtel acquired Avantel, a provider of Internet protocol (IP) solutions to business, government and residential customers. Avantel brought spectrum in various frequencies to Axtel, as well as connectivity in 200 cities in Mexico. By 2007, Axtel had expanded its coverage to 20 of the most important Mexican cities.
- **Alestra** provides fixed-line telephony (local, domestic long-distance, international), corporate VPN services and broadband services. It was partly owned by AT&T up until the end of 2010.
- **Maxcom** was awarded a concession in 1997 as Mexico's first competitive fixed-line local and long-distance provider. The initial concession covered Mexico City and 100 other cities in Mexico, and has since expanded to allow for the provision of nationwide fixed-line local telephony service. Maxcom has a mobile virtual network operator (MVNO) agreement with Telefónica.

- **Marcatel** is a fixed-line operator that provides domestic and international long distance, pre-paid cards and dedicated Internet access. It has a 2 100-kilometre fibre optic network connected by switching centres in a number of Mexican cities and crossing the United States-Mexico border. The operator has concluded an agreement with Telefónica (Movistar) to operate as an MVNO using Telefónica's network facilities.

Mobile

Competition in the Mexican mobile market began in the 1990s. This market has been the main driver of telecommunications industry growth, growing at a compound rate of 40% over the period 1996-2009, compared to 20% for the OECD on average. Mexico lagged significantly behind other OECD countries in the development of mobile in 1996, so its high growth reflects a process of catch-up starting from a low penetration rate.

Cellular minutes per mobile user (with 165 minutes per month per user in 2009 and 191 in 2010) are relatively high in Mexico. There are four operators with national coverage (plus the Unefon brand, which is owned by Iusacell). These operators own a number of regional licences (numbering 84). The main mobile operators are listed below:

- **Telcel**, originally Telmex's mobile subsidiary, was founded in 1989, and is Mexico's largest mobile phone carrier with a 70% market share. Telcel is 100% owned by América Móvil. Telcel holds concessions to operate a wireless network in all nine geographic regions in Mexico using the 850 MHz, the 1700-2100 MHz (following Tender 21) and 1900 MHz radio spectrum. Telcel officially launched its 3G (850 MHz Band) service in February 2008. América Móvil is very active in the Latin American market and constitutes the leading mobile provider in countries such as Argentina, Colombia, Ecuador and Guatemala. It also offers fixed-line services in a number of those countries.
- **Telefónica (Movistar)** is the second-largest mobile operator in Mexico after Telcel. After ten years of operation it accounts for about 22% of the market in terms of customers and about 12% in terms of revenue. Telefónica possesses the 850 MHz spectrum, but not in all Mexican regions. This has made it harder for the company to compete with Telcel. Telefónica also holds spectrum in the 1900 MHz and 1700-2100 MHz bands (following Tender 21). It migrated from code division multiple access (CDMA) to the global system for mobile communications (GSM) in 2003-05. It jointly owns a fixed-line subsidiary (GTM) with around 0.5 million fixed lines, and owns one-third of the Grupo de Telecomunicaciones de Alta Capacidad (GTAC) consortium, which won the auction to lease CFE dark fibre.
- **Iusacell** was granted a 50-year concession to provide basic telephony service for select rural and suburban areas throughout Mexico in 1957. Its franchises cover more than 70% of the population. Iusacell operates a switched data company, Iusanet, and offers private line bypass through Satellitron with microwave facilities and fibre optic capacity, which is leased from the state-owned electricity monopoly *Comision Federal de Electridad* (CFE). In March 2007, Iusacell merged with Unefon, a wireless telephony operator focused on Mexico's mass market. The company has national coverage, and integrates the only two providers of wireless telecommunications services in the country with CDMA technology. In April 2011, Grupo Televisa, which has a 70% share of the Mexican free-to-air TV market, decided to purchase a 50% stake in Iusacell (pending regulatory approval).

- **Nextel** has attracted about 4% of the Mexican mobile market in terms of subscribers with most of its customers being post-paid business customers. This has resulted in a nearly 13% revenue-based market share. It began installing its 3G network in October 2010 after winning a spectrum bid (*BNAmericas*, 2011). In 2010, Televisa received regulatory approval to acquire a stake in Nextel and quadruple play appeared imminent. However, the Televisa-Nextel merger did not take place. Nextel is expected to proceed with its plans to provide 3G services in between 20 and 25 markets in Mexico by 2012. It is migrating its integrated digital enhanced network (iDEN) technology to 3G, and provides a distinctive push-to-talk (PTT) service. It obtains its numbering resources from its subsidiary Opcom.

Pay-TV (cable and direct-to-home)

There are 5.5 million cable television (CATV) subscribers in Mexico and approximately 46% of homes served by cable. Cable companies include Cablemas, Cablevision, Maxcom and Megacable. Televisa and Megacable have CATV market shares of 45% and 28%, respectively. Thus far, the participation of cable firms in the provision of telephony services is low at only 5.5% of total subscribers (June 2011). Competition in the provision of broadband services is greater, with 31% provided by cable companies. The strategies of cable companies mainly rely on bundling cable television services with telephony and/or broadband. Cable TV competes directly with the direct-to-home (DTH) pay-TV providers analysed below. Cable companies have also put pressure on the incumbent in the fixed telephony market.

The cable television market has undergone considerable consolidation changes in recent years. Grupo Televisa acquired Cablemas, Cablevision and TVI, among others. The consolidation wave has not merged operators in the same geographic area, with a few exceptions. The main cable companies are as follows:

- **Megacable** is the largest cable operator in Mexico, offering service in 48 major cities. In 2007, Megacable acquired a 50% stake in rival operator, Multioperadora de Sistemas, and in 2010 it acquired Omnicable.
- **Cablemas** is the second-largest cable television operator in Mexico, and has the broadest coverage, operating in 85 cities and providing telecommunication service nationally. It is now fully owned by Grupo Televisa, which has a dominant share in the broadcasting market. The company was the first cable operator in Mexico to offer a triple-play service, including cable television, high-speed Internet and IP telephony. Following the takeover by Grupo Televisa, some must-offer obligations were imposed by Cofeco in 2008 (see below).
- **Cablevision** is a cable operator founded in 1966. It provides cable television, fixed telephony and broadband services, as well as leased lines. It is owned by Grupo Televisa (51%) and covers 2.2 million households in the Mexico City area, where it is the largest cable operator.
- **Maxcom** is a facilities-based telecommunication provider that launched operations in May 1999, and is currently offering local, long-distance, data, CATV and IP-based services. In March 2006, Maxcom acquired Grupo Telereunion, which enabled it to expand its network. In September 2007, with the agreement of Cofetel, Maxcom moved into the mobile market via a reseller agreement (MVNO with Telefónica).

In connection with the pay-TV market, pay-television services provided over DTH platforms should be mentioned here, as they are in direct competition with cable-based pay-TV services (as of June 2011, DTH accounts for 47% of pay-TV subscribers). This market was historically dominated by Sky (Televisa), although this dominance has recently been shaken by the entry of Dish. Following an alliance with Telmex to retail Dish services, this low-cost DTH pay-TV provider has managed to acquire 2 million customers in only two years, representing nearly 40% of the DTH pay-TV market. As shown in Table 1.4, Grupo Televisa is by far the largest player in the pay-TV market as a whole (through its cable subsidiaries and Sky), providing domestic programming, an important input for pay-TV services.

Broadband

Broadband is the other principal driver of growth in Mexico's telecommunications market. Both cable modem and ADSL have continued to enjoy strong subscriber growth of 46% in 2007-09, stimulated largely by allowing the cable companies to enter the broadband market and compete with Telmex. There is significant scope for growth given Mexico's broadband penetration at 10 per 100 inhabitants, equivalent to 40% of the OECD average. Telmex (and other providers) only sell broadband bundled with a fixed line (despite the regulator's attempts to force unbundling of these services).

1.4. Development of competition

Competition has been slow to develop in Mexico. In the past, regulatory decisions encouraging competition have not been taken when necessary, and have been delayed and frustrated by regulatory capture and the legal system, including the use or abuse of *amparos* (legal injunctions). However, although much remains to be done, over the last few years there have been clearer and more forceful initiatives to improve the competitive situation in the telecommunication market.

Each market segment (fixed-line, mobile telephony, broadcast television, pay-TV and broadband) is dominated by a single firm with a significant difference in market share separating it from its closest competitor (Table 1.4).

Fixed-line market

The incumbent, Telmex, has a fixed-line market share of 80% (Table 1.4). A number of incumbents in several OECD countries have similar market shares, but this does not imply that the level of competition in those markets is similar to that in Mexico. Competition in many OECD countries has developed by providing new entrants the ability to access the incumbent's network, with due attention given to promoting infrastructure competition. Such competition has partly developed through service competition, using pre-selection and carrier selection for telephony, and through bitstream access, line sharing and full local loop unbundling. In some cases, unbundled lines may still compute as part of the incumbent's market share. To put this into perspective, the average incumbent's market share in fixed-line telephony in the European Union is 65% in terms of revenues, and 59% in terms of volume, far lower than that of Telmex.

Table 1.4. **Market share in Mexico's telecommunication market, May 2011**

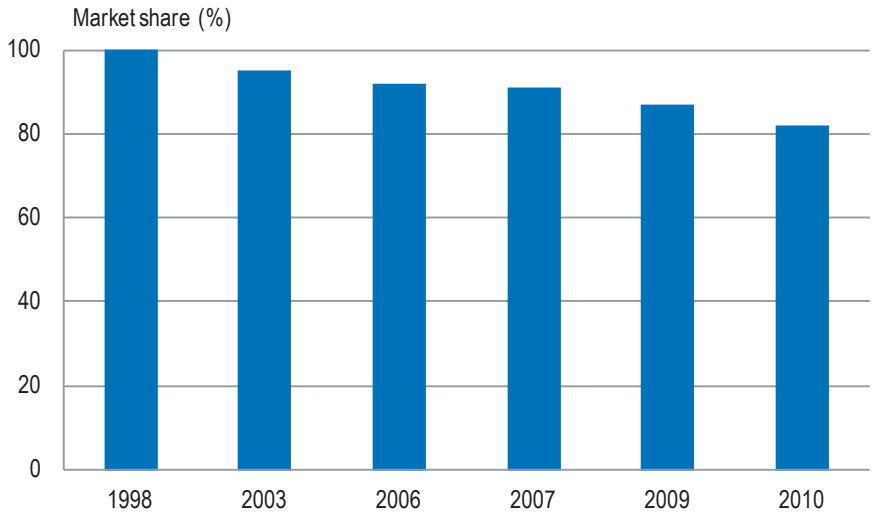
Operator	Fixed line	Mobile	Pay TV	Internet (fixed)	% total market share revenue
América Móvil (Telmex & Telcel)					
Market share	79.6%	70%		74%	66%
Revenue share	79.9%	69.2%		66%	
Telefónica					
Market share	2.4%	21.8%			7.1%
Revenue share	1.9%	12.3%			
Televisa					
Market share	2.1%		48.9%	6%	5.7%
Revenue share	1.4%				
Nextel					
Market share		3.8%			7.2%
Revenue share		13.5%			
Iusacell					
Market share		4.4%			2.7%
Revenue share		5.0%			
DISH			16.6%		
Others					
Market share	15.9%		33.6%	20.0%	11.3%
Revenue share	16.8%			28.0%	
Total	**19.6 million lines**	**91.3 million subscribers**	**10.2 million subscribers**	**11.4 million subscribers**	**USD 27 billion**

Source: Estimates based on submissions made to the OECD and company reports.

Broadband development has also led many Internet service providers (ISPs) in OECD countries to offer voice over Internet Protocol (VoIP) services, increasing competition in voice markets. Other means of access have not been implemented in Mexico, other than pre-selection for long distance and international service. From 1996 to 2009, growth in the number of fixed lines in Mexico averaged 6.2% per year. This is higher than the OECD average where fixed-line growth over the same period was negative, reflecting reduction in demand for fixed lines in 21 of the 34 OECD countries. Although there has been a decline in market share for Telmex, this decline has been very slow (Figure 1.4). The growth in fixed lines has also begun to decline steadily in Mexico from 13% in 2000 to zero growth from 2009, as has occurred in other OECD countries.

Despite earlier growth, penetration of fixed lines remains very low in Mexico. Fixed-line penetration has increased from 6 lines per 100 inhabitants in 1990 to 17.4 in 2010. This is well behind the OECD average of 37 per 100 inhabitants. Moreover, penetration is very uneven. The Federal District, the state with the greatest number of lines per capita, has a teledensity of 46.3 fixed lines per 100 inhabitants, while Chiapas and Oaxaca, the country's poorest states, have 5.4 and 7.2 fixed lines per 100 inhabitants respectively.

Figure 1.4. **Telmex's market share in fixed line telephony, 1998-2010**



Source: IMCO 2011.

Data on market share of long distance are not available, but long distance is providing a much lower share of revenues to operators, as in most OECD countries. Telmex's revenue structure with regard to local, long distance, Internet and other services has changed over time (Table 1.5).

Table 1.5. **Trends in Telmex's revenue sources (%)**

	1990	2000	2010
Local	31.6	45.8	36.1
Long distance	64.6	28.3	15.8
Internet	–	1.6	15.6
Other	3.8	24.3	32.5
Total	100	100	100

Source: Telmex Annual Reports.

Mobile market

The mobile market in Mexico grew at an annual compound rate of 40% from 1996 to 2009 compared to the OECD average of 19%. The high rate of growth also reflects a mobile penetration rate of 1 per 100 inhabitants in 1996, whereas the OECD average was 11 per 100 inhabitants. By 2009, Mexico's penetration rate was 78 per 100 inhabitants, compared to 102 for the OECD (Figure 1.5). The estimated penetration was 86 in September 2011.[4] The mobile penetration rate in Mexico was lower than in Latin American countries; for example, in Colombia it was 93%, in Ecuador 97%, in Venezuela 98%, in Brazil 101% and in Argentina 123%. Among OECD countries, Mexico has the highest share of pre-paid mobile subscribers: 88% of total subscribers compared to 43% for the OECD. Moreover, the number of cellular minutes per subscriber in Mexico is above the OECD average (the 7th largest of 32 countries), also higher than in other Latin American countries.[5]

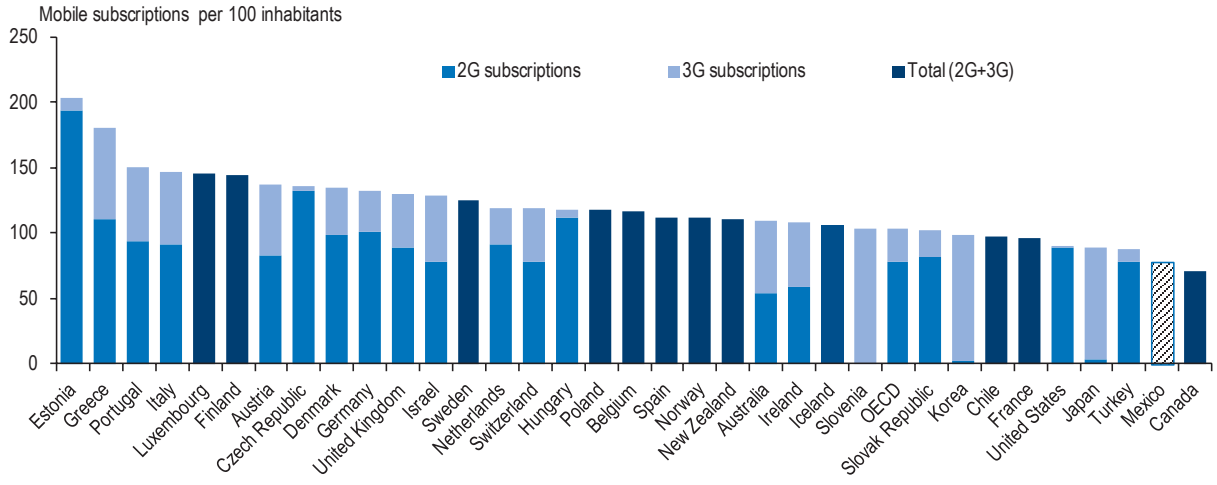
Table 1.6. **Market share of the largest mobile network operators in the OECD, 2009**

	Number of operators				
	1	2	3	4	5
Australia	37.4	30.7	25.7		
Austria	42.3	30.1	19.8	7.8	
Belgium	37.7	26.5	25.8		
Canada	35.7	28.7	27.4	8.2	
Chile	42.1	38.3	19.6		
Czech Republic	38.8	38.3	22.6	0.3	
Denmark	43.7	27.4	18.9	7.0	2.7
Estonia	28.2	16.2	13.2		
Finland	38.0	36.0	24.0	2.0*	
France	42.8	33.2	16.3		
Germany	36.2	32.0	17.5	14.3	
Greece	44.5	31.2	24.3		
Hungary	43.4	34.5	22.1		
Iceland	44.2	30.6	16.0	0.4	
Ireland	39.6	32.8	21.8	5.8	
Israel	34.7	32.0	29.1	4.2	
Italy	35.1	33.9	20.9	10.1	
Japan	48.4	27.5	19.0	3.5	2.3
Korea	50.6	31.3	18.1		
Luxembourg	51.2	34.7	14.2		
Mexico	**70.9**	**21.9**	**4.4**	**3.7**	
Netherlands	52.6	24.0	23.4		
New Zealand	52.3	49.1	4.0		
Norway	52.5	26.8	8.5	3.1	
Poland	31.3	30.6	29.5	7.7	0.5
Portugal	45.0	38.5	15.6		
Slovak Republic	52.6	37.3	10.0		
Slovenia	56.3	28.1	8.1	0.8	
Spain	43.6	30.4	20.4	2.5	
Sweden	41.5	32.0	16.9	8.4	
Switzerland	60.3	19.4	16.7	1.5	
Turkey	56.3	24.8	18.8		
United Kingdom	24.6	20.6	20.2	15.8	6.2
United States	32.0	30.0	18.0	12.0	9.0

* Includes subscribers for a small network-based mobile operator and two MVNOs.

Source: OECD (2011b).

Figure 1.5. **Cellular mobile subscriptions per 100 inhabitants, 2009, 2G and 3G**

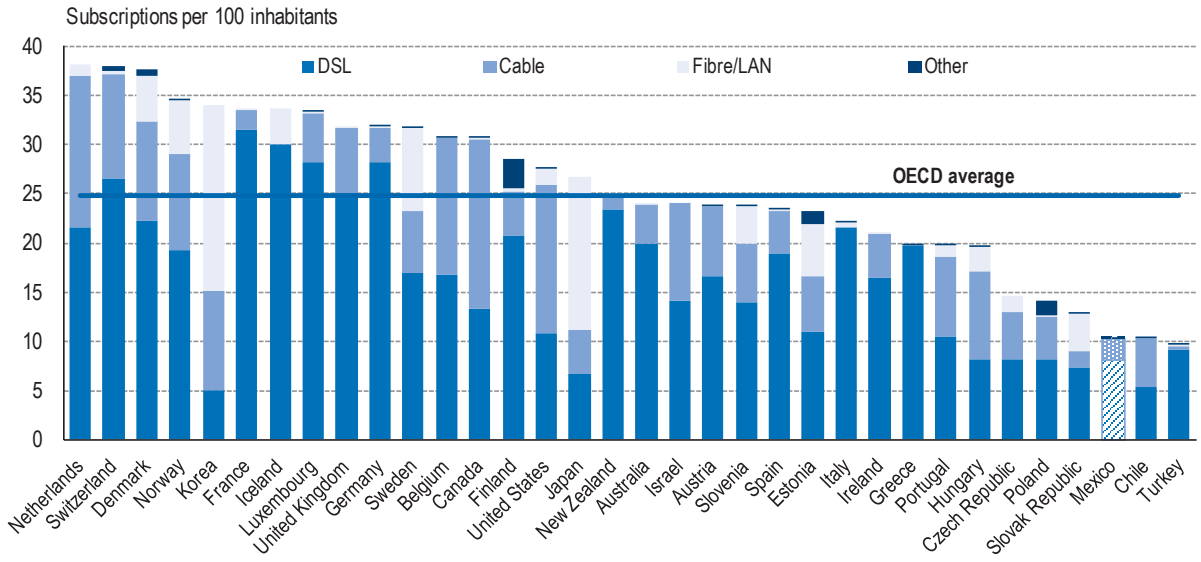


Initially, Mexico used the "receiving party pays" charging system for mobile, but switched to "calling party pays" in 1999. This led to a rapid increase in market penetration, from 8 per 100 inhabitants in 1999 to 14 in 2000. In mobile telephony, Telmex's sister company, Telcel, accounts for about 70% of subscribers, while the second-largest operator, Telefónica Movistar, has about 22% (and around half this figure in revenues). This represents a very low market share by comparison with other OECD countries (Table 1.6). Telcel provides a certain number of uncharged on-net calls, which creates difficulties for other market entrants to gain market share.

Broadband

The development of the broadband market started late in Mexico. However, given that it began from a low level of penetration, market growth rate has been high. In 2006, broadband penetration in Mexico was 2.9 per 100 inhabitants. By 2009, it was nine and by the end of 2010 Mexico had ten broadband subscribers (11.4 in June 2011) per 100 inhabitants, compared to 25 for the OECD (Figure 1.6). The Ministry of Communications and Transport (*Secretaría de Comunicaciones y Transportes*) has established a goal of broadband penetration of 22 users per 100 inhabitants by 2012. This is unlikely to be met, despite very high growth over the last two years (22.7% year to year in June 2010). The broadband market has the highest growth of all communication markets in Mexico, even though it suffers from a lack of competition, with Telmex still accounting for the majority of ADSL subscribers, which would not occur in a competitive market. The main cable TV providers, Cablemás, Cablevisión and Megacable, have begun to market triple-play bundles of cable TV, broadband and telephony and, as a result, their broadband subscriber base has continued to enjoy healthy growth through 2009 and into early 2010. However, cable modem technology accounts for just less than one-quarter of total subscriptions. There is significant scope for additional growth as Mexico's broadband penetration is less than half of the OECD average. Moreover, there is also scope for improvements in quality since speeds remain quite low relative to other OECD countries.

Figure 1.6. **Broadband subscribers per 100 inhabitants, December 2010**



Source: OECD Broadband Portal, *www.oecd.org/sti/ict/broadband*.

Other markets: pay-TV

The cable television market should be considered in conjunction with pay-TV services provided over DTH (satellite) technology. The only significant player until 2008 was Sky (Grupo Televisa), until Dish (owned by MVS) entered the market. Since then, the market dynamics have changed significantly. First, the market has expanded, as Dish has targeted a much lower income subscriber base. Dish reduced the number of channels in the bundle, and reduced prices by 70% (from MXN 500 down to MXN 150 approximately). This strategy has resulted in Dish gaining around 2 million subscribers in around two years. Crucial for this success was the Dish-Telmex partnership, which allowed Dish to sell its packages through the Telmex retail store network. Telmex also provides billing services and bundles a telephone line with Dish's DTH package (which can also be purchased separately). Competitors argue that the low-priced Dish/Telmex bundle is anti-competitive, that Dish is being subsidised by Telmex, and that Telmex's license prohibits it from providing pay-TV services. They have filed unsuccessful suits before the competition authority.

Price and quantity indicators

Price is one of the most important indicators of performance. In an efficient, effectively competitive market, prices (wholesale and retail) are driven down towards costs.

Competitive entry into the provision of long-distance and international services has led to pronounced decreases in prices in these markets across the OECD. Prices have also declined in Mexico; nevertheless, when benchmarked with other OECD countries, prices in Mexico are still high.[6] Fixed-line communication prices in Mexico remain among the most expensive among OECD countries. This is imposing a cost on consumers and is especially serious for the cost of business communications, in particular small and medium enterprises, which in Mexico represent the predominant type of enterprises. Price comparison of the OECD residential 140 calls fixed-line basket and the 260 calls business basket are shown in Figures 1.7 and 1.8.

Figure 1.7. **OECD residential 140 calls fixed-line basket, February 2011, VAT included**

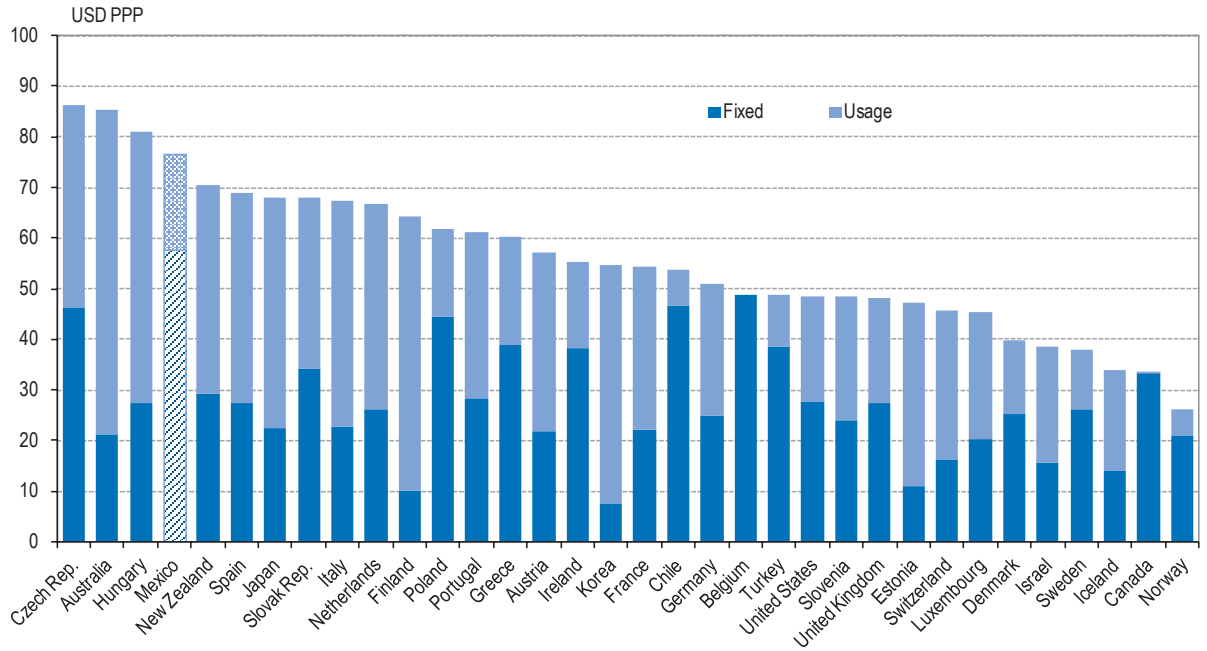
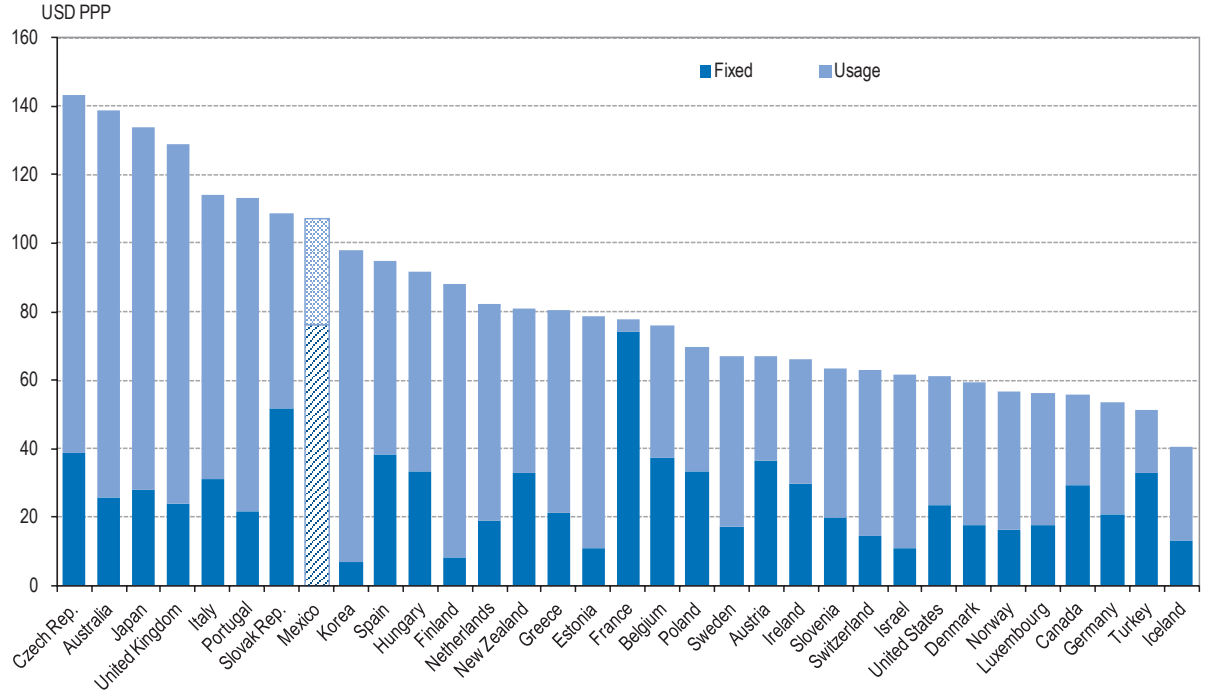
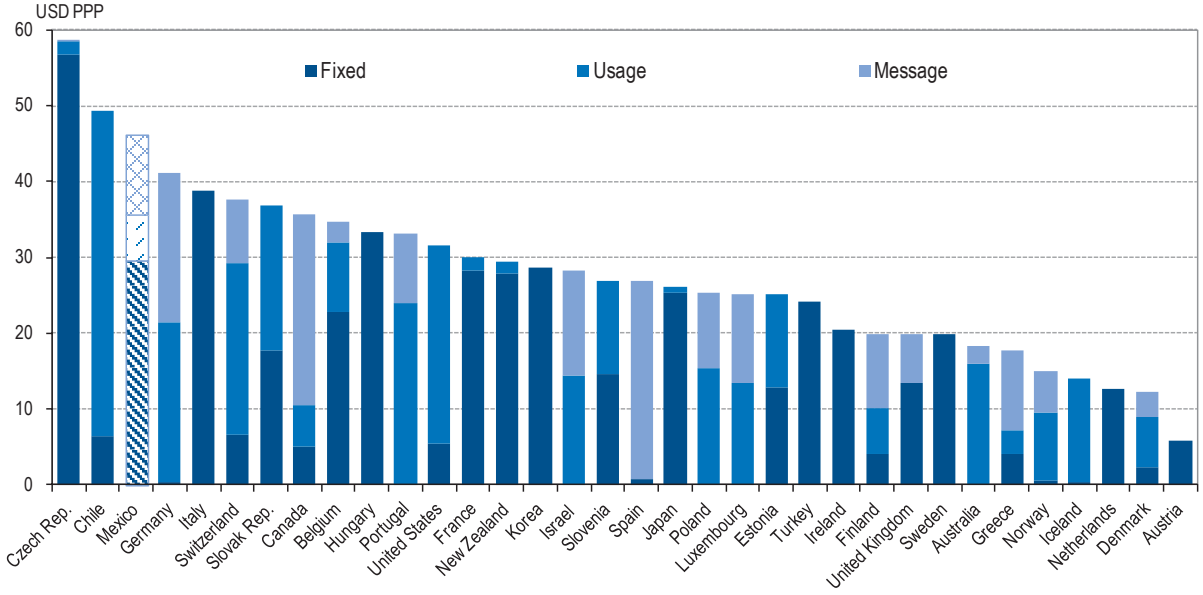


Figure 1.8. **OECD 260 calls business fixed line basket, February 2011, VAT excluded**



Prices for mobile communications are more in line with OECD countries and have improved in recent years, but are above the OECD average in all cases except for the low usage pre-paid and the 900 calls basket. Mexico's rank in the 100 call mobile basket is shown in Figure 1.9.

Figure 1.9. **OECD 100 calls mobile basket, February 2011, VAT included**



The relative prices for Mexico in the baskets, compared to the OECD average and the cheapest OECD country, are shown in Table 1.7.[7]

Table 1.7. **Mexican prices in the OECD price baskets relative to the OECD average and cheapest OECD country (based on February 2011 price baskets, USD PPP)**

	Mexican prices as % of:	
	OECD average	**OECD cheapest**
	Residential call baskets	
20 calls	124.44%	267.96%
60 calls	194.90%	312.54%
140 calls	137.27%	295.49%
420 calls	145.13%	450.79%
	Business call baskets	
100 calls	132.80%	248.03%
260 calls	130.00%	264.25%
	Mobile call baskets	
30 calls	132.50%	370.44%
100 calls	165.52%	798.96%
300 calls	109.51%	544.72%
900 calls	96.03%	628.16%
Pre-paid 40 calls	94.92%	338.19%

International mobile roaming

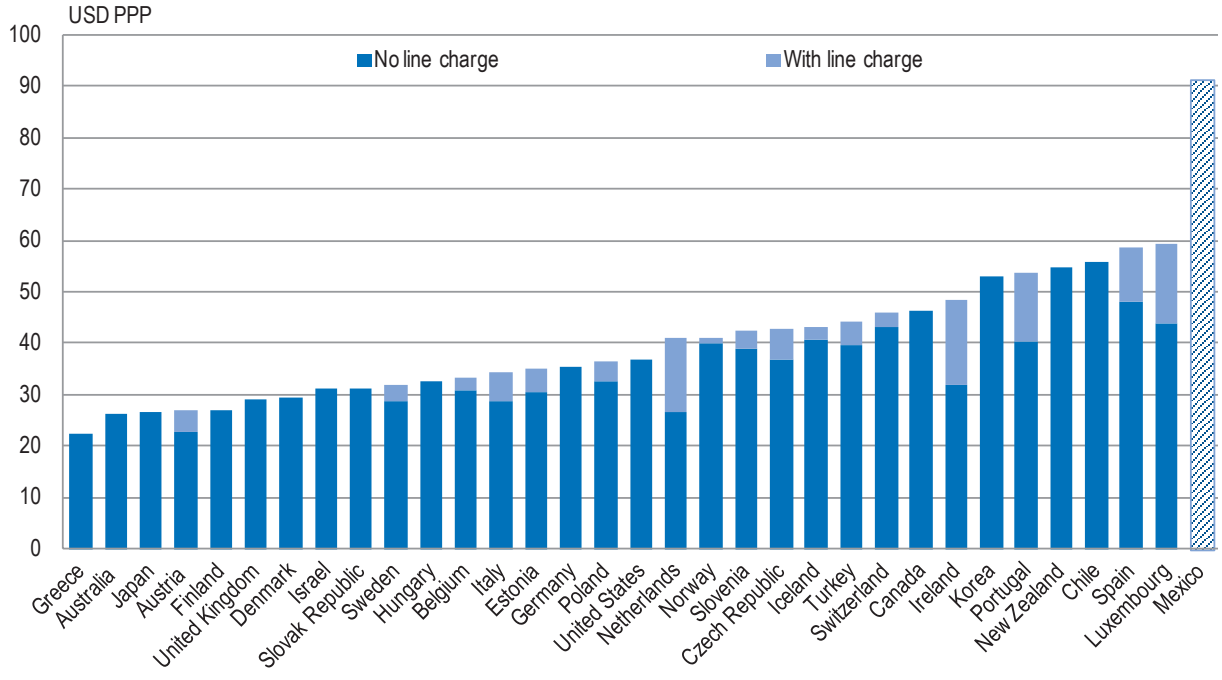
International mobile roaming service is one area where regulators in OECD countries have failed to increase competition and achieve reasonable prices for consumers and businesses. A series of OECD reports[8] have highlighted some of the structural problems, namely low consumer awareness of high prices and substitutes, bundled purchase with domestic services so consumers do not pay attention to roaming prices, and international jurisdiction issues, which make it harder to act on the wholesale rates charged by foreign operators.

Mexico is no exception, and international roaming prices remain extremely high. For example, a three-minute local call while roaming in OECD countries would cost a Mexican user USD 8.65 (OECD average – USD 6.76). International data roaming for a Mexican user would cost USD 66 (PPP figures) for downloading 5 MB of data (the OECD average is USD 41.5 PPP). These excessive prices are not justified by underlying costs. Mexico should begin identifying and addressing excessive international mobile roaming prices, especially among those on the most travelled routes.

Broadband

Broadband services are very expensive in Mexico and the speeds offered are very slow compared to the OECD average. The prices for an average monthly subscription for speeds between 2.5 and 15 Mbps (with and without line charges) are given in Figure 1.10. For speeds below 2.5 Mbps, Mexico is the fourth most expensive country in the OECD area.

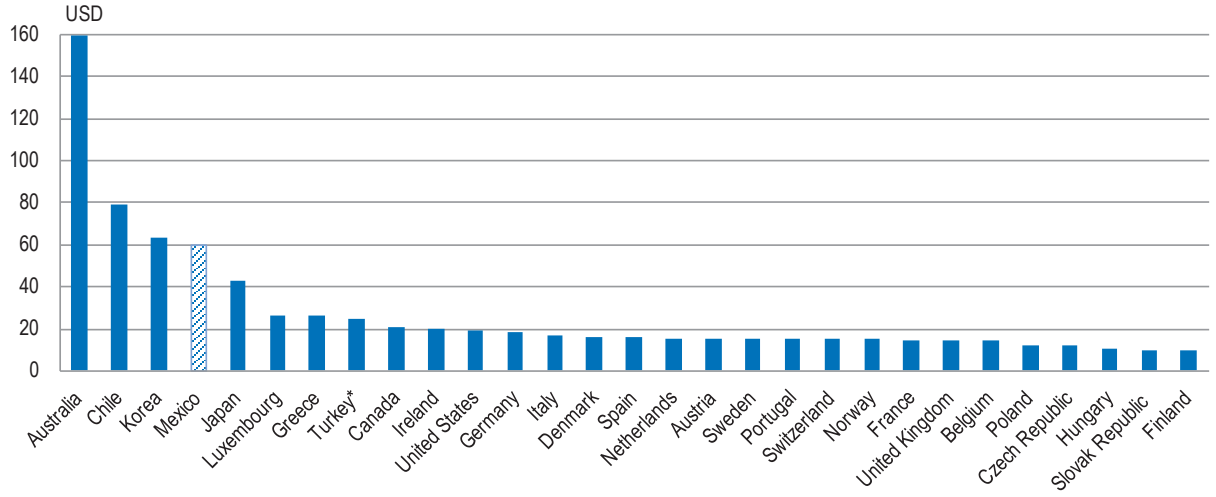
Figure 1.10. **Average monthly subscription for speeds between 2.5 and 15 Mbps, USD PPP**



Source: OECD (2011b).

Mexico is hampered by the fact that it lacks an Internet Exchange Point (IXP). In fact, it is the only OECD country without one. IXPs allow Internet service providers to exchange traffic domestically more efficiently and cheaply, rather than sending traffic outside the country then returning it to terminate it. An IXP allows for the exchange of traffic at a single point, reduces transit costs, eliminates cross-border transportation costs, and provides an incentive to create national content. Most IXPs have been set up as part of a co-operative effort by ISPs. The government should strongly encourage ISPs to set up an Internet exchange point. Small ISPs (including cable companies) have an interest in so doing, even if the incumbent is reluctant to join. In comparing IP transit charges among OECD countries for which data are available (29 countries), Mexico is among the more expensive with an average of USD 60/Mbps per month for a full-port STM-1/OC-3 (155 Mbps) international IP transit port (see Figure 1.11). While broadband prices reflect the price that domestic consumers pay to access the Internet, IP transit prices can be considered a reflection of the cost of Internet connectivity to the rest of the world. Some refer to IP transit prices as the wholesale price of Internet access. In countries with Internet exchanges, the price is an average of the offers available on the market for 155 Mbit/s of IP transit. In countries without an Internet exchange point, the price reflects the additional cost of connectivity needed to reach the Internet exchange point where IP transit service is available.

Figure 1.11. **IP transit prices, Q1 2011**



Note: Each price represents the average collected IPT price across all covered cities in each country.

*Data for Q1 2010.

Source: Telegeography.

Quality of service

Quality of service (QoS) has improved significantly in OECD telecommunication markets since the 1990s. This is the result of improvements in telecommunications technology such as digital switching and fibre optic cable. Digitalised networks allow, for example, greater reliability, faster connections and increased bandwidth. One such important development in Mexico was the replacement of Telmex's microwave long-distance network with fibre optic lines.

Telmex's concession requires publication of QoS indicators during the first quarter of every year. Every four years Telmex has to obtain approval of its updated indicators. If these requirements are not fulfilled Cofetel can recommend that the *Secretaría de Comunicaciones y Transportes* (SCT) impose penalties on Telmex. These penalties should be sufficient to provide an incentive for compliance. The changes in key service quality indicators that Telmex is required to meet are presented here (Table 1.8). The QoS data cover the period 1990-98; data regarding subsequent performance have been provided to Cofetel, but arguments of confidentiality have been used to prevent publication. Given the size of Telmex's network and the need to enhance transparency and public scrutiny, there is a strong case for publication of these data, as is routine in many countries. In its 2010 Annual Report, Telmex states that the time taken to install a line in 2010 was 5.8 days compared to two years in 1991, and that the percentage of fixed lines with faults has fallen from 13.5% in 1991 to 1.97% (Telmex, 2010). Other operators also have a requirement to fulfil a minimum number of QoS objectives. These should also be published.

Quality of service information for relatively less profitable areas (*e.g.* in rural regions) should also be published. Telmex, in proposing to channel rural lines through a separate company (Telmex Social), is acknowledging the importance of separating out rural data from urban data.

Table 1.8. **Telmex's quality of service 1990 compared with 1998**

Indicator	1990 (%)	1998 (%)	2000*	2003*
Local service				
Index of service continuation	80.2	91.4		
Percentage of call failure	10.0	2.8		
Repair within same day	45.0	80.4	74.3	98.2
Repair within three days	80.0	94.0		
Index of quality of service for basic service	91.2	97.8		
Obtaining dial tone within four seconds	97.0	99.9		
% of calls reaching destination	92.0	98.3		
Public payphones out of service as % of total	13.0	1.9	1.7	1.3
% of calls that are answered by the operator	90.0	92.6		
Long-distance service				
Index for quality of service for long distance	90.0	98.1		
% of calls that reach their destination	90.0	99.3		
% of calls that are answered by the operator	90.0	95.3		

*Data in columns for 2000 and 2003 are for Mexico as a whole and not necessarily specific to Telmex. However, as the largest fixed operator its data carry a large weight.

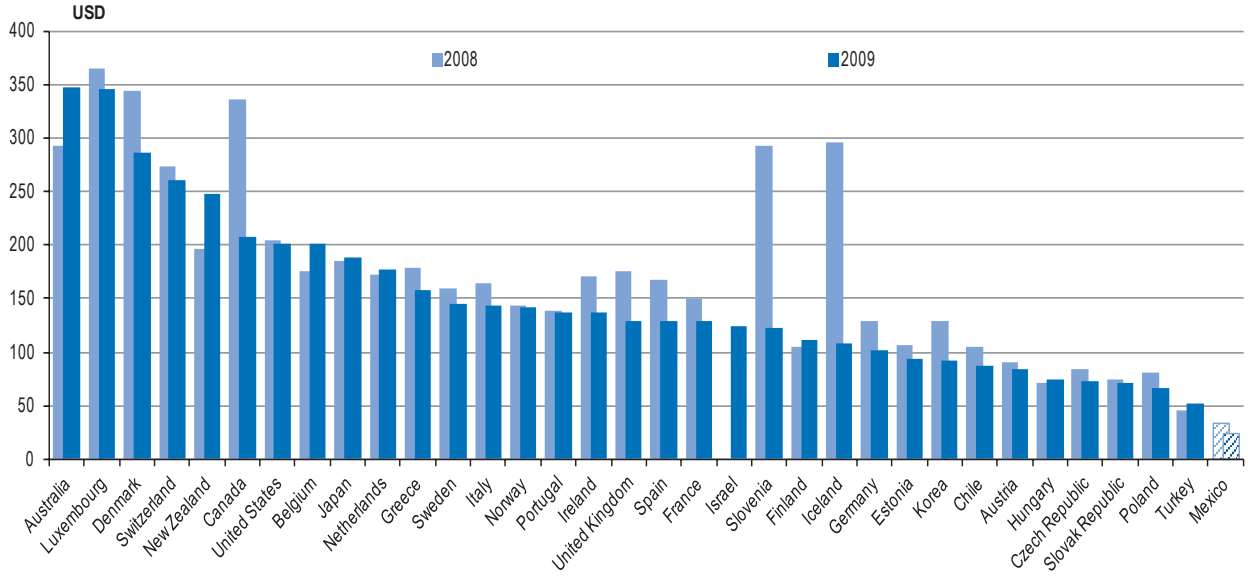
Sources: Telmex (1998); OECD (2001, 2005).

With regard to wireless telecommunications, technology advances allowing migration to 2G then 3G services have delivered significant improvements in quality of service across OECD countries. However, availability of spectrum may represent a constraint on further improvements, highlighting the importance of spectrum allocation and management policy. As noted earlier in regard to mobile quality of service, Cofetel approved the new Fundamental Technical Quality Plan of Local Mobile Service in February 2011. The published plan has now been officially adopted and calls for 11 indicators: four for voice, four for Internet and three for SMS. It will be obligatory to publish the data generated from this new scheme. In 2010, for the first time in 12 years, Cofetel proposed that SCT sanction operators for poor QoS delivery.

Network investment and modernisation

Public telecommunications investment has fallen off since the investment programme undertaken in the late 1980s and the early years of privatisation. Beginning at about USD 16 per capita in the late 1980s and increasing to about USD 24 per capita in the early 1990s, the level of investment fell to about USD 10 per capita in 1997, well below the OECD average. With regard to public telecommunications investment per capita, Mexico ranked last (Figure 1.12), whereas the pent-up demand and need for wider coverage would give rise to expectations of a more aggressive investment programme. The cumulative sum of public telecommunication investment per capita over the period 2000-09 amounted to USD 346, compared to the OECD average of USD 1 447. More recently, in December 2010, the SCT contracted the design and manufacturing of a fleet of three satellites (MEXSAT satellite system), with investment plans of USD 1.3 billion over the next three years.[9]

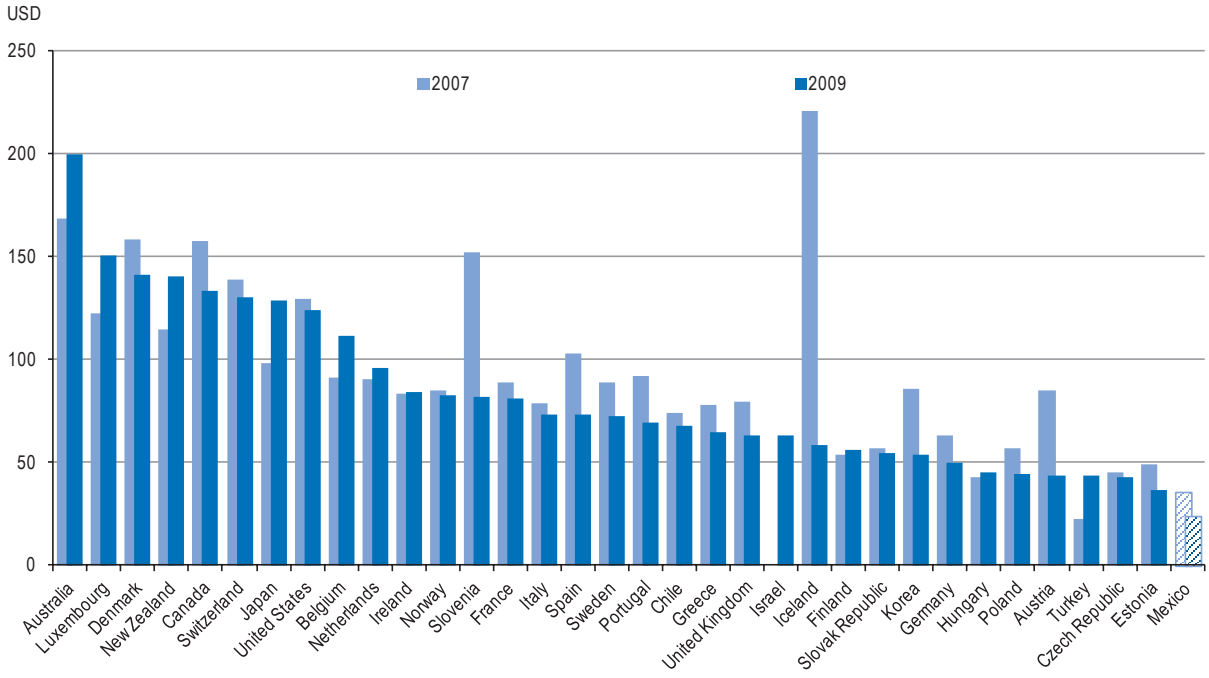
Figure 1.12. **Public telecommunications investment per capita, USD**



Source: OECD (2011b).

Another way of comparing investment levels is by telecommunication access paths. This provides an indicator of relative investment levels. On average, the investment per total communication access path was USD 95.7 in the OECD area. By contrast, Mexico's was USD 31.5, the lowest among OECD countries (Figure 1.13).

Figure 1.13. **Public telecommunications investment per access path in USD, 2007 and 2009**



Source: OECD (2011b).

Network investment and modernisation depends in part on profitability. The relatively low level of telecommunication investment contrasts with the high profit margins in Mexico, compared with other OECD countries. In 2008, Telmex registered an earnings before interest, taxes, depreciation and amortisation (EBITDA) margin of 47%, while the average margin for major operators in OECD countries was significantly less. For example, the average for Canada, France, Spain, Sweden, the United Kingdom and the United States was 28%. In 2008, Telcel, the major mobile operator in Mexico, reached an EBITDA margin of 64%, while the average margin for mobile operators in other OECD countries was 37.6% (OECD, 2009a).

Investment to upgrade broadband speeds

With the ongoing rise in demand for broadband, Telmex announced plans to drive fibre closer to consumers to deliver 20 Mbps speeds and compete more effectively with cable operators (Buckley, 2010b). Telmex currently offers broadband speeds of up to 5 Mbps, but has rolled out trials for its 10 Mbps broadband service. The trial will be developed in three Mexican cities. Telmex plans to commercially launch its 10 Mbps broadband service across Mexico over 2011. In recent months Telmex claims to have doubled the speeds available for its Prodigy service subscribers at no additional cost to customers. The upgraded speeds are currently provided to 95% of Telmex's 7 million broadband network users. Most of Telmex's 2010 investment budget of MXN 10 billion

(USD 765 million, equivalent to USD 7 per capita only) went on improvements to Internet service. Reportedly, Telmex is seeking to keep customers from switching to cable providers such as Megacable that offer triple-play services, including high speed broadband (Buckley, 2010a). Other operators may offer higher speeds (up to 100 Mbps), but they are largely focused on the corporate segment and/or are not widely available. Other reported investment figures were: USD 1.7 billion (MXN 23.4 billion) by Televisa in telecommunications infrastructure in 2010, USD 785 million (MXN 10.6 billion) by Axtel in 2010 to provide broadband services, USD 185 million (MXN 2.5 billion) by Maxcom in 2010, and USD 555 million (MXN 7.5 billion) by Megacable to improve the quality and speed of broadband services (based on companies' annual reports).

Notes

1. Fixed lines increased from 2005 to 2008 and then declined to pre-2005 levels in 2009.

2. In order to benchmark performance in the Mexican telecommunication market with other OECD members the data in this report uses the *OECD Communications Outlook 2011*, which provides complete end of year data for 2009 for OECD countries. End-of-year data for all OECD countries were not available at the time of drafting.

3. The concession was granted for 50 years from the date of the original concession, 10 March 1976.

4 . Estimate derived from Telefónica's publication of results for the period January-September 2011 (*www.telefonica.com/en/shareholders_investors/pdf/rdos11t3-eng.pdf*)

5 . This can be partly explained by the low penetration (and availability) of fixed lines.

6. As an example, Skype calls to mobiles are USD.336/minute for Mexico compared to USD.221/minute for Brazil and USD.229/minute for Chile.

7. Absolute price levels have been corrected to take into account the Mexican PPP (Purchasing Power Parity) index, which benchmarks prices against the countries' general consumption price level. While other metrics such as the average revenue per user (ARPU) or per minute (ARPM) may be useful to evaluate a firm's profitability, PPP prices are more relevant to assess relative price levels across countries as they take into account the purchasing power of Mexican consumers and businesses. Moreover, the application of the PPP methodology to telecommunications price baskets is an example of good use of the methodology.

8. See OECD (2009b and 2010b).

9. The project calls for an investment of over USD 1.3 billion over the next four years. The MEXSAT project expands its reach to provide countrywide broadband connectivity to be utilised by the Mexican Government Agencies. This SCT-led project is a government-wide initiative for the development of telecommunications and technology, by modernising the satellite communication infrastructure in Mexico.

   The MEXSAT program consists of three satellites: two to provide Mobile Satellite Services (MEXSAT 1 and 2) and one to provide Fixed Satellite Services (MEXSAT 3). Additionally the contract includes for two tracking, telemetry and control centres and communication gateways/teleports. The MEXSAT 3 will be launched in 4Q 2012 followed by the MEXSAT 1 in late 2013 and MEXSAT 2 in late 2014. A contract for launching services is expected to be implemented by the end of 2011.

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Chapter 2

Regulatory structures and their reform

Chapter 2 examines the design of regulatory structures, and the results of policy development and reform, in a relatively newly liberalised market. It reviews the interplay of a highly complex set of policy decision variables, including the impact of converging technologies, anti-competitive behaviour, consumer protection, pricing/quality issues, and next generation access.

The Federal Telecommunications Law (FTL), adopted in 1995, established the institutional basis and framework for policy and regulation of the telecommunication sector. Box 2.1 highlights the main clauses of the FTL. The FTL allocates responsibilities to the Ministry of Communications and Transport (*Secretaria de Comunicaciones y Transportes*, SCT), such as the power to grant licences (concessions) for market entry, and also to revoke those licences under certain conditions. The FTL also codifies the goal of promoting network expansion and universal service, in particular for rural areas. The law established the framework for the creation of a sector specific regulator, which was created by Presidential decree in 1996. The regulator, the Federal Commission for Telecommunications (*Comisión Federal de Telecomunicaciones*), or Cofetel, advises and reports to the SCT for most matters, including human resources and budget. Its responsibilities are to supervise, review and promote competition in the sector. Cofetel has some operational and managerial autonomy. Recently, the Supreme Court recognised greater independence for Cofetel in some matters (*e.g.* broadcasting issues).

Box 2.1. **Federal Telecommunications Law of June 1995: Main features**

- The SCT is responsible for providing licences (Article 11) for use of frequencies and public telecommunication networks. Licences may be granted for up to 30 years for public telecommunications networks or up to 20 years for spectrum (Article 27);
- Licences can only be granted to Mexican individuals or corporations. Foreign investment may not be higher than 49% except in the case of mobile services (up to 100%), permitted upon review by the Foreign Investment Commission (Article 12);
- Licences may be revoked by the SCT (Article 38) if the licence is not taken up within 180 days of being granted; if service is interrupted without just cause; if a licensee undertakes acts which prevent other licensee from carrying out their business; if the licensee does not comply with the obligations in the licence; if the licensee refuses to connect to other licensees without just cause;
- Holders of licenses to public telecommunication networks shall adopt open network structures to allow interconnection and interoperability of their networks (Article 41).
- Licensees shall reach agreement on interconnection within 60 days on any request, and if agreement is not reached Cofetel shall reach a decision within 60 days (Article 42', Article 9-A);
- Article 43 specifies that licensees shall allow access to services, capacity and functions of the networks at non-discriminatory rates; operate the connection at any exchange point or areas which are technically feasible and allow for collocation; and establish mechanisms to guarantee that the capacity and quality requested by other licensees is made available;
- Prices must be registered with Cofetelbefore coming into force (Article 61, Article 9-A) and licensees may not cross-subsidise services which are being provided in a competitive market;
- After Cofeco identifies that a licensee has significant market power in a specific market (Article 63), Cofetel may impose specific obligations on prices, service quality and information on that licensee; price regulation should aim at ensuring that each tariff allows recovery of long-term average cost.

A synopsis of telecommunication regulation in Mexico is provided in Table 2.1.

Table 2.1. **Synopsis of telecommunications regulation in Mexico**

Category	Regulatory restrictions	Notes
Entry regulations		
• Facilities-based carrier	Entry by obtaining a concession. The FTL allows for certain conditions and obligations to be imposed on concessionaires. Concessions specify network coverage and investment commitments.	No limit on the number of concessions, permissions or registrations
• Reseller (and MVNOs)	Entry on the basis of a permit	To date, no requests for permits for pure resale of fixed services have been granted.
• Value-added service provider	Entry on the basis of registration	
Line-of-business restrictions	Telmex cannot exploit, directly or indirectly, without the SCT's approval, any concession for broadcasting services to the public in the country. This restriction affect both free-to-air broadcasting services as well as pay-television services (Telmex concession, clause 1.9). Separate application and approval is required whenever a business plan is changed.	This provision in Telmex's concession does not appear to have been enforced for a period. Telmex acquired 49% of Cablevision in 1995 (at that time the largest provider of cable services in Mexico). This was a financial investment and there were restrictions on corporate relations. The Federal Competition Commission obliged Telmex to sell its stake (considered a financial investment, with restrictions in voting rights) in Cablevision in 2011.
Foreign ownership restrictions	No concessionaire can be majority foreign-owned, except in the case of mobile telephone services.	Limited rights shares do not count in calculating foreign ownership proportions (as happens with Telefónica's share in GTM).
Price controls		
• Telmex	Telmex is subject to a system of price caps that caps total average revenue allows flexibility on individual prices. The price cap allows prices to rise with inflation less a productivity factor. All prices must at least cover incremental cost. Price of residential local service should not be above its incremental cost (Concession contract 6.5). There are no similar limits on the price of commercial local services.	
• All operators	Prices must be registered (including retail, wholesale and interconnection charges)	All carriers' prices should be made publicly available on the Internet.
Interconnection controls	The obligation to interconnect is set out in the Telmex concession and the FTL. Prices are set by Cofetel within 60 days in the event of failure to reach agreement between the parties (based on a cost model). All parties must allow disaggregated access to services, capacity and functions of their networks, based on non-discriminatory rates, and must respect reciprocity of rates and conditions for concessionaires providing each other with similar services, capacities or functions. Interconnection is mandatory for all concessionaires.	

…/…

Table 2.1. **Synopsis of telecommunications regulation in Mexico** *(continued)*

Category	Regulatory restrictions	Notes
Market definition, assessment and imposition of remedies to dominant players	Section 63 of the FTL contemplates that if Cofeco issues a dominance declaration for a particular operator, then Cofetel could impose asymmetric regulation (remedies) regarding prices, quality of service and/or information disclosure requirements on that operator.	
Spectrum allocation	Spectrum is now allocated through auctions. The SCT issues spectrum licences and Cofetel runs the auction process and manages the spectrum plan. Cofeco approves requirements, including spectrum caps, for auctions and the Ministry of Finance sets spectrum fees.	
Infrastructure sharing (ducts, poles, antennas)	Various obligations surrounding facility-sharing were established by the Fundamental Interconnection and Interoperability Plan published on 10 February 2009.	Telmex, Telcel and Telefonica submitted *amparos* (legal injunctions), as a result of which several provisions of the Plan are suspended for Telefonica and Telmex.
Numbering policy	Rules for carrier pre-selection for long-distance and international service were established in 1996. Policies for local number portability were implemented in 2007 (being one of the first countries in Latin America to do so).	Call-by-call selection of long-distance carrier is not possible in Mexico.
Universal service	There are limited coverage obligations set out in the Telmex concession. New concessions include an obligation to discuss social coverage programmes with the SCT. Moreover, concessions specify network expansion and coverage commitments.	The Fund for Social Coverage has held one auction for universal service. Telmex won that concession through a reverse auction, receiving USD 80 million to expand coverage. A third project is being executed by Telecomm (public satellite operator) to connect 11 000 telephony and broadband sites.

2.1. Regulatory institutions

The SCT regulated the Mexican telecommunication sector until 1995. In 1996, a Presidential decree, as required by the FTL, created the Federal Commission for Telecommunications, or Cofetel, as a separate entity to SCT (*i.e.* with a certain autonomy), with responsibility for regulating and developing the telecommunications industry. The competition authority, *Comisión Federal de Competencia* (Cofeco), also oversees the sector, while the consumer protection agency, *Procuraduria Federal del Consumidor* (Profeco), has responsibility along with Cofetel to protect consumers. Strictly speaking, Cofetel is not an independent regulator. According to the Federal Public Administration Law it is hierarchically subordinate to the SCT. The Ministry of Finance (*Secretaría de Hacienda y Crédito Público*, SHCP) also plays a role in determining minimum prices for spectrum auctions and the prices for renewal of concessions.

The SCT

The *Secretaria de Comunicaciones y Transportes* (SCT) is the government ministry responsible for the telecommunications policy. The last 10 years have seen amendments to the Federal Telecommunications Law and the internal regulations of the SCT and Cofetel.

In April 2006, both the Federal Telecommunication Law and the Federal Radio and Television Law were amended. The powers relating to the vast majority of aspects regarding the regulation and sanction of matters pertaining to radio and television were transferred to Cofetel as a result of a Supreme Court decision. In telecommunication matters, SCT retains certain powers exclusively, in particular the power to grant or revoke concessions, although Cofetel provides opinions on these matters. Concessions are issued as licences to operators; each license stipulates the form of service the operator can engage in. The terms of the concession can be quite specific and operators need to adhere to the business statement submitted in the course of obtaining the concession. Any adjustments to the concession require the permission of SCT (and the opinion of Cofetel). Fining a concessionaire also requires an opinion from Cofetel. While the law and subsequent reforms provide the SCT and Cofetel with substantial powers, these either have not been used effectively or their use has been thwarted through the legal system by market participants, in particular the incumbent. In this context, the threat of licence revocation is the strongest tool available to the SCT and Cofetel (*vis-à-vis* all operators). A thorough review of whether the dominant players (Telmex and Telcel) are meeting their obligations should be undertaken but has not yet to date. However, the remedy for not meeting concession obligations, *i.e.* the revocation of a concession (which can be applied to any holder of a concession if they do not meet their obligations) may not be a credible action due to the consequences and, as this report highlights, other instruments are available to discipline market players.

Cofetel

The establishment of Cofetel in 1996 as a regulatory agency distinct from the SCT was an important step towards developing an independent and transparent regulatory framework in Mexico. Cofetel's role is to supervise, review and promote competition and efficiency in the development of the telecommunications sector. It is responsible for implementing regulations and technical standards; however, it is unclear whether it can also draft regulations (in this regard, it issues "fundamental plans" on some issues, such as QoS or interconnection, but it is unclear whether they are to be considered regulations). Cofetel is also responsible for resolving disputes between competitors regarding interconnection rates.

Cofetel is now the primary body responsible for broadcasting matters. As to telecommunication matters, it remains only an opinion agency subordinated to the SCT in matters such as granting, revocation, renewal and modification of the terms and conditions of licenses and permits, as well as on the imposition of fines among other subjects. The wide powers granted by the Supreme Court to Cofetel as regards the broadcasting sector (which include licensing) stand in stark contrast its weak position as a telecommunication regulatory body.

The current legal status of Cofetel is that of an *organismo desconcentrado* (literally, a "de-concentrated body"). It is directly dependent on the line Ministry (SCT), which approves its budget. Consequently, Cofetel has no legal status of its own – it relies fully on the SCT; it does not control its own budget, and has no autonomy. Moreover, Cofetel

lacks the power to sign international agreements, modify its organisational structure or directly submit regulatory proposals to Cofemer (Commission for Regulatory Improvement), which must be submitted through the SCT. The implication is that Cofetel is effectively part of the government. In this sense, Cofetel is unlike many of the telecommunication sector specific regulators in OECD countries, most of who have significantly more autonomy, as well as the powers to impose sanctions on firms and require them to adhere to regulatory decisions. Cofeco, the competition authority, has the same institutional status as Cofetel, but significantly greater powers and independence from the Ministry of the Economy. Cofeco can impose fines, require firms to change their behaviour, make decisions on practices considered as anti-competitive, and enforce those decisions.

Among the possible legal forms that Cofetel could take is the "decentralised body" (*órgano descentralizado*).[1] Examples of such bodies include the oil company PEMEX, and other publicly owned enterprises. However, this status is normally reserved for publicly owned enterprises, not sector regulators. A few Mexican public bodies have fully independent status or *autonomía constitucional* [complete autonomous body]. These include the Bank of Mexico, the Human Rights Commission and the Federal Elections Institute. In general, decentralised and autonomous bodies have their own legal status, budget and assets, and do not rely on government to make decisions. This full autonomy and lack of hierarchical or financial dependence on government brings them more in line with OECD best practice.

There has been a proposal to create a different category of public bodies, dependent on the President, and independent of any ministry, with the aim to reinforce the legal and budgetary independence of regulatory bodies.[2] Proponents of this initiative propose to amend the Constitution to create a new legal status for regulatory bodies. Congress is currently debating this proposal (since July 2011). However, this initiative also includes Senate ratification of appointments for these newly created bodies. This has raised some concern that such a move could further increase the political influence on Commissioners.

Cofetel needs similar powers to Cofeco to allow it to play a more effective role as an independent regulatory body. This would require legal changes. Essentially, as argued below, Cofetel should have the power to designate telecommunication operators as havingdominance in the market, powers to impose asymmetric regulation on dominant operators, powers to impose effective sanctions on operators for not meeting their concession obligations or for not adhering to regulations, and the power to impose regulations to protect consumers. Annex A compares the powers of Cofetel and Ofcom (the UK independent communications regulator) with regard to spectrum and other telecommunications issues. While it is true that Ofcom is arguably the regulator with most wide-ranging powers in the OECD – also possessing some competition-related powers – it can serve as an example of a different, and more efficient, institutional framework.

Cofetel also has insufficient budgetary independence. At present, its budget is set by the SCT, even though it obtains certain revenues independently, the most important of which are spectrum licence fees. Cofetel has the right to 35% of annual fees paid by spectrum holders (for monitoring purposes), as well as a percentage of the excess price paid in an auction bid. The latter percentage seems to be made available to Cofetel at the discretion of the Ministry of Finance. Following the last auction in 2010, Cofetel did not obtain additional finances from the Ministry of Finance.[3] While these fees are important in themselves, they are variable and are unlikely to remove dependence on the SCT.

There is therefore a need to identify an alternative source of funding. Many OECD countries impose a small levy on the regulated industry, which is then used to finance the independent regulatory agency. The Mexican Congress recently imposed a 3% tax on telecommunication operators, termed the *Impuesto Especial sobre Producción y Servicios* (IEPS), which could – at least partly – be provided directly to Cofetel. It is difficult to justify a specific sectoral tax, such as the IEPS, as it places a needless burden on the telecommunications industry unless used to support the sector in some form (universal service, the regulator, etc.). A far smaller levy provided directly to Cofetel would greatly enhance its budgetary independence. For example, a fee on telecommunication operators, which represented 0.1% of their revenues in 2010, directly finances the Spanish regulator (CMT).

Cofetel's independence is insufficient and does not accord with OECD best practice. This is because Cofetel's role remains largely consultative in many areas, and subordinate to the SCT in matters such as renewal, and modification of the terms and conditions of licenses and permits. Cofetel cannot impose fines on companies, but can recommend such action to the SCT. In fact, Cofetel lacks the power to carry out its mandate effectively to supervise, review and promote competition and efficiency in the development of the telecommunication sector. However, it should be acknowledged that it has had a number of opportunities in the past to use its limited powers to take action, but has not done so, pending appeals on Cofeco's decisions. This was the case when Cofeco identified Telmex and Telcel as holding a position of dominance in 2009 but did not take the initiative to subject these operators to asymmetric regulations until the third quarter of 2011, when it issued remedies to dominant operators in the leased lines market (currently the subject of a publc hearing at Cofemer). Cofetel feared that the courts might stop the process of imposing asymmetric regulation, as happened during a previous attempt that began in 2000.

The Mexican President appoints Cofetel's five Commissioners for an eight-year term with the possibility of re-election for a further eight years. A 16-year term is extremely long and consideration should be given to the establishment of two, shorter consecutive terms. However, court cases have been used in the past to block appointments of Commissioners. There is therefore a need for clearer guidelines to avoid disputes and too much political intervention. One way to ensure balance is to allow the government, the Senate and the Chamber of Deputies to each appoint a number of Commissioners. The Commissioners themselves appoint Cofetel's President.[4] All units of Cofetel report to and depend on the President of Cofetel, while the Commissioners participate only in the discussion and adoption of resolutions subject to the board of Commissioners.

The lack of regulatory powers is also a result of the present institutional design, which is complicated and lacks clarity in many aspects. This creates an uneasy division of responsibility between the SCT and Cofetel in terms of regulation of the communications sector. The consultative role of Cofetel has led to a practice whereby the SCT receives the opinion of Cofetel then often undertakes its own analysis. Once the SCT reaches a decision, Cofetel is responsible for its implementation. In other words, there is no clear division between policy formulation and regulatory functions. This is known colloquially as "the double window". This process has several negative aspects. First, it delays decision-making. It opens up both bodies to industry lobbying, and has led to confusion in the industry as to where responsibility lies. Second, it weakens regulatory decisions as it multiplies the chances of a potential challenger filing appeals against any of the numerous steps in the procedure. Successful challenges to decisions are widely perceived to be the result of such procedural issues (*e.g.* interconnection rates, additional use of

broadcasting channels, etc.). For example, for spectrum auctions four different agencies are involved: Cofeco, the Ministry of Finance (SHCP), SCT and Cofetel.

Removing the "double window" is a crucial step towards more streamlined and easily enforceable regulation, which is likely to deliver more coherent and homogeneous regulatory decisions. Furthermore, Cofetel needs to have full sanctioning power within the scope of its responsibilities. In this regard, a comprehensive sanctioning framework would serve as an important deterrent to misconduct. The responsibility and accountability for making decisions should belong to Cofetel, and Cofetel's decisions should be reversible only by the courts through judicial review, not through an intervention by SCT. As indicated, Cofetel is now the primary responsible body for broadcasting matters. For reasons of coherence in the converging communications sector but, moreover, to ensure implementation of effective telecommunication regulation and the development of a competitive telecommunication market, Cofetel should have similar powers in the telecommunication sector, which should be embedded in law.

In structural terms, the relationship between the different regulatory agencies supports a system that is relatively complex and fails to provide the desired level of market competition. Cofeco, the Federal Competition Authority, defines the markets and identifies dominant entities that warrant ex-ante regulation. The results of this analysis are sent to Cofetel and, based on the findings, Cofetel can impose specific obligations/ remedies on the dominant entity covering specific price obligations, quality of service and information requirements (Article 9A XI of the Federal Telecommunications Law). While some aspects of the regulatory regime work well (even if each decision is subject to challenge as described), this is more by chance than by design, with personal relationships being increasingly important for good outcomes. The institutional design is not optimal, preventing regulatory actors from performing efficiently where there is a weak or poor personal relationship between those regulatory bodies.

There is no reason why Cofetel cannot have the power to determine if a company is dominant and in which market, and take action accordingly. Most independent telecommunication regulatory bodies in OECD countries have this power. Its findings can be provided to Cofeco for its approval if necessary. However, given that Cofeco's finding of dominance for Telmex and Telcel were not acted on in the past, it is important that Cofetel shows it has sufficient independence, and that it would use its powers to create a more efficient market.

Cofetel has the responsibility to ensure that licensees comply with the obligations in their concession. These reviews, when undertaken, are submitted to the SCT, including a list of potential breaches of the law, so that the SCT may, in turn, commence the necessary administrative procedure to determine whether or not a license or permit holder should be sanctioned. Cofetel has not undertaken these reviews, even though there is evidence that some concessionaires are not adhering to their required obligations. Only recently has Cofetel intensified its activity in this regard by recommending that SCT impose sanctions. For example, Cofetel has issued several opinions recommending sanctions against Telmex for not providing interconnection to third parties. According to its concession agreement, Telmex is required to provide interconnection and, according to Mexican law, recidivist behaviour resulting in three sanctions in a row can start a process that could potentially lead to the revocation of a concessionaire's licence. However, as pointed out earlier, such license revocation is very unlikely to be applied.

Cofetel claims it lacks sufficient resources to undertake these reviews. Ensuring that licensees meet their obligations should be given priority by the regulator. In this context all concession titles should be made available on Cofetel's website for consultation. The SCT is required to obtain the written opinion from Cofetel to grant, revoke and extend the term of permits and licenses.

Cofetel has been criticised for lack of transparency.[5] Some progress has been made recently, for example, by publishing the interconnection cost model (at least the main elements thereof), establishing an Advisory Council (including academics, consumer bodies, industry, experts, etc.), and presenting 16 regulatory proposals to Cofemer. Further progress is both possible and necessary. It is important that Cofetel, to the extent possible, uses more frequent public consultation processes to help in its decision-making process. It would improve transparency if Cofetel would provide the information, economic and legal arguments for its decisions, explaining why alternative proposals have been rejected. The opinions provided by stakeholders during the consultative process should also be made available. Such transparency would also serve to reduce legal appeals. Another way to increase transparency would be to improve Cofetel's website to include more/better information, which is better organised to facilitate easy access. Much can be gleaned from the websites of other OECD telecommunication regulators in this regard. It is also important for Cofetel to have a "road map" clearly spelling out its goal for the creation of competition and an efficient telecommunications market. The August 2011 publication of *Acciones de Política Regulatoria, 2011-2012 (Initiatives of Regulatory Policy, 2011-2012)* is an important step in improving transparency and laying out a strategy to create market competition.

Cofetel should also work towards developing new internal rules and should ensure that they are met.[6] To do so, it needs the support and approval of the government (once again through SCT). This would enhance performance, foster the efficient use of human resources (including development and performance) and improve current working procedures. If these rules specifically and clearly elaborate the process and timelines to be followed by Cofetel for various regulatory initiatives it would help to create more transparency with the regulated sector. Market participants have criticised Cofetel for not responding to requests, not meeting deadlines, and not reacting sufficiently fast to complaints that potentially impose a cost on market participants if resolution is delayed. Furthermore, it is important not only that a sector-specific regulator acts independently, but also that it demonstrates its independence and that it is not subject to capture by the sector it regulates. In this context, the internal rules of Cofetel must clearly set out criteria for the hiring of staff to ensure they have no ties to telecommunication operators. Such criteria should also address their employment when they leave Cofetel. In the past there have at times been close links between staff and the companies they regulate. Cofetel should establish and vigorously enforce a clearly expressed and understood internal code of ethics that includes behavioural standards applicable when dealing with industry.

Steps to remove the "double window" and implement transfers of power to allow Cofetel to operate effectively need to be accompanied by greater accountability and transparency, as outlined above. Removing the "double window" also entails the danger of lifting of existing controls to avoid regulatory capture. This means that higher standards should be enforced pertaining to transparency and conflicts of interest in decision-making.

Comisión Federal de Competencia (Cofeco)

The Federal Antitrust Commission, Cofeco, is responsible for the general competition law that applies to all economic sectors, including the telecommunications sector. Cofeco therefore has the authority to take enforcement actions and provide competition policy advice, as in other OECD countries. In addition, the FTL explicitly gives Cofeco (in the terms laid down by the Federal Competition Law) the responsibility for determining whether a firm has significant market power, and thus authorises Cofetel to recommend the imposition of remedies (*e.g.* price regulation). Cofeco must also approve a firm's suitability to participate in spectrum auctions and, in this context, can determine the spectrum caps for an individual company.

Important amendments to the competition law were adopted in May 2011 that reinforce Cofeco's powers.[7] Improvements include injunctive authority; that is, during the course of an investigation and prior to making a ruling, Cofeco can require the suspension of certain practices or activities if they are related to an investigation. Cofeco is also now in a position to impose higher fines of up to 10% of a company's taxable income for engaging in monopolistic practices, and has the authority to undertake unannounced "dawn raids" to obtain necessary information.[8]

2.2. The regulatory regime

Market entry

The market entry requirements for telecommunication services in Mexico are set out in the FTL. The FTL requires that all facilities-based providers of telecommunications services obtain a concession before offering service. Non-facilities-based telecommunications service providers must obtain a permit, while value-added service providers can register. The concession system is the mechanism by which services, deemed to be "public services" by the Mexican constitution, may be opened to private entry. Concessions are transferable, but only after three years have elapsed from the date of issue of the concession. The incumbent, Telmex, has a much more stringent concession than other market players, given that it was the former monopoly and the concession was imposed as part of the privatisation process (see Box 2.2).

The issuance, extension and/or amendment of concessions and permissions and the registration of value-added service providers is carried out by the SCT on the advice of Cofetel, which undertakes the entire registration process. The FTL sets out the information that an application for a concession must contain. An application must include a statement of investment and coverage commitments; a business plan; and evidence of legal, technical and administrative capacity. If the concession is granted, the FTL requires that a concession must specify at least: the different services to be rendered by the concessionaire, the rights and obligations of the concessionaire, and the commitments regarding geographical coverage of the network. SCT must issue its decision on a concession within 120 days of the date of application. There is no limit to the number of concessions, except for wireless concessions, which depend on spectrum availability.

Box 2.2. Summary of the 1990 Telmex concession

The Telmex concession includes the following regulatory provisions:

Universal service and network expansion obligations

Between 1990 and 31 December 1994, Telmex was obliged to expand the number of basic telephone service lines by a minimum of 12% per annum.

- By 1995, the waiting period for basic telephone service was to be reduced to a maximum of six months. The maximum waiting period was to be reduced by one month in each subsequent year, down to one month in the year 2000.
- By 31 December 1994, Telmex was obliged to provide telephone service to every town with more than 500 inhabitants, and to increase the penetration of public telephone booths from 0.5 per 1 000 to 2 per 1 000, and to 5 per 1 000 by 31 December 1998.
- Rural telephone rates are not allowed to be higher than the price for basic telephone service.

Quality of service obligations

- The concession sets out a list of performance indicators and sets targets to be achieved for those indicators for each year before 31 December 1994. The indicators include lines with failure, same-day repair, public phones in service, failure reports and so on.
- From 1 January 1995, Telmex must submit quality-of-service goals each four years to Cofetel for approval.

Price controls

- The concession sets out a specific mechanism for controlling Telmex's prices, based upon a price-cap approach. The cap is established over the average revenue of a basket including local, long-distance and international services. The revenue is calculated using the quantities of the previous period. The cap allows adjustments for inflation, less a so-called "X" factor to encourage productivity improvements.
- For the period 1 January 1991 until 31 December 1996, the X factor was set at zero. From 1 January 1997 until 31 December 1998, the X factor was set at 0.74% per quarter, giving a real price reduction of about 3% per annum. From 1 January 1999, the X factor was set once every four years, based upon the report of a set of experts chosen by the company and Cofetel.
- In addition, for the period 1991-96, additional controls were applied to individual local service prices (the monthly rental and measured service charge). These prices had to be authorised by Cofetel.
- All rates must cover "incremental long-term cost". Telmex is not permitted to allow rates for local residential services to exceed the incremental costs for local service.

Controls on anti-competitive behaviour

- The concession explicitly sets out prohibitions against monopolistic activities, cross subsidies, tied sales and exclusive supplying.

…/…

Box 2.2. **Summary of the 1990 Telmex concession** *(continued)*

Rules governing interconnection

- Under the concession, Telmex is obliged to negotiate with other operators for the terms and conditions governing interconnection.
- The concession specifies that, in the event of failure to reach agreement, the terms and conditions can be set by Cofetel.
- Interconnecting parties are required to pay the costs incurred by Telmex necessary to establish interconnection.

The regulation of entry

- The concession allowed entry in all markets except for long-distance services. Long-distance services were reserved as a monopoly for Telmex until 10 August 1996. Competition with equal access for subscribers was scheduled to start 1 January 1997.

Other provisions

- In addition to the above, the Telmex concession sets out requirements with regard to accounting separation.
- The Concession provides for early termination by the SCT following administrative proceedings in the event of material and continuing violation of any of the conditions set forth in the Concession: *i)* material failure to meet any of the service expansion requirements under the Concession; *ii)* material failure to meet any of the requirements under the Concession for improvement in the quality of service; *iii)* engagement in any telecommunications business not authorised under the Concession and requiring prior approval of SCT; *iv)* following notice and a remedy period, failure without just cause to allow other concessionaires to interconnect their telephone networks to our telephone network; *v)* bankruptcy.

The FTL imposes upon Cofetel the obligation to scrutinise the business plan and legal, administrative and technical capacity of each potential entrant. In addition, the FTL requires that the concession set out the services the concessionaire can offer in addition to their obligations and coverage requirements. The FTL does not specifically limit what conditions can be set out in a concession; as such, concessions of new entrants may differ. In the absence of predetermined conditions, SCT (and Cofetel through its opinions) uses its ability to impose specific conditions on concessionaires as a mechanism for regulating the industry. Indeed, the use of conditions in concessions is probably the single most important source of its regulatory authority in the telecommunications industry. As noted earlier, reviews to determine whether companies are adhering to the conditions of their concession have not been undertaken. These are particularly necessary for the incumbent as many industry players claim that it has not met its concession terms. Non-compliance with the terms of a concession could risk sanctions or the withdrawal of the concession, so reviews provide a potentially powerful tool to ensure compliance, although as argued above, this sanction is unlikely to be applied – at least for the largest providers, including the incumbent.

A significant limitation on the use of concessions to control behaviour is the form of sanction. In Mexico, the FTL foresees that non-compliance with the terms of a concession could lead to the removal of the concession and the cessation of business. This is not a realistic option. Indeed, it would be difficult to find an example of such sanctions across the OECD. The law should be amended to allow for the imposition of some intermediate forms of financial sanction, large enough to prove a deterrent. Amendments to the law could also allow for the functional and/or structural separation of an incumbent with market power as a sanction for repeated non-compliance, as has happened in some OECD countries (*e.g.* United States, United Kingdom, Sweden, Australia, New Zealand). The FTL at present sets down provisions for sanctions for violations of its provisions.[9] The fines that can be imposed at present are quite low. They range from "2 000 and 20 000 minimum wages" for minor breaches to between "10 000 and 100 000 minimum wages" for more major offences, such as non-compliance with obligations regarding interconnection. With a minimum wage of MXN 59.82 in Mexico City, the maximum fine that could be imposed would be about USD 500 000. Penalties should clearly be commensurate with the infringement.

Prior to accepting applications for concessions, Cofetel has adopted the practice of asking operators to include some negotiated coverage commitments. For example, long-distance operators were required to commit to construct (at a minimum) a network joining at least three cities in three different states of Mexico. Wireless local service operators were required to commit to construct a network that covered at least 20% of the population within their region within three years and 50% within five years. In the case of mobile services new entrants are using scarce spectrum, therefore there is justification to impose build-out requirements on a concessionaire. For new entrants in the fixed or broadband market new entrants should not be subject to build-out requirements that could slow market entry.

To recommend the granting of a concession by SCT, Cofetel is required to review an entrant's detailed business plan and its technical and financial competency to provide the service described in the plan. If a firm decides to alter the configuration or capacity of any component of the network while building it, the firm must seek an amendment to its concession. The premise behind a concession review is that public oversight is needed to ensure that a carrier offers adequate service at reasonable prices. Careful reviews of entrants serve no valid public purpose when a market is competitive. However, they may act as an important barrier by slowing the process of entry and limiting the scope of entrants to react to market developments. In a competitive market, customers decide whether to patronize a new entrant. Government has no real competency to do a better job than the entrant and its potential customers in assessing the adequacy of the entrant's services. Thus, a concession process is unnecessary in such cases, and would force the agency to use its resources in unproductive ways.

The present process for granting concessions in Mexico is quite onerous and time-consuming. In addition, it is based on the "double-window" approach. Cofetel undertakes all the necessary procedures and spells out the concession requirements for a new entrant, and then the SCT has to review Cofetel's recommendations before deciding on whether to approve a new concession. Instead, a model of market access, based on notification/ registration should be sufficient for market entry purposes in the fixed communication sector, as long as new entrants can demonstrate that they have the necessary technical capabilities, and that they undertake to comply with the Law and relevant regulations. The Law itself and a body of accompanying regulations should be sufficient to regulate the market, while the rules and requirements would be similar for all players. It is

understood that a change in such market entry provisions requires an amendment to the FTL. Clearly, there needs to be asymmetric regulations for dominant market players to ensure that they provide access and meet other conditions imposed on dominant market players in OECD countries. Holders of scarce resources also need some controls that guarantee efficient use of these resources (*e.g.* spectrum), but the current market-entry model is clearly not efficient if all players need to obtain a concession.

Regulatory approaches

The complexity of regulatory approaches in Mexico is greatly compounded by the prevailing institutional structure for telecommunications. Currently the old adage that "too many cooks spoil the broth" seems particularly applicable to the Mexican market. The "double window" issue with SCT and Cofetel and the *de facto* duplication of responsibilities between the two authorities effectively means that any action or review conducted by one body is almost always replicated by the other. This is a huge waste of resources in the presence of a dominant operator that seemingly exercises its market power at will. Moreover, this procedural complexity leaves the door wide open for lawsuits (*e.g. amparos*) to be filed on procedural issues, and facilitates the success of dilatory practices. Furthermore, the reliance on Cofeco for significant market power (SMP) designations on defined markets removes Cofetel from a key part of one of its core duties. While Cofeco should certainly advise and provide input into the process, it would make more sense (and be in line with practice elsewhere)[10] if the agency responsible for oversight and remedies also functions as the agency that reviews the presence of market power.

The Mexican telecommunications market has the characteristics of a market in the early stages of liberalisation, in terms of market concentration, observable behaviour and outcomes. Regulation at this stage of a market's development should comprise simple instruments to allow and foster competitive entry. In the presence of dominance, the application of asymmetrical remedies are appropriate and can act to promote competition by restraining the market power, which would otherwise be used to constrain entry. However, Cofeco's findings of Telmex's and Telcel's dominance have been suspended by court appeals, and when possible have not been acted on by Cofetel. However, in September 2011, Cofetel issued a set of obligations for operators declared dominant in the leased line market (Telmex/Telnor). This decision establishes a set of obligations to be imposed on any operator (general obligation) found dominant by Cofeco, rather than based, as in the past, on a specific declaration of dominance. Cofetel believes that this will make its decision less subject to legal challenges. Whereas Cofeco issued some dominance findings in 2009, Cofetel only acted on them in the latter half of 2011. To date, asymmetric remedies have not been applied in the Mexican market, and symmetrical remedies in the presence of such enormous imbalances between entrants and incumbents may even do harm in certain instances.

A primary concern therefore must be for Cofetel to assume sole and unambiguous competence for all aspects of regulatory oversight, and for its powers to be clearly defined. Again, this would require legal changes and would probably be subject to court challenges. However, allowing Cofetel to undertake the dominance declaration and impose the related obligations would considerably reduce the window for possible legal challenges. Where regulatory agencies are "deconcentrated bodies" of different government ministries (as is the case with Cofetel and Cofeco), the need for clear definition of powers is even greater. For instance, Cofeco has the same institutional status as Cofetel, but significantly more powers and independence from the Ministry of

Economy. As such, it is able to impose fines and make decisions on practices considered to be anti-competitive and enforce these decisions. The regulatory body also needs to be free to do its job of implementing regulatory policy, as specified, without fear of political interference. While there is no demonstrable evidence of political interference in practice, the very fact of suspicion of interference acts as a constraint on sector development.

The current system of regulation, in particular the inability of Cofetel to impose an effective regulatory regime of asymmetric obligations on dominant operators, also means that smaller operators have to rely on competition law to an unreasonable extent, given the stage at which competition is developed. Cofeco is thus picking up the slack created by an inappropriate regulatory regime, which constitutes further inefficient use of its (and Cofetel's) resources. Cofeco oversees all sectors of the Mexican economy, but claims that as much as 54% of cases it has been involved with are telecommunication related. While such an emphasis on telecommunications is warranted and needed, this is precisely why countries establish specialised sectoral regulators: to ensure that processes move quickly and that entrants have the confidence and legal certainty they need before investing. While a Competition Authority is an important complement to ex-ante regulation, unless competition is very strongly established it should not be expected to act as a substitute.

Regulation cannot be implemented if decisions are not enforced, and suspending regulatory decisions can erode the process of developing effective regulation. This is one of the main barriers to competition in the Mexican telecommunications market.

Judicial review and suspension

In Mexico there are a surprisingly high number of appeals to the courts, which result in suspension of application of telecommunication policy and regulatory decisions. In a large number of cases, the courts annul these decisions. The scope, impact and frequency of such situations make Mexico a unique case in the OECD. Mexico's weak institutional framework allows telecommunication operators to make constant use of the legal framework to challenge the authority of Cofetel and the SCT, a process that usually results in the non-application of laws and regulations. In Mexico, the judicial review of government action is undertaken through the writ of *amparo* (injunction). *Amparos* are used for the protection of personal freedoms, but also for the judicial review of administrative actions. An *amparo* can lead to suspension of a decision if a regulation is considered to affect and cause irreperable damage to individuals or companies.

The indiscriminate use of *amparos* (by all operators) presents one of the greatest difficulties in promoting competition in the telecommunication sector in Mexico. Telmex and Telcel have managed to avoid asymmetric regulations by taking advantage of Mexico's *amparo* system and obtaining a judicial suspension for regulatory decisions that affects them or their resources. The use, or rather abuse, of the *amparo* has nullified and slowed decisions taken by Cofetel or SCT, as well as Cofeco. New entrants have also used *amparos*, but to a lesser extent and with far less harmful effect on competition than the incumbent. Nonetheless, Iusacell filed more than 100 *amparos* as a result of spectrum auction 21.

In other OECD countries, incumbents have used the court systems, much like in Mexico, to suspend and revert decisions. Their use proved particularly effective in the context of interconnection, when the regulator tried to impose lower rates. A suspension ensured that the incumbent obtained several years of higher revenue until the court took a decision. Suspension also benefitted incumbents by draining revenue from a new entrant that had to pay interconnection rates well above costs to terminate calls. This considerably

weakened their ability to expand in the market. Reform in legal processes across the OECD has led to most countries allowing a regulator's decision to stand if a market player goes to court until the court has ruled on the complaint. This reform has significantly reduced the number of frivolous complaints to the court in particular, but not only, concerning interconnection.[11] Even though countries still provide for injunctions in their laws, the burden of proof is on the plaintiff to show that suspension is necessary to avoid damage, or is needed to avoid an irreversible situation.[12]

Even if the party that filed the *amparo* loses the lawsuit, considerable delay occurs. For example, in 1997 Cofeco determined that Telmex had substantial power in five telephony markets: local telephony service, national long-distance service, international long-distance service, access or interconnection to local networks, and interurban transport. In August 1998, Telmex filed a series of *amparos*. After 10 years of appeals, the court ruled against Cofeco. Telmex has repeatedly filed *amparos* challenging the decisions of Cofeco and Cofetel. This abuse of *amparos* has frustrated and delayed regulation designed to promote competition in areas such as the consolidation of local call areas. Another such example occurred in 2009, when Cofetel established regulations for a framework on interconnection, which would apply to all market players. Telmex managed to suspend the framework to prevent it from being subject to its conditions. The judicial review is still ongoing. Table 2.2 provides an overview of the number of decisions subject to 94 *amparos* and suspended in 2010 and 2011, and the outcomes of the judicial process, which clearly indicate that a large number of *amparos* led to a denial of regulatory decisions. Annex A complements this information with the number of suspensions (*juicios de nulidad*) and judicial reviews. While the number of suspended decisions may seem low, the impact is enormous. First, legal injunctions may be filed at virtually every court in the country, and if only 1 out of 100 *amparos* is granted, it can stop an entire process, sometimes until the Supreme Court rules on the issue. Furthermore, a single, granted suspension may have a potentially greater effect (*e.g.* on the Technical Interconnection Plan), than several minor ones.

Table 2.2. **Number of denied and granted *amparos* following a suspension (on decisions of Cofetel)**

Regulatory decision	Denied	Granted
Key Technical Plan for Interconnection (PTFII)	7	
Auctions	38	1
Interconnection	24	3
National Calling Party Pays	2	
Quality Plan	1	
Registration of Mobile Phones (RENAUT)	12	2
Supervision	4	

Source: Cofetel.

The extensive use of the judiciary by market participants, and the fact that the judiciary take decisions on the substance of policy and regulation, has led to the anomalous situation whereby the judiciary defines fundamental telecommunication policy and regulation even though it has no expertise in the area. For example, in one of the Telcel-Axtel rulings the district court examined the financial/engineering model and ruled that certain parameters used by the SCT were incorrect (now under review by the Supreme Court). The question is whether the court should simultaneously make policy and act as a regulator. Certainly, the courts do not have the capacity to make judgements on interconnection charges per se, or on other issues related to the development of market competition.

The problem with the *amparo* process is not so much that decisions can be reviewed; regulatory decisions should be subject to judicial review and may on occasion require review on substance in a limited number of specific areas. The fact that appeals lead to a suspension of regulatory action and freeze or delay regulatory decisions should be avoided, as this undermines the timeliness and legal certainty that is vitally important in a regulated market. In every OECD country, important regulatory decisions are subject to judicial review, but that such decisions are suspended as a matter of course is virtually unheard of. Since legal processes are usually lengthy and resource demanding, telecommunication operators, especially incumbents, use this as a tool to delay, prevent or undermine regulatory decisions. Suspending a regulatory decision, especially in the context of decisions on interconnection prices could result in significant financial loss, and thus economic harm, to new entrants, and financial gain to the incumbent. This fact alone creates a significant incentive for the incumbent to appeal interconnection pricing decisions. In other OECD countries where such large numbers of appeals occur (even if these do not necessarily result in suspension), measures have been taken to restrict abuses. For example, Ofcom's remedy to ensure "real equality of access" led to the functional separation of the incumbent, British Telecom (BT); while Sweden pursued functional separation of its fixed-line incumbent after a prolonged period of regulatory stagnation due to a very large number of appeals.

One part of the problem related in particular, but not only, to interconnection charges, has been lack of openness and transparency on the part of Cofetel. In the past, Cofetel used an interconnection cost model, which was not being shared with market participants. A series of court cases resulted that have ultimately promoted a more open approach by Cofetel. There is a need in general to implement a more open and inclusive consultation procedure; one which is predictable and follows a well-defined process that not only allows the regulatory agency to reveal its thinking and methodologies at various stages of the regulatory process, but also permits all parties to participate constructively in the process. Such transparency should apply to all decision-making processes carried out by the regulator. More transparency by itself will not resolve the *amparo* problem but can reduce the number of complaints about inadequate administrative processes. Recent steps by Cofetel have moved toward greater transparency, for example, by following a consultation process for the interconnection cost model. In Mexico, it has become a common practice to file criminal charges and administrative complaints against Cofetel's Commissioners and staff (*i.e.* against individuals themselves) as a means to put pressure on them and create time-consuming disruptions. The legal framework should provide more protection for individuals when acting on behalf of a public authority (*e.g.* exercising regulatory powers).

The implementation of regulatory decisions in general, and the application of interconnection tariffs in particular, should not be delayed or stopped by appeals. In the experience of other OECD countries, allowing the regulatory decision to remain in force while an appeal process is underway has significantly decreased the number of appeals, reducing the incentive of incumbents to systematically appeal in order to prevent the effective implementation of regulatory decisions. If, after a lengthy review process, the court decides against a regulatory decision, its judgment can then be applied retrospectively.

It is also worth noting in this context that in many OECD countries the courts are prohibited from imposing specific solutions or remedies as an outcome of the appeal process, and are required to defer to the expertise of the regulatory body in regard to factual matters.

In May 2011, the Mexican Supreme Court issued a significant decision, which stated that, in the context of decisions by Cofetel on interconnection prices, these decisions could remain in effect until an appeal in Court led to the decision being rescinded. This decision moved Mexico closer to OECD best practice. However, it is necessary to embed in the law a requirement for decisions of the regulator to remain in force until challenged and overturned through a legal procedure, rather than the present situation whereby a legal procedure suspends the implementation of a decision. The Supreme Court ruling, while encouraging, can itself be overturned through a legal procedure in the future. It may be that there is also a need to create a specialised Federal Court that could at least limit the very wide (geographic) range of appeals and allow expertise and capacity building in the judiciary.

Delaying or stopping the implementation of interconnection tariffs is significantly harming competition for two reasons. First, as noted above, delaying the implementation of an interconnection price decision can impose significant financial costs in particular on new entrants, who may be in a fragile economic position as they build up their customer base. Second, the objective is to foster competition by imposing cost-based or "fair" interconnection prices. Suspending the decision of the regulator will cause harm to the market and the development of competition, and ultimately imposes a burden on users who have to pay high prices. Finally, strong incentive for litigation and personal lawsuits against the individuals in charge of issuing regulatory decisions ultimately degrades the timeliness and quality of regulatory decisions if they do not succeed in blocking them entirely.

2.3. Regulations and related policy instruments in the telecommunication sector

Many key steps have been taken to establish a pro-competition regulatory regime in the Mexican telecommunication sector (Box 2.3).

Box 2.3. Key regulatory decisions in Mexico

- In August 1990, the Secretaria de Communicaciones y Transportes (SCT) agreed to a new concession for Telmex, providing the company with a monopoly in domestic and international long distance until 1996.
- In October 1990, a new regulatory framework (Reglamento de Telecommunicaciones) was adopted which spelt out the SCT's responsibilities, and provided for the grant of new concessions in all areas except those reserved for the government.
- In 1993, the Foreign Investment Law enhanced foreign investment participation in the telecommunication sector. The changes permitted foreign investment of up to 49% ownership of operators of a fixed network and higher levels of foreign investment in cellular carriers, provided the investing party obtained a favourable resolution from the National Commission of Foreign Investment.
- In January 1994, Mexico entered into a free trade agreement with the United States and Canada (NAFTA). Chapter XIII of the agreement covered telecommunications, including accesss to and use of telecommunications networks, including private circuits on a reasonable and non-discriminatory basis.
- In July 1994, SCT published a resolution on the proper establishment of interconnection agreements between long-distance carriers and the incumbent. The same resolution created a schedule for the opening of equal access competition, beginning with 60 cities in 1997, and spreading to the whole country by 2000. The resolution also stated that interconnection would be cost-oriented and in line with international norms and benchmarks.
- In March 1995, the Mexican Constitution was modified to allow foreign private investment in satellite communications.
- In June 1995, the Federal Telecommunications Law (FTL) was enacted, replacing in large part the old "Ley de Vías Generales de Comunicación", which had applied since 1940.
- In 1995 and 1996, concessions were granted to new entrants for fixed domestic and international long-distance services.
- In 1996, the SCT intervened on the first interconnection dispute and issued a decision (Resolución).
- In 1996, a Presidential Decree established a sector-specific regulator, the Federal Telecommunication Agency (Cofetel), as mandated by law.
- In 1996, rules for carrier pre-selection for long-distance and international service were established.
- In January 1997, competition began in the long-distance market when 6 new carriers started operations.
- In December 1997, the Competition Authority, Cofeco, concluded that Telmex had "substantial market power" and in March 1998 it confirmed its resolution.
- In December 1998, Cofetel published a resolution setting out the interconnection charges to apply for 1999 and 2000. The resolution lowered interconnection charges and introduced a system of "calling-party pays" for mobile. In addition, Cofetel published rules for accounting separation, reductions to the number of local service areas, and a programme to expand national numbers from eight to ten digits, according to the basic numbering plan.
- In 1998, the spectrum auction (1.9 GHz band) allowed the entry of third and fourth players: Unefon, which later merged with Iusacell, and Pegaso, which was later acquired by Telefónica.
- In 2003, cable companies were permitted to offer Internet services (bi-directional signals).
- In 2005, Cofeco made an attempt to introduce spectrum caps for a spectrum auction. It was appealed and later rejected by the courts.

…/…

Box 2.3. **Key regulatory decisions in Mexico** *(continued)*

- In October 2006, the Convergence Agreement 2006 set out conditions under which telecommunication operators could provide pay TV, and broadcasters could provide telecommunications.
- In July 2008, Cofetel introduced fixed and mobile number portability.
- In 2008, the SCT ruled on the interconnection dispute between Axtel and Telcel, and Telefónica and Iusacell, reducing rates by 50%
- In 2010, Cofetel completed an auction of spectrum for 3G+ services. The awarding of spectrum was delayed due to lawsuits, and then awarded to the Televisa-Nextel alliance. However, further lawsuits resulted in the withdrawal of Televisa.
- In March 2010, Cofeco issued a ruling confirming that Telcel has substantial market power. However, the asymmetric regulation permitted by this finding has not occurred because of court appeals.
- In July 2010, the SCT modified CFE's telecommunication concession, allowing it to extend service coverage for its fibre optics network from 71 to 200 cities.
- In July 2010, unutilised CFE optic fibre was auctioned off to GTAC (a consortium comprising Megacable, Telefónica and Televisa), for MXN 884 million, enabling an alternative to Telmex's network infrastructure. GTAC would also be able to provide access to other operators.
- In August 2010, Cofetel auctioned 80 MHz of 1.7 GHz spectrum. The winning bidders were Nextlel/Televisa (30 MHz), Telcel (20 MHz in 7 regions and 20 MHz in two regions) and Telefónica (10 MHz in six regions).
- During 2011, Cofetel undertook to achieve significant decreases in interconnection tariffs for resale, fixed and mobile.
- In May 2011, Cofeco imposed a fine of USD 1 billion (MXN 12 billion) on Telcel for abusing its dominant position by overcharging for network access.
- In May 2011, the Supreme Court determined that regulatory decisions on interconnection may not be suspended through court appeals and amparos.
- In May 2011, Cofetel cut fixed termination rates by 70% (from USD 0.01 to USD 0.003) and decreased long distance termination rates in rural areas by 95%.
- In June 2011, Telmex was fined USD 86 million (MXN 91.5 million) for denying Movistar access to its fixed network in 2007 and 2008.
- In June 2011, per second billing adopted for interconnection only.
- In July 2011, Cofetel published the Fundamental Quality Plan for Mobile Networks.
- In September 2011, Cofetel started the process of public consultation for asymmetric regulation on dominant operators in the leased lines market.
- In September 2011, Cofetel started a public consultation with industry about the terms of a Reference Interconnection Offer for the fixed incumbent.
- In October 2011, Cofetel launched MiCOFETEL (*www.micofetel.gob.mx*), an interactive website dedicated to QoS and consumer issues, and the SIET (information system for telecommunications market statistics).

Ex-ante *regulation*

It is evident from benchmarking Mexico with other OECD countries that there is significant scope for improvement in the development of communication services and, in particular, high-speed broadband. In order to develop this market rapidly it is important that Cofetel be in a position to declare certain facilities as bottlenecks, and establish non-discriminatory conditions for access to these essential facilities. Access rules should be established in a clear and precise manner through legislation in order to avoid inefficient judicial review. In most OECD countries, regulation of the telecommunications sector usually includes *ex-ante* and ex-post (competition law) regulation. The aim of *ex-ante* regulation is to prevent a dominant operator from engaging in anti-competitive practices, which often include predatory pricing, margin squeezing, unfair bundling and various "deny, delay and degrade" tactics in the provision of essential wholesale access products to new entrant competitors. The concern is that the dominant firm can leverage its market power to gain advantage in areas where it is subject to competition. The rationale of *ex-ante* regulation is that *ex-post* regulation, on the basis of general competition law, is insufficient to address market failure and concerns over abuse of market power, or to achieve policy objectives.

With regard to telecommunication supply, *ex-ante* regulation should focus on those elements that constitute "enduring bottlenecks". In this context, an enduring bottleneck is defined as a network element or facility that exhibits natural monopoly characteristics, and is essential to the capacity to provide services to end-users in downstream markets in a way that promotes their long-term interests. In other words, duplication of the network element would result in a loss of efficiency greater than any competitive gains that duplication might achieve. An enduring bottleneck may also arise in circumstances where an access seeker must purchase access to a particular service in order to ensure the any-to-any connectivity of its service for end-users. The regulatory regimes of all OECD countries include access regulation[13] intended to promote either service-based or facilities-based competition. Access regulation is also necessary in Mexico to overcome the problem of bottleneck facilities, although implementation will face challenges from the institutional and legal perspectives.

In the case of Mexico, non-competitive local areas (*i.e.* areas where new entrants lack facilities and require interconnection from the incumbent to terminate calls) could be considered as bottleneck facilities. In general, the local loop of the incumbent could also be declared as a bottleneck facility, allowing access by new entrants. Passive infrastructure, such as ducts and poles are also usually considered as bottleneck facilities. As discussed below, the inability to mandate – or at least set out- reasonable conditions for infrastructure sharing – is arguably one the main bottlenecks preventing competition.

Access regulation: wholesale broadband access

Wholesale broadband access (WBA) products can provide bitstream access using the current copper access network (based on local loop unbundling (LLU) remedy from the Wholesale Local Access market). WBA products offer a new entrant the opportunity to enter the broadband market without the need to deploy its own access network. WBA products require only a limited number of interconnection points to provide nationwide coverage. As such, WBA products can be used by new providers entering the market or providers wishing to offer services in exchange areas where they have not deployed their own access network. In view of the economics of providing full national coverage, by

deploying alternative access networks or via LLU, some providers, except the incumbent, are likely to be dependent on WBA products to provide service on a national basis.

With WBA, however, the WBA product provider controls customer access, allowing far less scope for innovation by the interconnection provider than it could achieve by deploying its own network. Differentiation can be offered only at the services level. Although local loop unbundling is more costly for alternative operators, it gives alternative operators broader control of the service, with the ability to adjust it to the specific needs of end-users. When establishing unbundled access to parts of the incumbent's network, the authorities should ensure that the incumbent retains sufficient incentives to maintain the network, and that viable projects to build new infrastructure are not put at risk. It would be highly useful to establish legal regulation of interconnection tariffs and tariffs associated with unbundled network access, based upon long-run incremental costs. Nationwide offers, other than those of the incumbent, are crucial to guaranteeing customer choice in areas served only by the incumbent's infrastructure. Regulated WBA serves the purpose of avoiding abuse in those areas, by allowing entrants to enter the market in regions/towns without a network footprint. It can also create certain economies of scale/scope for new entrants (*e.g.* possibility of national marketing, etc.).

Asymmetric regulation

In most OECD countries, as well as in many non-OECD countries, asymmetric regulation is applied to dominant telecommunication operators. It is also common practice outside the OECD. For example, under the European Commission's regulatory framework, if any operator is found to have Significant market power (SMP) in a particular market, the regulator is obliged to consider application of regulatory remedies to address potential anti-competitive behaviour, prevent abuse of SMP, and/or promote competition. Such remedies can include the requirement to provide network access on reasonable terms, to publish a reference offer setting out prices for interconnection, delivery times for requests for facilities and other facility elements, and other conditions such as penalties for non-compliance. In the European Union, the Access Directive [Directive 2002/19/EC] allows the regulator to ensure end-to-end connectivity by imposing obligations on undertakings. This follows up on earlier directives that require entities with SMP to be subject to transparency requirements, non-discrimination, accounting separation, and access and price control including cost orientation. The Access Directive allows the regulator to impose a requirement on SMP entities to publish a reference interconnection offer that is sufficiently unbundled, so that other companies do not pay for facilities they do not require. In addition, the regulator is given the authority to impose changes on the reference offer. Similarly, OECD countries have set down clear guidelines to allow regulators to determine if an entity has dominance, or entities have joint dominance in markets, requiring regulatory intervention.

Asymmetric regulation has not been applied in Mexico, despite the fact that on two occasions (see Box 2.4) Cofeco declared Telmex to be dominant in the fixed line market, and in 2010 found Telcel to have substantial market power throughout the country. Cofetel needs to act promptly in putting forward asymmetric regulations, even where the potential exists for injunctions following Cofeco decisions.

Box 2.4. **Notification of significant market power in Mexico**

- December 1997. Cofeco puts forward a preliminary declaration that Telmex has significant market power in five relevant markets: basic local telephony, access (interconnection services), national long distance, international long distance, and inter-urban transportation.
- February 1998. Cofeco confirms its preliminary resolution, but Telmex appeals and the trial lasts until May 2001.
- September 2000. Cofetel imposes on Telmex specific obligations regarding tariffs, quality of service and information in accordance with those stipulated in the LFT, based on Cofeco's February 1998 ruling.
- December 2000. Telmex appeals the legal rulings of Cofetel, obtaining a suspension of the procedure and a delay in the implementation of obligations.
- May 2001. Cofeco issues a new declaration for Telmex as an operator with SMP in five relevant markets: basic local telephony, access, long-distance national, inter-urban transportation and long-distance international. Telmex appealed the resolution.
- July 2002. A legal ruling in favour of Telmex is issued and the SCT considers the obligations of dominance proposed by Cofetel null and void.
- April 2004. The court orders Cofeco to issue a new ruling on the SMP of Telmex. Cofeco does so in September 2004 and Telmex appeals. In 2007, Cofeco's declaration is annulled by the court.
- In 2009, Cofeco issues decisions declaring Telmex to be dominant in four markets. Again Telmex appeals. Cofetel has not acted on the declarations in the interim.
- In January 2010, Cofeco issues a ruling confirming that Telcel has substantial market power in mobile markets throughout Mexico. No practical steps have been taken so far to impose asymmetric regulations.
- In August 2011, the Supreme Court ruled that Cofeco should examine the submission of Telmex/Telcel in its dominance declaration.
- In September 2011, after Cofeco re-issued the dominance declaration of Telmex/Telnor for the leased lines market, Cofetel launched a process to impose competition remedies (obligations).

The lack of any dominance obligations has implications at various levels:

- Telmex does not provide a reference interconnection offer (RIO) to operators. This RIO approach, which is followed in many OECD countries, has over time allowed interconnection to move from an acrimonious debate to a more transparent and easier process for new entrant competitors. It also ensures that non-discriminatory interconnection charges are applied and avoids the need for bilateral negotiations between the incumbent and operators.
- Up to recently, there was no direct interconnection with Telcel. Interconnection occurred indirectly through Telmex, which provided the transit function, thus increasing costs for operators and for end customers. This has recently changed, but represented an important bottleneck for operators terminating calls on Telcel's network.
- The higher costs to terminate calls in the so-called non-competitive local service areas, basically because of the refusal of Telmex to provide interconnection at a point which an entrant requests, ultimately imposes a cost on users. It is not clear to what extent this is consistent with non-discriminatory provisions in the Telmex concession.

Various regulatory measures commonly applied in OECD countries, but absent in Mexico at present are detailed in Table 2.3. Some of them, like local loop unbundling, may be very challenging to implement under current arrangements and due to the complexity of Mexico's institutional and legal framework.

Table 2.3. **Regulatory measures being applied in OECD countries but absent in Mexico**

Service	Common regulatory measures in OECD countries and elsewhere	Key issues	Mexico
Access services			
Leased lines	Available. Must be offered under EC recommendations and national regulatory rules. Incumbents usually offer a service level agreement.	Competition in business districts, or remote geographic locations.	Available on commercial terms, but price and other terms not regulated.
Wholesale line rental	Available and regulated although with some exceptions.	Retail minus or cost-oriented regulation.	No regulations exist.
Bitstream access	Widely available and regulated.	Evolution to next generation access.	No regulations exist.
Local loop unbundling (LLU)	Available. Required under EC recommendations and national regulatory authority rules.	Facilitate access through cost-orientated LLU.	No regulations exist.
Transmission links to international cable landing stations	Available and regulated.	Interconnection and access regulation in monopolies.	No regulations exist.
Ethernet access and leased lines-based IP VPN services	Available and regulated.	Geographic market definition, increasingly competitive services.	Available based on a commercial (retail) provision basis, but unregulated.
Dark fibre	Generally commercially available and regulated duct access.	Passive access remedy.	Not regulated, but commercially available.
Pole or duct access	Available and regulated in particular for NGA.	See above.	No regulations (at least with a positive impact) exist.
Accounting separation	Available.	Helps guard against anti-competitive cross-subsidies.	Exists but compliance not vigorously monitored.
Functional separation	Available as measure of last resort in European Union.	Would help achieve "equivalence of inputs."	No regulations exist.

2.4. Regulation of interconnection

It is generally recognised that a satisfactory interconnection and access regime is indispensable to the development of a thriving, competitive telecommunication sector. The relevant arrangements will include two-way and one-way relationships. The former are put in place to ensure basic "any-to-any" connectivity among networks, and typically apply to all operators. One-way relationships arise when one operator, the incumbent, controls an asset (for example, a local loop) to which competitors must have access in order to provide a service to their customers. They thus apply asymmetrically to operators with market power.

The requirements of an interconnection and access regime capable of supporting a competitive market place are generally considered to include:

- Availability of an appropriate set of interconnection and access products: certain products, such as reciprocal termination by networks of each other's calls, are a necessary element in any connected regime. Mandating one-way access to the incumbent's assets will depend upon policy-makers' preferences for infrastructure or service competition and nuanced judgements as to whether and when competitors can, through investment, replicate the incumbent's assets.
- Appropriate pricing of interconnection and access products: access pricing is a key element of any interconnection regime, one-way or two-way. Prices must both provide adequate incentives for the access provider to invest in new assets and for the access seeker to enter where it is efficient for it to do so. The dominant regulatory approach to pricing of persistently non-replicable assets or bottlenecks is a cost-based one, particularly one based on long-run incremental cost (LRIC, TELRIC etc.).
- Non-price terms: access and interconnection services must be fit for purpose, in order to prevent voice calls being dropped on handover, or to allow uninterrupted data streaming. Yet the access provider may have an incentive to "sabotage" its competitors; as a result, measures are required to ensure quality of service.
- Predictability: competitors often have to make significant investments to enter the market. At the early stages of entry in particular they are heavily dependent on interconnection and access products. For entrants to have the confidence to invest, the interconnection regime must be predictable. At the very least, this requires that it be transparent – that the entrant knows in advance what services it can buy, through, for example, consulting a reference offer. Predictability can also be enhanced by measures such as the publication of the regulator's cost models.
- Adequate process: procedures must be in place to ensure that mandated interconnection and access products are available in a timely manner. In practice, access delayed is often access denied.

This section considers the degree to which the interconnection and access regime in Mexico meets these requirements. It describes the legislative, institutional and regulatory regime, and then examines experience of interconnection in certain key areas.

The development of interconnection in Mexico

As elsewhere, interconnection and access arrangements developed in Mexico following the privatisation of the statutory monopoly, Telmex, in 1990 and the liberalisation of the market six years later. In anticipation of the latter, Telmex's licence or concession contained obligations to interconnect. Under the Federal Telecommunications Act of 1995, similar obligations were imposed on competitors.

Under the same Act, the Competition Authority (Cofeco) can in certain circumstances declare an operator dominant in a particular market, whereupon the telecommunications regulator (Cofetel) can impose asymmetric interconnection obligations on that operator.

However, neither avenue has proven particularly successful. In relation to the former, network concessionaires can ask Cofetel to intervene to set an interconnection rate when they cannot reach agreement. This should be done within 60 working days, but this requirement has not been adhered to. However, any party may then appeal to the courts against the ruling, and seek an *amparo* to prevent application of the ruling until the legal process is exhausted – a process which may take many years. This provision has permitted Telmex and Telcel, in particular, to delay implementation of Cofetel's decisions and usually overturn those decisions. Fortunately, the recent Supreme Court decision has overturned this status quo, and established that Cofetel's decisions on interconnection may not be suspended, and will stand pending *amparos* (see below).

Following the alternative asymmetric route, Cofeco issued a resolution in 1997 that Telmex was dominant in five fixed markets. Telmex issued an appeal that, after a ten-year legal process, was successful. In 2009, Cofeco issued decisions declaring Telmex to be dominant in four markets. Again, Telmex has appealed, and in the interim Cofetel, for no clear reason, has not acted on the declarations. The Supreme Court of Justice ruled that Cofeco should give consideration to Telmex/Telcel's request to re-examine the dominance declarations. As of September 2011, Cofetel has initiated the procedure to impose obligation on Telmex/Telnor with regard to the leased lines market, the only market for which Cofeco has re-issued a dominance declaration.

In 2009, Cofetel issued a Technical Plan for Interconnection and Interoperability, with the intention of giving operators greater certainty over the availability and pricing of interconnection and access services.[14] Some of the rules apply to all operators, some only to larger ones. The plan went through two public consultation processes during 2007 and was approved by Cofemer (the Federal Commission on Regulatory Improvement). The plan puts forward the following principles: *i)* the adoption of open network architectures; *ii)* non-discrimination (no preference to be given by an operator to its own needs or those of an affiliate or subsidiary over those of other interconnectors); *iii)* unbundling of elements (for interconnection purposes) so that no charges are necessary for unwanted services; *iv)* ensured capacity in public telecommunication networks to provide interconnection on request; *v)* guaranteed terms and conditions for efficient use of capacity, interconnection services and functions; and *vi)* the requirement to offer to other operators equal or better rates, terms and conditions as those offered to any other operator. Larger fixed and mobile operators had additional obligations. The plan stated that interconnection for larger operators should be offered at any point where it is technically feasible, that requests for interconnection should be dealt with within a ten-day period, and that a public interconnection offer should be published once a year.

The plan highlights the importance of interconnection for the economy and users (public interest). Larger operators must in general meet all demands for interconnection. Telmex, Telcel and Telefónica appealed different provisions of the plan. The Federal Court of Tax and Administrative Justice granted them an order preventing its application to the company, ignoring in effect the public interest arguments put forward by Cofetel.

The proposed plan is very comprehensive and includes much of what is considered best practice in OECD countries. It constitutes an excellent basis for the resolution of interconnection disputes in Mexico and the creation of sustainable and effective competition. As Cofetel has argued, interconnection is a fundamental requirement and is of high public interest. The welfare loss to the Mexican economy noted at the beginning of this report is largely a result of the inability of Cofetel, because of legal injunctions, to find a long-lasting solution to interconnection issues.

A significant turnaround in the interconnection process occurred in May 2011, when the Supreme Court issued a ruling that prevents the application of stays (*amparos*) to interconnection rate decisions issued by Cofetel. The court recognised that interconnection is a public interest issue – a significant step forward. The decision has the effect of allowing rates to be introduced in the interim, while appeals are heard. The process of appeal may still take a long time, and uncertainty remains as to the final outcome. In addition, the restriction on *amparos* only applies to the pricing decision regarding interconnection, not other elements of interconnection or indeed other regulatory decisions.

In summary, existing processes fall seriously short of OECD best practice in respect of regulatory certainty and timeliness. For example, interconnection rates in OECD countries are usually set *ex-ante*, which delivers a better outcome in terms of legal certainty, actual implementation of decisions, and so on. A reference interconnection offer (RIO) is usually made available for all parties willing to interconnect with the incumbent, where technical specifications, delivery times, service level agreements, and so on are publicly-known, well established and subject to regulatory surveillance. As for the case of Mexico, some particular instances are examined below.

Interconnection services

Long distance and local fixed-voice interconnection services

As already noted, Telmex has a retail market share of about 80% of fixed-voice subscriptions. As part of the liberalisation process, universal availability of interconnection was set for 2001, but in fact rival long-distance operators can only interconnect with Telmex in half of the 397 local service areas, accounting for about 80% of Telmex's lines. In order to terminate a call in the remaining 50% of so-called non-open local areas (199 calling areas), which cover approximately 40% of Mexico's geographic territory and about 25% of Mexico's population, competitors have to purchase a service, which in some other jurisdictions would be known as "double tandem" termination, but which Telmex calls a "resale" tariff, despite the fact that Cofetel recognised it as an inter-connection service in 2003 (Resolution P/EXT/221003/33). Some of these exchange areas are very small and do not provide (or economically support) direct interconnection.

Telmex charged MXN 0.75 peso/min (USD 6.4 cents) for this service, while the price for terminating a local call was MXN 0.1155/min (USD 0.975 cents). In June 2011, COFETEL reduced these rates to MXN 4.53 cents (USD 0.39 cents) for long-distance interconnection and MXN 3.951 cents (USD 0.34 cents) for local interconnection (the SCT is revising the application of the MXN 3.951 cents rate). Cofetel also declared that

the termination of calls in the "non-competitive" local service areas would be treated as interconnection, and not as a long-distance service. América Móvil, the parent company of Telmex, issued a press statement indicating its intention to challenge the new rates.

Retail customers cannot choose a competitive long-distance provider in non-open areas, so Telmex has a *de facto* monopoly in those areas. In addition, many Mexican economic migrants to the United States call back to these remote areas; this allows Telmex to extract significant revenues from US consumers and undermines Telmex's incentive to consolidate local calling areas.

Consolidation of these regional calling areas constitutes a long-standing and serious problem, and efforts to change the situation have been unsuccessful due to court interventions. In 2005, Cofetel defined guidelines to reduce the total number of local calling areas to 195. Telmex blocked this process through the courts, suspending the process until the court revoked the suspension in 2008. Again, in 2008, Cofetel ordered Telmex to offer competitive interconnection in 70 of the country's 397 local dialling areas, which would require Telmex to deliver competitors' calls to customers in those areas. Telmex, however, obtained a court injunction blocking the order, thereby maintaining its monopoly in such areas (United States Trade Representative, 2010). The consolidation process remains blocked. In response to two separate long-distance disputes,[15] Cofetel issued a resolution to effectively eliminate the "resale" fee (9 June 2011), significantly lower the long-distance interconnection fee, and allow competitors to interconnect at a higher hierarchical level on Telmex's network. In addition, this resolution would have eliminated charges for incomplete calls. Telmex again obtained a court suspension for these resolutions (30 June 2011).

Telmex clearly has an incentive, given the prices it charges competitors, to limit development of their network in so-called uncompetitive areas, since they view that such investment would benefit their competitors. Regulations requiring Telmex to provide interconnection to competitors to terminate calls in those non-competitive areas as a local call, at any exchange point (as specified in the FTL), and on a non-discriminatory basis, would provide an incentive for Telmex to facilitate entry into those areas. The inefficient structure of Telmex's network in these exchange areas should not be imposed upon third-party operators, but should rather be borne by Telmex itself, allowing a standard local interconnection charge to these remote exchange areas.

Mobile termination

When calling party pays (CPP) was introduced in 1999, the fixed-to-mobile rate was set at USD 0.19 and fixed retention (billing and collection) at USD 0.06.[16] These rates accrued almost entirely to Telmex/Telcel. The same termination rate was set for mobile-to-mobile termination.

The impact of termination rates substantially above cost has been widely discussed (*e.g.* Bomsel *et al*., 2003; Growitsch *et al*., 2010). In most cases they favour larger operators, especially when traffic is unbalanced in favour of incoming traffic to those operators. This puts the larger operators in a position where they can gain competitive advantage and large profits from creating a substantial disparity between on-net and off-net call prices, exploiting what are known as "club effects" or "tariff-mediated network externalities". Thus, before the recent reductions in termination rates, the price of on-net calls in certain Telcel plans (MXN 1/min) fell short of the termination rate (MXN 1.39/min), as per the 2007 tariffs. Although this is a common enough situation and these rates are bundled with other services, the detrimental consequences of high rates for competitors to

the largest firm are very acute when that firm has 78% of subscribers, as in Mexico. In 2008, the SCT also acted on termination rates and issued a decision that brought the interconnection rate between Axtel and Telcel (and between Telefonica and Iusacell) down to MXN 0.55. This decision, subsequently challenged in courts, provided a good precedent for a downward path in interconnection rates. However, it may also have contributed to increasing the institutional complexity surrounding these issues.

Set against this, higher termination rates can support the provision of services in poorer, especially rural areas, where few outgoing calls are made. Telefónica asserts that 25% of its (generally low-end) subscribers make the minimum payment to keep their pre-pay subscriptions alive, and otherwise generate revenue by receiving rather than making calls. Cofetel expressly decided after 2010 not to take this externality into account in setting termination rates.

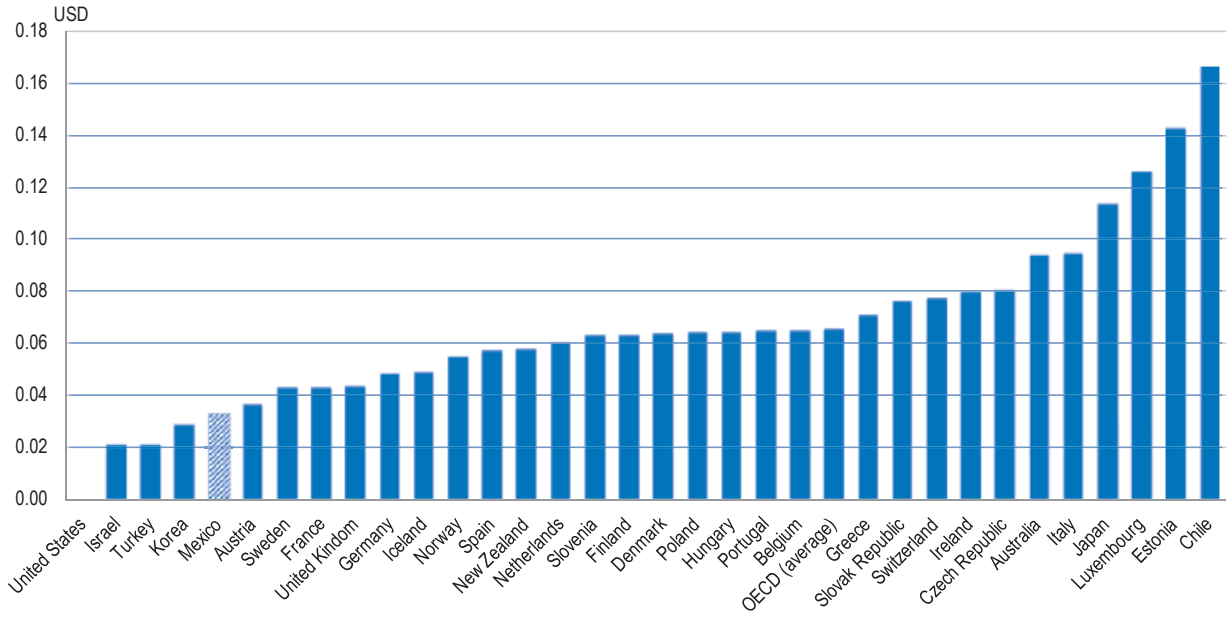
As noted above, Mexican law allows operators to negotiate interconnection agreements; however, when agreement cannot be reached, they can ask for intervention by Cofetel. A number of fixed and mobile operators have sought such intervention. In October 2010, Cofetel, using a long run incremental cost (LRIC) model, ruled that the mobile termination rate (MTR) should be MXN 0.39/min (approximately USD 0.03).

A combination of this and other factors led Telcel, Telefónica and Telmex to agree a rate of MXN 0.95 in the so-called Christmas Agreement of December 2010, which would gradually be reduced from MXN 0.95 (approximately USD 0.10) in 2011 to MXN 0.69 (approximately USD 0.07) in 2014. However, in March 2011 Cofetel intervened to resolve a disagreement between Telcel and Alestra and set an MTR of MXN 0.3912/min – much lower than the MXN 0.95 rate agreed by the operators in December 2010. This decision effectively superseded the so-called Christmas Agreement such that it no longer exists.

In a further development, Cofetel made available the cost model which it used to derive the MXN 0.39 rate. Cofemer (Mexico's regulatory improvement agency – *Comisión Federal de Mejora Regulatoria*) also approved Cofetel's cost model criteria for interconnection, which Cofetel intends to use to settle disputes between operators occurring in 2012 and beyond. Publication of the cost model is a significant step towards greater regulatory transparency. In the light of the Supreme Court decision of May 2011, which prevented the granting of *amparos* or stays relating to determinations by Cofetel of interconnection prices, this rate has been put into effect. The first impact of this new rate is the recent reduction in Telefónica Movistar retail prices from MXN 3.65/min to MXN 1.98/min, irrespective of whether the call is on-net or off-net, local or long distance. Although the final overall per minute rate may have not decreased to that extent, it is important that the on-net/off-net price gap disappears.

In most cases, the national regulatory authority will set an ex-ante rate for a period of years and provide a "glide path". As previously noted, Mexico can only regulate the rate in case of disputes between networks on the MTR. Despite numerous attempts to reduce the rate by Cofetel, Mexico had, as of May 2011, among the highest mobile termination rates in the OECD (Figure 2.1). Although this has changed following Cofetel's decision (the MTR for Mexico is now around USD 0.03, among the lowest in the OECD), termination rates across the OECD still follow a downward path. The rationale behind these rates (cost models) is being litigated in courts. As this report highlights, the cost model must be published and subject to public debate in order to increase the transparency of interconnection regulatory decisions. Very recently, mobile operators have reduced rates: Telcel cut off-net rates by 67%, Movistar decreased pre-paid off-net call rates by 51% and other operators eliminated the price gap between off-net and on-net calls.

Figure 2.1. Termination rates in USD across the OECD on 5 May 2011



Interconnection and the FTL

The disputes on consolidation of local areas and interconnection seem not to have fully taken into account certain provisions of Mexican law. In particular, Transitory Article 8 of the FTL requires that telecommunication operators need to register and apply interconnection rates among their own services, as well as between their affiliates and subsidiaries. These interconnection rates should be publicly available when Telmex publishes its accounts since accounting separation is required. Furthermore, since interconnection is non-discriminatory the internal interconnection rates should be made available to third parties. Telcel clearly did not follow this approach when pricing retail on-net calls at rates significantly lower than the interconnection rate. In this context as well, Article 62 of the law states that a licensee cannot cross-subsidise services that are provided in competition.

Fixed broadband access

Mexico, in 2010, had about 10 broadband subscriptions per 100 inhabitants, compared to an OECD average of 25. Almost all were fixed-line subscriptions. Telmex's market share of fixed broadband is 74%. Telmex only sells Internet access in a bundle with fixed-line telecommunication service. The cable companies are increasing their supply of broadband through multi-play bundled services that include telephony and cable TV.

Broadband services are not subject to retail price control. Prices in the retail market for fixed broadband services are typically restrained by a number of forces:

- The availability of mobile broadband services, which although often considered to fall into a different market than fixed broadband, can still constrain fixed broadband prices;
- End-to-end competition between fixed broadband providers, often between telecommunications networks and cable companies, each with its own local loop;
- Access-based competition, in which operators rely on an incumbent's assets to compete with the incumbent in the downstream market.

Mobile broadband in Mexico is at present in its infancy, with a take up of 0.5 subscriptions per 100 inhabitants in December 2010. Moreover, the co-ownership of the largest fixed and the largest mobile network within the same group has the effect of muting fixed/mobile broadband competition. End-to-end network competition from cable companies is confined to certain major cities, while the standard forms of access-based competition – resale, wholesale broadband access and unbundled local loops – are not mandated. There is some ambiguity about whether unbundling is included in Cofetel's above-noted and stalled Technical Plan for Interconnection and Interoperability. Although Telmex argues that the plan covers unbundling, it does not address local loop unbundling as understood in OECD terminology (whereby a new entrant leases the local loop from the incumbent), but only contains an obligation to provide "unbundled" interconnection services, which would be the usual requirement in interconnection offers across the OECD.

Increasing the availability of transmission capacity

The combination of Telmex (with 80% of fixed subscribers) and Telcel (with 70% of mobile subscribers) places the combined entity in an unrivalled position in the Mexican marketplace for telecommunication services. The near ubiquity of the company's networks makes it almost impossible for a competitor to avoid seeking access to or interconnection with the entity's assets. One way to reduce this dependency would be to create a nationwide transmission network to rival that of Telmex.

In fact, some good steps have been taken in this direction. The *Comisión Federal de Electricidad* (CFE), the Federal Electricity Commission, operates a nationwide fibre optic network with substantial excess capacity.[17] Although this network covers only 50% of the population and the CFE has no coverage obligations, the network provides an important alternate backbone. The SCT auctioned a proportion of the spare capacity,[18] and the winner, paying MXN 884 million (USD 88 million) for a 20-year concession, was a group of operators consisting of Televisa (a broadcasting firm with significant cable television and broadband operations, and an interest in Iusacell, a small mobile company), Telefónica (principally, but not solely, a mobile operator) and Megacable (the largest stand-alone cable operator).

Under the agreement, the three participants can use their share of the capacity for their own purposes, or sell it to other parties. The transmission company itself can also sell capacity, but it must be a carriers' carrier; it cannot sell directly to end users. This reduces the dependence of the three firms on Telmex (and a limited number of much smaller fixed networks) as a supplier of transmission services, and gives other operators a major additional option.

The availability of dark fibre represents a significant increase in the supply side of a key interconnection product. Clearly, there is scope for tacit collusion between the new company and Telmex in providing wholesale backbone services, once market shares have

stabilised. However, the continued overhang of spare capacity in the network means that further competition can in principle be developed via an appropriately designed subsequent auction. It is essential that further fibre strands be made available before the consortium consolidates its market position in the market, and by so doing avoid the development of a duopoly which would hamper future market entry. Nor does it make economic sense to have such an amount of spare capacity in this network. It is important to recall that the CFE is a public entity, subject to the Mexican government; a policy decision at government level can rapidly ensure that further capacity is made available to help develop competition and implement Mexico's broadband plan.

Separation issues

In several jurisdictions, regulators or governments have responded to the exercise of dominance by network operators by requiring some form of separation. A hierarchy or "ladder" of separation has been identified, as follows:

- Accounting separation: this occurs between retail and network activities, possibly with an additional breakdown between contestable network activities and non-contestable ones, such as the local loop. Because accounting separation requires the recording of transfers between wholesale and retail accounts at regulated wholesale prices, it can support efforts to eliminate price discrimination by the incumbent against its downstream competitors.
- Functional or operational separation: this changes business processes to make the boundaries between the separated divisions more transparent, and can expose non-price discrimination or sabotage, such as the deliberate dropping of competitors' calls.
- Structural separation including ownership separation: this removes any element of common ownership and hence any incentive to discriminate in favour of an upstream or downstream firm.

Article 68 of the Federal Telecommunication Law requires concessionaires of public telephone networks to furnish separate accounts. It cannot be said with certainty that this has eliminated price discrimination, and an allegation of non-price discrimination is noted above. If such activity on the part of a dominant operator proved to be widespread, there might be a case for a more complete form of separation. Divestment is provided for under competition law in the case of repeated recidivism, but putting the legal prerequisites in place for an ownership separation would be a difficult task. It should nevertheless be considered if the anticompetitive behaviour of Telmex in the market continues to block access to necessary resources. The proposal to integrate Telmex into the América Móvil company structure may make such separation more complex in the future. When Ofcom in the United Kingdom conducted a market review in 2004 it noted that after 20 years of trying to foster competitive conditions of access, the results were slow product development, inferior quality wholesale products and a general lack of transparency. Ofcom concluded that "real equality of access", ensuring customers were provided with the same product, necessitated the re-organisation of the incumbent through functional separation. This remedy proved successful and the United Kingdom increased its broadband penetration significantly in the following two to three years.

It is clear that a considerable gap exists between the actual state of regulation of interconnection and access in Mexico and the desirable properties of such a system outlined above. In short, a limited number of interconnection and access products are

available, and their prices often appear to be high; there are allegations of poor service quality; there is little transparency or predictability; and delays in the process, as a result of the *amparo* system, are long and variable. In a marketplace where a single firm dominates the fixed voice, fixed broadband, and mobile marketplace, this is a recipe, as highlighted at the beginning of this report, for high costs, high prices, low quality, little choice, limited competition and low rates of penetration, with predictable adverse consequences for Mexico's economic development and the welfare of its citizens.

Improving the process of setting and enforcing the terms and conditions for supply of access and interconnection products is fundamental to improving the system. The stumbling block has been the *amparo* system, which has blocked progress for years. The May 2011 Supreme Court decision has eliminated interim relief with respect to the implementation of interconnection prices. However, this leaves considerable scope for delay in respect of other matters, in particular, delivery of access products such as leased lines and the provision of physical interconnection including collocation.

With respect to the appeal processes, legislation or other measures should be put in place to ensure that Cofetel's and Cofeco's decisions in relation to interconnection (tariffs, quality of service, etc.) and access are not subject to traditional *amparos*. In other circumstances, a discretionary process rather than a rule would be preferable, leaving the decision concerning interim relief to a court. However, application of this rule is predicated on the existence of specialised courts with judges capable of assessing in advance of a full hearing the chance of success of any appeal, as well as the adverse consequences of any delay in implementation. In the absence of such a capability in Mexico, the above non-discretionary rule is preferable to its opposite – an automatic *amparo*. The aforementioned recommendation is a process measure that can reduce regulatory uncertainty and promote investment by competitors to the dominant firm (*e.g.* a specialised section in the Amparo Law with specific rules for telecommunications and/or competition issues). However, as the *amparo* is a constitutional right, this may require constitutional reform, which can be difficult to achieve. Whichever option is chosen, the current system of systematic *amparos*, non-specialised courts and several possible legal procedures available to challenge decision does not allow for the application of regulation, or at least not in a timely manner, and in fact prevents the delivery of pro-competitive regulation.

The regulator can take significant steps in this direction. In particular, it can clarify its policy concerning the availability of access and interconnection products. The adoption of the Technical Plan for Interconnection and Interoperability in 2010 constituted a step in this direction. It is worth reissuing this plan in the form of a programme of activity to be implemented over a period subject to a consultation process. Such a programme should take account of the obsolescence of interconnection prices including a "glide path" for changes in interconnection rates.

The regulator can promote certainty in other ways. It can be more transparent in its procedures and consult more fully. This can make regulatory changes foreseeable. Cofetel, as already noted, has taken a welcome step in this direction by making available its cost model for setting mobile termination rates. If such disclosure were brought forward to the consultation stage, it could raise the prospect of improving the model and reducing the chances of error.

Finally, in other jurisdictions the requirement for an access provider to publish a reference offer enhances transparency. This gives potential access seekers precise information about the service, which they can be sure of getting, thereby assisting them in

the preparation of a business plan. The acrimonious debate on interconnection would be significantly reduced if the dominant carriers were required, in consultation with market players and the regulator, to publish a yearly reference interconnection offer (RIO).

As noted above, interconnection and access can be mandated either via a concessionaire's licence, or based upon a finding of dominance by Cofeco, acted upon by Cofetel. This division of responsibility is cumbersome. It is preferable that Cofetel, as argued earlier, make the decision over dominance itself, consulting with Cofeco, and taking account of its views. In order to do this, Cofetel and its staff would have to acquire additional competencies, which would also be useful in other areas of Cofetel's activities. This is believed to be a better option than a merger between Cofeco and Cofetel (where Cofetel becomes a specialised telecommunications department within Cofeco). Although some OECD countries have at some point chosen this institutional arrangement, the need for specialised know-how and the distinction between ex-ante and ex-post regulation would favour, at this stage, a stand-alone, specialised telecommunications regulator.

Non-price aspects of interconnection agreements are difficult to enforce, especially in the face of an obvious incentive on the part of a regulated incumbent provider to degrade their quality. This incentive becomes more intense the more tightly interconnection prices are regulated. As noted, Cofetel would face considerable difficulties in accomplishing a more complete form of separation than is provided for under the Act. In this context, it is important to require the incumbent to develop a service level agreement (SLA) which puts forward delivery dates for delivery of access components, quality of service indicators and service requirements and penalties for nonconformity to the service level agreement. Telmex USA, for example, provides a SLA in the United States for its customers, but not in Mexico.

As penetration rates of mobile telephony approach 100%, the next major change in the telecommunications sector will be the growth of broadband. At present, Telmex has a market share of 74% in fixed Internet access, and faces geographically limited competition from cable companies.

In the circumstances, there are three approaches to greater competition in the broadband market:

- Reduce the costs of competing networks, notably by introducing competition in data transmission. The opening up of the Federal Electricity Commission's network partially achieves this goal.
- Await the introduction of 3/4G networks capable of providing mobile data services.
- Mandate access by competitors by requiring Telmex to offer wholesale broadband access and/or unbundled local loops. Mandating wholesale broadband access can also apply to the dominant mobile company by requiring provision of access to MVNOs.

The first approach has been partially implemented by the introduction of competition in data transmission, through the opening up of the Federal Electricity Commission's fibre optic wholesale network. However, it does not deal with the local loop bottleneck.

Each of the second and third approaches faces difficulties. A constant theme of this report is that Telmex and Telcel, in common ownership, bestride respectively the fixed and mobile sectors of the Mexican telecommunications marketplace. This is likely to restrict fixed/mobile broadband competition significantly. In the absence of an oppor-

tunity to force a divestment, one way forward would be to impose strict spectrum caps on Telcel, which would limit its ability to extend its dominance from mobile voice to mobile data services.

The difficulty with the third approach of mandating Telmex to offer wholesale broadband access products is the commitment of regulatory effort that this would require. Mandating a bitstream product or the unbundling of local loops is an exceptionally complex and time-consuming process. However, the large majority of OECD countries have implemented local loop unbundling and, while in many cases it required many years and regulatory interventions, it has proven to be a successful tool in developing broadband access, especially in countries like Mexico where cable networks do not cover the majority of the population. Cofetel should begin to take appropriate steps in this direction. At the same time, however, Cofetel would need a forward-looking strategy since LLU is more difficult to implement when VDSL or fibre technology is being used.

The historical preference in the interconnection regulatory regime for bilateral negotiations between parties is not constructive, and in the specific case of setting mobile-to-mobile interconnection charges, a wide range of literature points to firms' preferences for higher rates (*e.g.* Laffont and Tirole, 2000; Calzada and Valetti, 2008; Genakos and Valetti, 2007). The current legal mechanism provides that interconnection rates agreed to between operators do not need to be adjusted by the regulator, Cofetel. However, bilaterally negotiated termination rates are likely to be set at a level that is significantly higher than cost, which in turn puts a floor under retail pricing. The application of cost-based termination rates and asymmetric remedies, enabled by Cofeco's market power designations, look more appropriate. These could also enable Cofetel to set cost-based interconnection rates, withdrawing from operators the right and obligation to negotiate rates bilaterally. One way of doing this is by setting caps on termination rates, leaving operators the freedom to negotiate rates below these caps. The current system of intervening on a case-by-case basis is burdensome and provides little regulatory certainty. It has also proven to be very inefficient in terms of economic performance.

2.5. Price regulation

Where strong competition exists, price regulation should focus on wholesale prices. For example, under the European regulatory framework, prevalence is given to wholesale remedies and in most cases, this is sufficient to guarantee downstream competition. Retail regulation is only warranted when wholesale regulation fails. Unfortunately, this is the case of Mexico, as markets are not competitive. The importance of regulating end-user retail prices is increased in the case of a firm with market power such as Telmex. Regulation of end-user prices also increases in importance where there are difficulties experienced in regulating wholesale (*e.g.* interconnection) prices, to help ensure that such excessively high interconnection charges are not passed on to consumers.

In fact, Telmex's Concession does provide for the regulation of Telmex's end-user prices through the use of a price cap regime.[19] The concession sets out a "RPI – X" price cap regulation of a "basket" of basic services, including: installation charges, monthly rental fee, local measured services, national or domestic long distance and international long distance.

The price cap scheme is designed to ensure that Telmex passes on to its customers at least a part of the benefits of productivity and efficiency improvements the company achieves. The first period for the price cap was 1999 to 2002 when the "X" factor was 4.5% per year. For the next four-year period, 2003-06, the "X" factor was set at 3% per year, and at 3.2% for 2007-10. According to Cofetel, Telmex met its price cap obligations comfortably, since it experienced productivity gains well in excess of the 4.5% X factor. This allowed it to earn increasing profits, while not raising prices as fast as permitted under the price-cap formula.

A new revised price cap regime for 2011-14 was due to be implemented in January 2011, but is still being formulated. One problem delaying finalisation is disagreement over the appropriate size of the "X" factor among the three experts whose opinion has to be consulted when Telmex and the regulatory authorities (whereby Cofetel acts on behalf of SCT) cannot agree over the price cap formula. This disagreement is perhaps unsurprising since Cofetel selects one of the experts, Telmex the second, and the third is chosen by mutual consent. Since Telmex would predictably prefer a lower "X" factor than the authorities, their divergent views may result in the opinion of the third expert prevailing, rather than that of the regulator. In OECD countries (*e.g.* Australia, Canada), it is the regulator that determines the size of the "X factor", thereby avoiding the types of problems experienced in Mexico, when long delays are experienced while predictably different opinions are reconciled. The evidence-based views of the regulated firm and those of the independent experts should be considered, but the views of the regulator should prevail. Telmex's ability to block such a decision by not agreeing on the choice of the third expert makes no sense, as this decision should fully fall within the regulator's powers. Also worthy of mention is that Telmex filed an injunction at the end of 2010 against Cofetel's procedure for reviewing Telmex's Price Cap proposal. This injunction has also delayed the process.

In view of earlier conclusions that Mexico has among the highest prices in the OECD, a number of general observations can be drawn with respect to price cap regulation. The first observation is that forces of competition have worked much better in other countries, such that prices dropped significantly faster in many OECD countries relative to Mexico's telecommunication prices. Another observation is that where a price cap is set on the average of a set of services (as in Mexico's case), increases in some prices (*e.g.* local) can be offset by falls in other prices (*e.g.* long distance) keeping average prices high. This could argue for a modification of the price cap to introduce sub-caps in order to ensure downward pressure on prices.

It is not entirely clear whether Telmex has only one basket or more since the composition of the basket is not disclosed publicly. This lack of transparency should change. In other OECD countries applying price cap regulation, the composition of the basket is public information. The regulatory authority should consider eliminating services for which competition exists from the basket (*e.g.* long distance). The guiding principle should be that only services provided in non-competitive markets should be included in a price cap basket. As it stands now, long-distance price reductions (due to competition) may allow Telmex to keep prices for non-competitive services high, despite decreases in associated costs.

The administration of the price regulation regime is also of concern. Until 2009, Cofetel was the authority responsible for administering price cap regulation. When the Internal Rules of the SCT were modified in 2009, the power to authorize tariffs under the scheme was transferred to SCT, with Cofetel's role reduced to giving "a plenary opinion

of the tariffs that should be authorised".[20] It is not clear why the responsibility for price regulation was taken over by SCT. That this modification could occur by Executive Order is of concern, since it could be interpreted as another sign of Cofetel's weak position in relation to the SCT. The price cap regime is a regulatory function and responsibility for it should return to Cofetel.

One of the usual arguments in favour of price cap regulation through a CPI – X formula is that it ensures a fall in the real (inflation-adjusted) price of telecommunications services through "arm's length" regulation. This form of price regulation is understood to be a means of distancing decisions on politically sensitive telecommunication prices from political influence. The transfer of responsibility for making price regulation decisions to the Ministry of SCT again brings decision-making closer to influence by political considerations. For this reason, the independent sector-specific regulator in many OECD countries has the responsibility for setting and administering the price cap scheme, as this constitutes a regulatory rather than a policy decision. In other words, if Cofetel is to be an independent sector regulator, then, in line with OECD "best practice", it should have full responsibility for administering the price cap scheme as well as any other price regulation, retail or wholesale. As already highlighted, a clear distinction should be made between policy-making (*i.e.* providing the overall framework for the market) and regulation that translates this framework into the operational details necessary for implementation.

Price registration

The FTL (Article 60) states that licence holders are free to determine prices. However, the law also requires that prices must be registered before they come into effect. The FTL sets out a price registration scheme whereby all telecommunication operators, irrespective of whether they are considered dominant, must register their proposed prices with Cofetel, both retail and wholesale, before they become effective. The price registration scheme should be limited to dominant firms. There is a danger that signalling price changes could develop into implicit collusion. This also removes the flexibility for smaller companies to react quickly when they see a market opportunity. Since no retail price regulation exists other than Telmex's price cap, unless symmetric regulation is imposed on dominant firms, it is not evident that the price registry serves any useful purpose in the context of creating effective competition, at least as regards retail prices. Market participants have complained that the price registration process is slow and delays the implementation of new prices. Given the existing framework for bilateral agreements on interconnection, the price registry can serve a useful purpose for those prices. As noted earlier, it also serves an important purpose in terms of transparency for the internal interconnection prices of services within companies.

Asymmetric regulation would confer additional price regulation powers

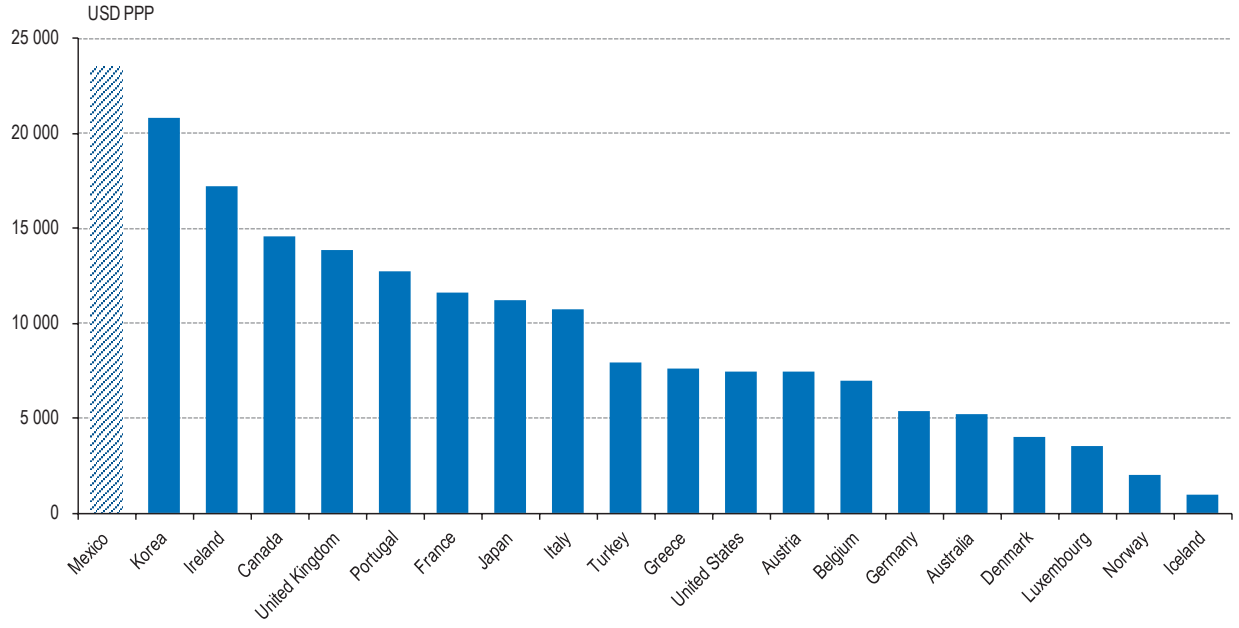
In December 1997 and again in 2009 and 2010, Cofeco found that Telmex was dominant in a number of markets. This ruling grants Cofetel the authority to apply asymmetric regulation, including additional price regulation on Telmex in these markets. In 2000, Cofetel did in fact establish 39 specific obligations on Telmex, 18 of which dealt with prices and 12 with quality of service. But judicial appeals and *amparos* paralysed implementation of Cofeco's dominance rulings and, as a result, Cofetel's obligations became void. As mentioned above, Cofetel finally launched a procedure in October 2011 to impose general obligations, following Cofeco's dominance declarations (some of them issued in 2009) to be imposed on any operator declared as dominant.

Leased lines

An area where additional powers could allow price regulation is Telmex's provision of leased lines. Leased lines are used by small and medium-sized enterprises to have permanent high-speed access to the Internet. Leased lines are also vital to Internet Service Providers, enabling them to provide the underlying transmission capacity for the Internet. Until a new entrant installs its own communications infrastructure, it must rely on leased lines, which can represent up to 40% of the total costs of market entry. Thus, if leased line prices are high, access to the Internet will be more expensive. Conversely, lower prices for leased lines will give consumers cheaper access to telecommunication services and the Internet.

In Mexico, leased lines fall outside the price cap regulation regime, discussed earlier. As indicated below (Figure 2.2) the price of a 34 Mbps leased lines in Mexico is the highest in the OECD.

Figure 2.2. **Prices for a 34 Mbps leased line, monthly, August 2010**



Source: *OECD Communications Outlook 2011*.

Incumbents may exploit their near-monopoly position through the provision of leased lines outside cities. This is the case in Mexico. In areas where Telmex is the only provider of leased lines, the monthly rental of a 2 MB leased line was several times higher than in places where competition exists. The wide range in prices and lack of geographically averaged prices should also be of concern (Table 2.4).

Table 2.4. Line rental for Internet access price (2 MB per second)

City	Long-distance transmission service provider	Monthly rent to the Internet service provider (MXN)
Toluca, State of Mexico	Bestel, Maxcom, Alestra, Telmex	3 300
Leon, Guanajuato	Bestel, Maxcom, Alestra, Telmex	3 300
Zitacuaro, Michoacan	Telmex	6 000
Tenancingo, State of Mexico	Telmex	6 000
Tapachula, Chiapas	Telmex	13 000
Salamanca, Guanajuato	Telmex	18 200
Cd. Altamirano, Guerrero	Telmex	20 971
Huetamo, Guerrero	Telmex	35 108
El Grullo, Sayula, Jalisco	Telmex	40 000
San Miguel de Allende, Gto	Telmex	58 650

Note: This corresponds to the monthly payment that the Internet service provider makes to the transmission service supplier for a line that allows the transmission of up to 2 Mbps per second.

Source: IMCO (2011) drawing on data from the Ministry of Communications and Transport.

In July 2009, Cofeco found that Telmex was dominant in the wholesale leased-line markets, opening the way for Cofetel to introduce more restrictive legislation directed at the operator. As noted previously, Cofetel did not use this opportunity. As early as 1992, the Leased Lines Directive 92/44/EC in the European Union required Member States to ensure that the tariffs of leased line tariffs provided by incumbent network operators followed the principles of transparency, non-discrimination and cost orientation. Telmex has also delayed the provision of leased lines to new entrants, in some cases for a considerable time period. Such action would, in other countries, constitute an abuse of dominant position and a restrictive practice. Failure to act rapidly by a regulator in such instances imposes a significant cost on market participants.

2.6. Competition policy

Mexico is one OECD country where the level of support for competition policy is still developing. There are areas that, in theory, are open to competition, but deficiencies in statutory authority and judicial review procedures constrain regulatory ability to address competitive conditions effectively and efficiently. This situation has improved with the recent reform of competition law.

Mexico adopted the Federal Law of Economic Competition (LFCE) in 1993 to ban anti-competitive behaviour by companies. The competition policy goals of LFCE are: "to protect the competitive process and free market access by preventing monopolies, monopolistic practices and other restraints of the efficient functioning of markets for

goods and services."[16] Cofeco was created to enforce the LFCE. Cofeco is responsible for investigating abusive monopoly practices of companies. It can issue binding opinions in matters involving competition. It can also give opinions, without binding effects, regarding law initiatives and regulations. It is also responsible for designating/ determining the companies in dominant positions within any sector.

The LFCE classifies monopolistic practices as "absolute" and "relative". Absolute monopolistic practices are prohibited. This includes four types of horizontal agreements between competitors, such as price fixing, output restriction, market division, and bid rigging. Relative monopolistic practices are not deemed illegal unless a company is found to have substantial power in the respective market. Vertical agreements such as vertical market division, resale price maintenance, tied sales, exclusive dealing and refusal to deal are considered relative monopolistic practices. Other horizontal practices are also termed as relative practices (collectively treated as a catchall provision) that will unduly damage or impair the process of competition and free access to production, processing, distribution and marketing of goods and services.

Competition laws around the world also prohibit two types of monopolistic behaviours under abuse of dominance provisions: exploitative conduct and exclusionary conduct. However, Mexican competition law does not prosecute exploitative practices such as charging monopolistic prices, but encourages actions against exclusionary abuses. Unlawful conduct is defined solely in terms of exclusionary practices at the expense of competitors or other firms in the chain of distribution, and not in terms of exploitative practices at the expense of consumers. There is no provision for fair competition under this law; neither does it talk about protecting the interest of small enterprises and restricting business concentration. Even though both the Mexican Constitution and LFCE ban monopoly, no section of the law deals with monopoly as such or with abuse of dominance. Such an approach would make sense where there was a functioning and effective ex-ante regulatory regime that could constrain exploitative abuses where entry constraints are significant and durable.

Cofeco, as noted above, is formally empowered to declare dominance in a series of markets, and it has declared Telmex dominant in the following relevant markets: call origination, call termination, local transit and wholesale leased lines. In addition, Telcel has been declared as having significant market power in the relevant market of mobile telephony (retail services) in the entire country.

There is also a pending declaration by Cofeco regarding intermediate services for mobile services. This declaration is significant in that it allows Cofetel to impose asymmetric interconnection regulation. According to Section 63 of the LFT, if Cofeco issues a declaration about the existence of substantial power, then Cofetel could apply asymmetric regulation over the company declared dominant. Cofeco has been working on this course of action for almost three years, but Cofetel seems reluctant to proceed given that this designation of dominance is itself subject to appeal.

Competition law applies to the telecommunication sector and Cofeco has been involved in numerous telecommunication-related proceedings. Moreover, the Federal Telecommunications Law (FTL) explicitly provides a role for Cofeco in declaring a carrier dominant for the purposes of imposing additional regulation and, as discussed earlier, Cofeco has done so in the case of Telmex and Telcel. The FTL also explicitly provides a role for Cofeco in spectrum auctions.

In 1997, Cofeco issued a resolution declaring that Telmex held substantial power in five markets: local fixed telephony, national and international long-distance telephony, inter-urban transportation, and access or interconnection services. At that time, Telmex challenged the said resolution before the judicial authorities. Following ten years of appeals, the rulings favoured Telmex and the regulatory authority was unable to apply any kind of asymmetric regulation to Telmex on the grounds that it is a dominant operator.

The Cofeco resolution was confirmed in February 1998, following a Telmex petition for reconsideration. This resolution is important because Cofetel is authorised by the FTL to impose specific obligations on concessionaires it deems to have substantial market power. Cofetel has publicly declared that such new obligations will include provisions for avoiding predatory pricing in competitive markets, and restrictions on supra-competitive pricing in less competitive markets, as well as additional conditions on quality and information. Telmex filed an injunction against Cofeco's decision and the decision was"on hold" pending Cofetel's decision as to the nature of the new regulations. Telmex finally obtained the annulment of the decision.

In June 2006, Mexico passed a competition law that gave Cofeco additional authority to regulate market concentration and anti-competitive behaviour in both the private and public sectors. Cofeco, until the last Competition Law reform in 2011, only had administrative enforcement powers but no criminal enforcement powers. The reform of the law gave Cofeco more power to investigate and fine as well as allow for criminal punishments against individuals

In June 2009, Cofeco issued the first two resolutions: a dominance declaration on local transit calls and leased lines. However, regulatory gamesmanship thwarted these determinations. In early 2009, when Cofetel published new interconnection regulations requiring all operators to provide third-party access, Telmex responded by cutting planned investments in 2009 by a third.

Telmex is the only supplier of dedicated link services with almost nationwide coverage. Therefore, the Telmex network is an essential facility[21] for other operators who need these links to complement their transportation infrastructure, or to reach customers in places where they do not have infrastructure of their own.

On 21 January 2010, Cofeco also confirmed its finding that Telcel has a dominant position in the mobile market. The ruling confirmed a previous declaration of dominance in October 2009. According to the latest ruling, Cofeco found that Telcel has the power to fix prices and therefore warrants special regulation on quality and prices. Telcel had the right to appeal and did so. There have been two rounds of dominance findings in Mexico: one began in 1997, and was litigated thereafter, and the second started in 2007 and currently comprises four markets for Telmex in leased lines (local, domestic long distance, international long distance and interconnection leased lines) and two markets for Telcel.

In August 2011, the Supreme Court decided that Cofeco should consider the request from Telmex/Telcel to review its decisions on market power (dominance). Cofeco had previously rejected the request, but now has to review its dominance findings, due in 60 days. As pointed out earlier, Cofetel had not begun its process to impose remedies arguing that appeals were pending. Only in September 2011 did Cofetel initiate a new process (for the first time since 2000) to impose obligations on Telmex/Telnor[22],

associated with dominance in leased lines markets (after Cofeco re-issued the dominance declaration).

In January 2010, Mexico's cable operator association, Canitec, asked Cofeco to block the merger between América Móvil's mobile operator, Telcel, and its fixed line operator, Telmex. The association warned against the risk of Telmex and Telcel reaching agreements regarding interconnection rates that could distort competition. However, in February 2010, Cofeco approved the merger, allowing América Móvil to consolidate holdings in the sector.

In 2011, reform of the Competition Law gave Cofeco criminal enforcement powers in addition to its administrative enforcement powers; specifically it granted Cofeco greater powers to investigate and fine as well as allow for criminal punishments against individuals.

There are now signs that Cofeco is now taking a tougher stance towards anti-competitive conduct. On 15 April 2011, Cofeco confirmed that it had found Telcel to be engaged in "monopolistic practices" by overcharging its competitors for connecting calls to Telcel subscribers, and had charged its rivals higher interconnection rates than those related to connecting calls between its own clients. Further, Cofeco noted that the interconnection rate for other operators was, in fact, higher than the full price Telcel charged its subscribers to make a call. Cofeco found that Telcel had abused its substantial power in the market to unfairly displace its competitors, and thus affect the competition process in the landline and cellphone markets, thereby hurting the consumer (TeleGeography, 2011).

The fine imposed by Cofeco was the maximum allowed for repeated offences by the newly adopted reforms in the competition law and equivalent to 10% of Telcel's assets. Cofeco disclosed that its commissioners had voted 2-2, with one abstention, with Cofeco's president voting in favour of the fine to uphold the decision. Cofeco said that it had taken into account the seriousness of Telcel's practice, how intentional it was, the duration of the practice and Telcel's share of the market.

It is notable that Axtel made the allegation of anti-competitive conduct (predatory pricing, including "price-squeezing", cross-subsidies, blocking of the productive process and reduction of consumer demand) in September 2006. It took Cofeco five years to determine a resolution. The long period of investigation prior to reaching a decision and imposing a fine is symptomatic of a major problem in the Mexican telecommunication sector. The delay enabled Telcel's behaviour, now described as monopolistic, to continue for a further five years. Telcel has appealed the decision. The underlying and critical problem is that anti-trust regulation is repeatedly overturned or suspended in Mexico's courts.

2.7. Convergence in communication markets

In Mexico, the Law of Radio and Television initially regulated conventional over-the-air broadcasting under the responsibility of the *Dirección General de Sistemas de Radio y Televisión* of the Under-Ministry of Communications in the SCT. Following a 2009 Supreme Court ruling, Cofetel became responsible for broadcasting. Responsibility for content remained with the Ministry of the Interior (*Gobernación*).

Convergence of telecommunications and audiovisual services poses increasing challenges to regulatory frameworks in most OECD countries, and indeed worldwide, as

today's networks are able to provide a variety of services (broadband, voice, video, etc.). Mexico is not a distinct case in this regard, but suffers a significant lag in effective competition dynamics. This makes any decision taken surrounding convergence issues crucial. The challenges are two-fold: convergence may provide a unique opportunity to address ineffective competition, but it can also help leverage Telmex's market power to a wider range of services, and thus worsen the current situation.

The switch to DTT (digital terrestrial television)

More than ten OECD countries have already completed the transition to digital terrestrial television (DTT), and the European Union has established a target of 2012 for switch-off of analogue emissions. This transition constitutes a unique opportunity to release spectrum resources, as a result of greater spectrum efficiency, and make them available for advanced mobile services such as mobile broadband. Another benefit of this transition is a greater choice of TV channels, which may lead to audience fragmentation, challenging existing revenue models.

In Mexico, a Presidential Decree issued in September 2010 advanced the digital switchover from 2021 to 2015. The Presidential Decree recognised the need to accelerate this change and set the start date for 2011 with completion planned for 31 December 2015 at the latest, in order to maximise the benefits of the released spectrum resources. It also laid down a number of actions to be undertaken by the Federal Government: to extend DTT coverage, to increase competition and diversity in the television industry, to foster new services, to release the 700 MHz band by 2012 and facilitate the provision of other telecommunications services to make efficient use of this band. In particular, Cofetel was designated as the responsible authority to undertake any necessary actions to cease analogue emissions, to conduct spectrum allocation processes for the 700 MHz band, and to attribute new broadcasting licenses for the new digital technology. Cofetel is now reviewing its action plan to accelerate the analogue switch-off (a tentative date is 31 October 2016). Due consideration should also be given to ensuring a high take-up of digital receivers.

Between September 2010 and June 2011, the Mexican government licensed 146 new digital television channels, reaching a total number of 224 licensed channels. Even though the Presidential Decree did not rule on implementation issues regarding the transition to digital television, it provided a major step forward and built momentum and awareness of the need to accelerate the switchover. However, certain major issues remained unresolved, such as finalisation of the transition plan and funding for the project.

However, this decree has encountered various legal challenges. In October 2010, the Supreme Court suspended implementation of the decree following a complaint from several congressmen and senators, that it represented an unlawful use by President Calderon of the powers of Cofetel. This means that implementation will be suspended until the Court takes a decision on the substance of the claim, which may take up to two years. The specific terms of this injunction have not been made public yet. As a result, neither the SCT nor Cofetel may implement the decree's content, unless the President revokes the decree or the Supreme Court lifts the suspension.

While some analysts argue that an oral instruction of the President to Cofetel would suffice to launch this process, the government defends the necessity of the decree, stating that the project involves several government offices, and that a decree is required for Cofetel to proceed.

Regardless of the institutional framework in Mexico and the actual legal configuration with respect to the digital switchover, it is crucial that Mexico recoups the delay to release the digital dividend, take up digital television and improve mobile broadband connectivity. This is particularly important given the weak development of fixed broadband infrastructure.

Of course, important issues remain to be solved to ensure the digital switchover meets with success. In addition to ensuring comparable coverage, TV-receivers must be replaced at an acceptable pace. In other countries, a market-only approach has achieved an acceptable rate of replacement with no need for government subsidies; however, the success of this approach remains to be seen for Mexico. In fact, analogue receivers are still being sold in Mexico. Any ambitious plan to accelerate the switchover should carefully examine these constraints and avoid situations of exclusion, given the higher share of low-income population (and terrestrial-only viewers) in Mexico when compared to other OECD countries.

Competition and plurality in the Mexican free-to-air (FtA) television market

The Mexican free-to-air (FtA) television market is currently dominated by two players: the Televisa media group with a 70% market share and three networks; and TV Azteca, owned by Grupo Salinas, with a market share of about 30% and two networks, plus some regional broadcasters in Mexico D.F., the northern part of the country and Guanajuato. Television licences are only granted to Mexican companies, which may partly explain why no licenses have been granted since 1994. In 2006, Congress passed the Federal Law of Radio and Television (FLRT, *Ley Federal de Radio y Televisión*), and some amendments to the FTL (Federal Telecommunications Law). Some argued that these exempted FtA broadcasters from paying spectrum fees and helped maintain the status quo between the two national broadcasters. Another alleged shortcoming of this law was that it limited the ability of the government/regulator to undertake spectrum management and planning. The Supreme Court issued a decision on the law that annulled some of its provisions, such as the use of auctions (*i.e.* use of economic criteria only) to award broadcasting licenses, an entitlement to offer telephony and Internet without a public tender, no additional fees for licence renewals, a fixed 20-year concession duration, and so on.

Mexico needs more FtA broadcasters in order to enhance media plurality, especially given that the cable TV sector has very low national coverage compared to terrestrial television. Implementation of digital terrestrial television would allow a significant increase in the number of licensed broadcasters. More spectrum should be made available to develop further access by Mexicans to mobile broadband. This would also have an impact on the development of competition in broadcasting and the development of local content, which would result from the emergence of new broadcasters in the market. As mentioned, media plurality could improve in Mexico, where two FtA broadcasting groups dominate. In addition, one group owns a DTH provider and a large part of the cable-TV market. Digital terrestrial television provides sufficient spectrum efficiency to have a third and a fourth nationwide digital television broadcaster. Nevertheless, until the digital switchover is complete, one positive transitory solution may be to enable these new broadcasters to provide service over analogue technology as well.

At present, 224 local DTT channels are licensed up to June 2011; however, none of these is national, and plans to license another national broadcaster are currently on hold. Cofetel's action plan for 2011-12 envisages a feasibility study on awarding additional

digital-TV concessions. However, it does not specify additional information and the study will only be finished by the third quarter of 2012. Cofetel has announced its intention to initiate the process to auction two additional television licenses. Ambitious and rapid actions are needed to achieve greater media plurality in Mexico. Strong political will is also necessary to avoid another failed attempt (as happened in 2007-08), as the process will likely face challenges in the courts from incumbent broadcasters.

Ownership of television broadcasters is restricted to Mexican nationals. There are also various restrictions on content (*e.g.* 80% of broadcasting must be in Spanish, privilege national content and strengthen national identity, foster local and national values and creativity, etc.). While provisions to foster local content can be justified on the grounds of cultural identity, restrictions on ownership are no longer warranted in an increasingly globalised world. Mexico is not alone among OECD countries in imposing limitations on foreign investment in the broadcast delivery sector; nevertheless, in view of the significant dominance in the market and the availability of sufficient legal instruments to the Mexican authorities to ensure compliance with content issues, there is little justification to restrict foreign direct investment in media.

The pay-TV market

The Mexican pay-TV market underwent a period of major changes during the last two years. Before 2008, Televisa media group subsidiaries and other players like Megacable largely controlled the cable pay-TV service, while Sky, another subsidiary of Televisa, controlled the satellite, direct to the home (DTH) pay-TV market. Then in 2008, Dish (owned by MVS) reached a strategic partnership with Telmex, which provides billing services and space in its retail stores for Dish to sell pay-TV subscriptions. Dish targeted the lowest price-segment of the pay-TV market with a drastic price cut, offering a lower number of channels. It gained 2 million subscribers in two years, while reducing the price of DTH subscription by 70%. Its market share is now 40% of subscribers and 20% in terms of revenue. Telmex also offers an inexpensive bundle comprising landline and Dish pay-TV service, which is billed by Telmex, but specifies Dish as the DTH provider. The pay-TV market has also expanded to cover a larger customer base, as many more families can now afford to buy pay-TV services.

Competitors have stressed that non-discriminatory clauses form part of Telmex's concession title. Since it refuses to sign a similar deal with other players, competitors argue that Telmex is engaging in discriminatory practices. They also allege that the Telmex-Dish offer is predatory, as the bundled price is well below the sum of the standalone prices of each of the individual services provided. They argue that Telmex provides financial support in addition to marketing and billing services. These arguments have not been substantiated, but should be investigated by Cofeco and Cofetel. Cofeco has already examined the Telmex-DISH alliance, following a complaint and rejected the case. A new complaint was recently filed and, in July 2011, Cofeco stated that it would re-examine the Telmex-Dish alliance.

To date, no general must-carry or must-offer obligations exist in the Mexican market. This means that pay-TV players must negotiate contract terms, should they want to carry FtA channels. Given Televisa's and TV Azteca's bargaining power, this mechanism is very likely to have a harmful impact on third (especially small) pay-TV operators.

Cofeco has imposed certain obligations on Televisa as a result of its takeover of Cablemas (2008): the company must offer 15 channels (including four channels for Mexico City), with some exceptions where the obligations no longer hold (*e.g.* the must-

offer obligation does not apply to pay-TV operators with more than 5 million customers). As a result, Televisa currently offers a bundle of FtA plus ten pay-TV channels for a uniform price (around USD 2) to pay-TV companies with less than 5 million subscribers and USD 500 million in annual revenue. To date, it is not possible to purchase only FtA channels.

Cofetel is now revising the regulations covering pay-TV and radio services (*Reglamento del Servicio de Televisión y Audio Restringidos*). Cofeco's chairman has also repeatedly requested Congress to modify the Federal Radio and Television Law to include a must-offer obligation for FtA channels for free, arguing that this will result in greater competition in the pay-TV sector, lower prices and higher penetration. Alternatively, Cofeco could impose these obligations in the context of a merger review (as happened following the takeover of Cablemas), for which an opportunity could be found in the coming months, as consolidation is still ongoing in this industry.

A TV license for Telmex

For a number of years Telmex has been trying to obtain permission to provide television services (video over its DSL network) over its network. At present, Telmex's license expressly prohibits Telmex from offering pay-TV services, directly or indirectly, but the company has requested an amendment to its concession title.[23] Nevertheless, Telmex may freely request an FtA television concession, if one was made available, but it cannot provide television services over its telephone/broadband network. It should be noted that cable-television operators are now entitled to provide telephone and broadband over their cable networks. Most of them (Cablemas, Megacable) are engaging in triple-play strategies, thus benefitting from convergence and bundling. Under the current concession regimes, Telmex cannot respond with a triple-play offer.

As early as 2007, the SCT had discussions with Telmex to modify its concessions to enable the company to provide pay-TV, and at the same time to try and improve competition by obtaining Telmex's agreement on a number of outstanding regulatory issues. The negotiations were not successful. The request to provide television requires a change in Telmex's concession by the SCT. However, Cofetel needs to deliver an opinion on whether Telmex should obtain permission to enter the broadcasting market, and in order to do this it must also ensure that Telmex, among other things, is complying with its concession obligations.

In its response to the initial request to enter the broadcasting market, the SCT issued the so-called Convergence Agreement in October 2006.[24] The agreement specifies the process and conditions for restricted pay-TV services provided by fixed-line telecommunications companies, and for fixed-line telecommunication services provided by cable television companies. In essence, to achieve a modification of its concession to allow it to provide pay-TV services, Telmex must comply with three conditions stipulated in the agreement concerning: number portability, interoperability (ensuring compatibility between competitors' systems and those of Telmex and Telcel) and interconnection. In light of the Convergence Agreement, Telmex requested a favourable opinion of Cofetel in July 2008 regarding compliance with the obligations laid down by the agreement. Cofetel delivered no response to this request and, following court action by Telmex, the court argued that Cofetel's non-response was to be regarded as a positive opinion (*afirmativa ficta*). In May 2011 the court gave the SCT two weeks to issue a decision and accept or refuse Telmex's change of its concession title.

The SCT subsequently refused Telmex's request on the grounds of non-compliance with some elements of the agreement, namely refusal to provide the authorities with sufficient information, and the quality of interconnection services provided to requesting operators. Telmex, the SCT said, remains free to request an amendment of its concession title when compliance with the requirements of the agreement can be verified.

Regardless of procedural and judicial issues related to the change of the concession title, this debate needs to be reframed within a wider perspective. On one hand, convergence is an increasingly important technological trend, which regulators and policy-makers cannot overlook. As such, telecommunications and cable operators in OECD countries offer triple-play services with few restrictions and, in many cases, the obligation to offer terrestrial channels. It is also important to eliminate barriers to market entry in the broadcast sector as well as in the telecommunication sector. In this regard, Mexico is one of the few countries (the other exception is Luxembourg, under certain circumstances) where the incumbent operator cannot sell a triple-play offer. In the Latin American context, Argentina is another example where similar concerns have led the regulator to ban any triple-play offer from the incumbent.

However, the Mexican market has certain characteristics, which should compel authorities to consider very carefully whether Telmex should be entitled to provide pay-TV services. First, Telmex has been highly successful in challenging asymmetric regulation in courts up to now. Among OECD countries, it is one of the few incumbents that has managed to escape obligations systematically used in most countries, despite its dominant position in the Mexican market. Second, Telmex is in a position to leverage its market power in broadband and telephony to the pay-TV market, taking advantage of service bundling. Moreover, Telmex's nationwide network and financial power makes it capable of deploying pay-TV services extensively within a very short timeframe. In addition, Telmex is very active in the Spanish content market in Latin America, so it has the capacity to enter rapidly the television market in Mexico. These factors may contribute to increasing Telmex's market power and allow it to leverage this power in the pay-TV market. Yet, in principle, the benefits of convergence would suggest that there should be freedom for market participants with different technology platforms to enter each other's markets. The challenge is to find a process that would allow Telmex to provide pay-TV while ensuring fair competition.

One approach might be to spell out in more detail the conditions of interoperability and interconnection stipulated in the Convergence Agreement (2006), taking as a basis the Technical Plan on Interconnection and Interoperability of 2009. In addition, a further condition should be that Telmex and Telcel accept asymmetric regulation and, in particular, provide a reference interconnection offer based on the Cofetel interconnection model, providing a service level agreement with quality of service conditions (including access to passive infrastructure such as ducts, poles, towers and buildings for collocation), accepting full local loop unbundling, and accepting the elimination of the non-competitive zones by providing local interconnection.

These obligations must be set up then verified, so that future legal challenges can be avoided. This would require Telmex to recognise the details of an agreement and be subject to a probationary period where compliance would be tested before granting a change in Telmex's concession. That is, the condition should not be based solely on undertakings made by Telmex, but on actual demonstrable satisfaction of specified conditions. As noted earlier, Cofeco has twice found Telmex and Telcel to be dominant, a condition that would permit the application of asymmetric regulation against them. The

decision has not been applied because of delays resulting from legal action. The condition that Telmex accept asymmetric regulation is justified as a means of finally circumventing Telmex's delaying tactics.

2.8. Next generation access

Mexico needs to develop a broadband plan and consider how to ensure competition in a next generation access environment. If access is achieved to the incumbent's network, for example, through local loop unbundling (LLU), it would be very easy for the incumbent to adopt new technologies, such as VDSL or GPON FTTH networks, which are not very conducive to LLU. In this context, policies to ensure competition must also be forward looking. OECD countries are responding differently to this situation given, in particular, the concern that investment in fibre to the home (FTTH) is expensive. Moreover, except in very densely populated areas, the market may not be able to support more than one player. With low cable coverage there may even be little chance of having duopoly provision in a market.

This is why some countries (Table 2.5) have introduced operational separation (*e.g.* Italy) and functional separation (*e.g.* Sweden, United Kingdom), while others are introducing models that include vertical structural separation (*e.g.* Australia, New Zealand). It is important that Cofetel have the power to impose, if necessary, some form of structural remedy in the future.[25]

Mexico's national digital agenda

Mexico has identified three main components in the development of an information society: e-government, the digital economy and social connectivity (the main focus of this strategy is society and the main responsible institution is the SCT). Responsibility for the diffusion of information communication technologies (ICTs) and their use, dealing in particular with quality, access and price issues in the market, has been given to Cofetel, the Federal Commission for Regulatory Improvement (Cofemer), the Ministry of Economy and the SCT. The Digital Agenda e-Mexico programme is the responsibility of the SCT and is aimed at decreasing the digital divide by increasing connectivity and promoting digital inclusion. Increased connectivity targets broadband access in schools, health centres, government offices and (digital) community centres. The goal is to have 60% of Mexicans using the Internet by 2012, and to achieve a 20% penetration rate for broadband. This goal is much more modest than those set by other OECD countries (Table 2.6).

Table 2.5. **Approaches to NGA market structure, access and development in selected economies**

Category	Economies	Comments
Primary reliance on market forces for NGAs	China, Finland, Hong Kong (China), Korea, Switzerland, United States	The presence of extensive coverage of cable service is an important factor.
Determine where bottlenecks are and take action through access regulation	Austria, France, Portugal and most other OECD countries	Most countries are making some effort in regard to access regulation.
Develop end-to-end infrastructure competition through LLU, but without imposition of functional or structural separation	France, Germany, Ireland, the Netherlands, Portugal, Spain	The relative success of *ex-ante* access regulation, including LLU, is considered an important contributing success factor; Portugal was a pioneer in adopting the Reference Conduit Access Offer (RCAO).
Access regulation plus functional separation	Italy, New Zealand and United Kingdom	Functional separation has been installed as a complement to access regulation.
Facilitate deployment of a wholesale backbone network	Argentina, Chile, Italy,	Government initiatives to catalyse or fund a high speed backbone network
Government participation in NGA fibre deployment	Australia, France, Japan, New Zealand, Portugal, Singapore and Sweden	For example, government-private sector co-operative arrangements have been used in these countries.
Deploy a prospectively structurally separated NGA wholesale operator	Australia, New Zealand and Singapore	At the extreme, 100% government funded (although with intention of privatising in eight years).

Source: OECD (2011).

Table 2.6. **Broadband plans by country**

Country	Commitment
Australia	By 2021, the National Broadband Network to cover 100% of premises, 93% of homes, schools and businesses at up to 100 Mbps over fibre, with the remainder at up to 12 Mbps over next generation wireless and satellite.
Austria	By 2013, 100% of the population to be provided with access speeds of at least 25 Mbps.
Belgium	By 2015, 90% of families to have broadband and 50% of residents to be using mobile Internet.
Canada	Consultation in 2010 on "Building a World-Class Digital Infrastructure".
Chile	By 2011, to provide Internet access to 3 million rural households. By 2014, 100% of school and 70% of households to have broadband. By 2018, 100% of households.

.../...

Table 2.6. **Broadband plans by country** *(continued)*

Country	Commitment
Czech Republic	By 2013, speeds of a minimum of 2 Mbps in all populated localities and a minimum of 10 Mbps in cities. By 2015, rural areas to have at least half of the average speed of cities and 30% of premises in cities to have access to at least 30 Mbps.
Denmark	By 2020, 100% of households and businesses to have access to 100 Mbps.
Finland	By 2010, every permanent residence and permanent office of business or public administration body must have access to a fixed or wireless subscriber connection with an average downstream rate of at least 1 Mbps. By 2015 practically all (more than 99% of population) permanent residences and permanent offices of businesses or public administration bodies to be no more than 2 km from an optical fibre or cable network permitting 100 Mbps connections.
France	By 2012, 100% of the population to have access to broadband. By 2025, 100% of homes to have access to very high speed broadband.
Germany	By 2014, 75% of households to have download speeds of 50 Mbps.
Greece	By 2017, 100 Mbps to all homes.
Hungary	By 2013, broadband coverage to be 100%, and average speed to be 2 Mbps, with a target for 2020 of 30 Mbps.
Iceland	By 2007, all Icelanders who so desire should have access to a high-speed connection.
Ireland	By October 2010, in areas where there was no broadband a mobile service (using HSPA), was required to be in place with a minimum download speed of 1.2 Mbps and a minimum upload speed of 200 kbps.
Israel	Broadband included in universal service.
Italy	By 2012, all Italians to have access to the Internet at between 2 and 20 Mbps.
Japan	By 2015, fibre optic highways to be completed enabling every household to enjoy a broadband service.
Korea	By 2010, to provide broadband multi-media services to 12 million households and 23 million wireless subscribers. By 2012 to raise average speeds to 10 Mbps with a maximum of 1 Gbps.
Luxembourg	By 2015, FTTH to every household. By 2020, 1 Gbps to every household.
Mexico	**By 2012, 22% broadband penetration.**
Netherlands	-

.../...

Table 2.6. **Broadband plans by country** *(continued)*

Country	Commitment
New Zealand	By 2019, ultra fast broadband to 75% of New Zealanders where they live, work and study. By 2015, 80% of rural households to have speeds of at least 5 Mbps, with the remainder to achieve speeds of at least 1 Mbps.
Norway	By 2007, all citizens to be offered high-speed broadband.
Poland	By 2013, 23% of population to have access to broadband. A citizen who has no computer may use one of the numerous points of access to digital services, which are located in public institutions.
Portugal	By 2012, 100% of municipalities to be covered by fixed NGN. By 2015, 100% national coverage by LTE.
Slovak Republic	By 2013, 100% of population to have a minimum speed of 1 Mbps. By 2020, to provide access to high speed broadband of at least 30 Mbps.
Spain	By 2011, minimum speed of 1 Mbps broadband access available to 100% of population. By 2015, 100 Mbps broadband available to 50% of population.
Sweden	By 2015, 40% of households and businesses to have access to 100 Mbps. By 2020, 90% of households and businesses to have access to 100 Mbps.
Switzerland	Since 2008, a universal service obligation of 600 kpbs.
Turkey	The opportunity of high quality and affordable broadband access to all segments of society.
United Kingdom	By 2015, to bring "superfast broadband" to all parts of the UK and to create the "best broadband network" in Europe. To provide everyone with at least 2 Mbps and superfast broadband to be available to 90% of people.
United States	By 2010, at least 100 million homes to have affordable access to actual download speeds of at least 100 Mbps and actual upload speeds of at least 50 Mbps. By 2020, every household to have access to actual download speeds of 4 Mbps and actual upload speeds of 1 Mbps.

Source: OECD (2010).

The private sector, through industry groups (Canieti, Amiti and Amipci), is also putting forward a national digital agenda. Industry has stressed the need to encourage more investment, including foreign investment, to accelerate access to the Federal Electricity Commission's (CFE) dark optical fibre and eliminate the 3% special telecommunication tax. Mexico only has Telmex's telecommunications transportation network whose 107 000 kilometres of optic fibre covers approximately 85% of the territory. There remain areas in the country where Telmex's network constitutes the only option for the transmission of Internet services. The only other network that has national

presence is the Federal Electricity Commission's network. Moreover, SCT is considering using satellite and wireless technologies to cover areas out of reach of CFE's fibre network. It would be more efficient if there were a single national broadband plan, which all market players could agree to.

When only one transmission network exists, it is possible for the operator of that network to charge prices well above the costs of the service and/or to limit or degrade the access of third parties. In such areas, the transportation costs can represent up to 70% of the operational costs of the service, making it commercially unviable for potential operators to provide services in such areas. The Federal Electricity Commission's optic fibre network capacity provides a significant potential to increase competition in the backbone and backhaul market.

2.9. Quality of service

The 1990 Telmex concession specified targets for network expansion and quality of service. Failure to meet these obligations requires Telmex to provide a rebate to subscribers. The required targets are negotiated every four years between Telmex and Cofetel. The Telmex licence imposes an obligation to meet certain quality standards (Box 2.5). These should be published on a regular basis. Other operators are also subject to quality of service conditions as part of their concession obligations. As noted in the section on interconnection, firms that are dominant in the market should be required to provide their wholesale customers with a service level agreement, which sets down quality of service parameters in areas such as interconnection, leased lines, and so on.

Quality of service information can help consumers to improve decisions regarding their choice of provider. When this information is absent, or when it is provided in a complex or difficult to understand way, this may contribute to poor purchasing decisions, and/or inhibit consumer switching. Quality of service performance measures can be important in increasing transparency and providing consumers with additional material upon which to base decisions. They may also increase incentives for service providers to improve quality of service (*e.g.* where performance rankings are published and have reputational impacts).

A number of OECD countries publish quality of service performance indicators. For example, in 2005, the UK regulator, Ofcom, issued a directive mandating that disclosure of quality of service information occur in an objective, reliable, timely and up-to-date manner in regard to the following (Ofcom, 2005):

- Supply time for initial connection;
- Fault rate per access line;
- Fault repair time;
- Time to resolve complaints received by the service providers;
- Complaints regarding incorrect billing.

Box 2.5. Telmex's quality of service obligations

Index of service continuity

- Lines with failure: relation of the monthly amount of lines in each Telephone Operation Branch of Telmex that presented failure reports regarding total lines in service.
- Repair same day lines: percentage of lines that are repaired within one working day following receipt of the complaint.
- Repair of lines in three days: percentage of lines that are repaired within three working days following receipt of the complaint.

Basic quality of service index

- Public service booths: relation of monthly amount of public telephone booths in each Telephone Operation Branch of Telmex that did not present failure report regarding total booths set.
- Obtaining a dial tone in four seconds: percentage of call attempts on peak hour traffic that receive a dial tone within four seconds.
- First-try local calls: percentage of local calls in peak hour traffic arriving at their destination, regardless of whether they are busy or not answered, not considering incomplete dialling or non-existent numbers.
- First-try long distance calls: percentage of automatic long distance and international calls phone to phone in peak hour traffic that reach their destination, regardless of whether they are busy or not answered, not considering incomplete dialling or non-existent numbers.
- Operator long-distance answering service (02 and 09), failure reception reports service (05), and directory information (04 and 07), within 10 seconds: Percentage of calls to those services that operators answer within 10 seconds.

Quality of private lines and circuits index

- Maximum term to install a private line.
- Maximum term to install private circuits.
- Maximum repair term of private lines and circuits.

Source: Cofetel.

In Australia, the Telecommunications Industry Ombudsman supports provision of quality of service information and considers that the availability of reliable and comparable information about the quality of services provided by telecommunications services providers can assist consumers in making informed decisions (*ibid.*). The Australian Ombudsman believes that such disclosure provides a further incentive for improving customer service across the industry as a result (*ibid.*).

Cofetel should consider requiring fixed and mobile operators to publish an agreed set of quality of service indicators. It is also important that in reviewing whether Telmex is meeting its concession requirements that Cofetel verify whether Telmex is complying with its obligations regarding quality of service standards.

Concerning mobile service, the government publishes data on quality of service for mobile voice services only in some Mexican states. However, there is recognition that more attention is required. In February 2011, Cofetel approved the new Fundamental Technical Quality Plan of Local Mobile Service. The final plan foresees publication of the data. However, this should be published in a way that is meaningful to informed consumer decision-making, and in a way that provides incentives for service providers to further improve quality of service.

With regard to broadband, a number of OECD countries (notably the United Kingdom) have endorsed websites where users can test the speeds and characteristics of their broadband connections. This will help consumers verify service provider claims in regard to quality of service and will contribute to encouraging efforts for improvement in this regard.

2.10. Resource issues (spectrum, infrastructure sharing)

In the past, allocation of spectrum was sporadic, creating a shortage and providing a commercial advantage to companies that had spectrum resources. In 1998, Mexico began, for the first time, to require tendering for spectrum resources (using a simultaneous ascending auction). This was followed in 2005 with an auction for personal communication services (PCS). In 2007, the Supreme Court ruled that a pure auction procedure was unconstitutional (*Acción de Inconstitucionalidad 26/2006*) for spectrum auctions. Cofetel applied the Court's findings to auctions for broadcasting and mobile services, and in particular, Auctions 20 and 21 (launched at the end of 2009).[26] Cofeco played an important role in this process by setting spectrum caps (70 MHz for auction 20 and 80 MHz for auction 21) at levels that avoid spectrum accumulation by one market player, thus harming competition. This involved compliance with the Supreme Court decision, which established that spectrum auctions could not be based on an economic criterion only. New rules included the use of caps to favour new entrants and greater flexibility in allowing for the transfer of resources between companies. However, there was no new allocation of spectrum resources between 2005 and 2010.

Spectrum management in Mexico is conditioned by one fact and one projection. The fact is that the dominant mobile operator, Telcel, currently holds about 70% of mobile subscriptions. Such a degree of dominance in a market place not characterised by natural monopoly properties is sometimes encountered in very small economies, but it is unprecedented for large countries such as Mexico. The projection is that mobile data traffic in Mexico will grow 65-fold from 2010 to 2015, from 918 terabytes per month to 60 petabytes per month.[27] Given the incomplete coverage of fixed networks in Mexico, wireless technologies are likely to provide a large component of broadband services, and are thus key to achieving the well-attested gains in economic growth which broadband can bring.

The principal challenges for spectrum policy are thus to provide the capacity to achieve the country's broadband objectives, and to achieve a more balanced competitive structure in the mobile communications sector.

The spectrum management regime

Several governmental and regulatory actors are involved in the design and implementation of spectrum management policy:[28]

- Cofetel has the duty: "to manage the radioelectric spectrum and promote its efficient use, to elaborate and update the National Frequency Allocation Chart" (FTL, Article 9-A), and "to propose updates to the National Frequency Allocation Chart and carry out those approved by the Plenary, and to propose to the Plenary [Board of Commissioners] the planning guidelines for the administration and orientation in the efficient use of radioelectric spectrum" (Article 23). Cofetel also manages the tendering process.
- The "SCT is the only agency capable of issuing telecommunications concessions, including the concession to use, enjoy or exploit any frequency band in the national territory, except the free use and official use spectrum" (Article 11 of the Federal Telecommunication Law).
- The Ministry of Finance sets spectrum fees.
- Cofeco approves requirements to be fulfilled by those interested in bidding for spectrum licences, including any spectrum caps.

The FTL specifies that concessions for frequencies for certain commercial uses be granted by public bidding, and this method has been employed since the passage of the law for mobile communications frequencies. According to Article 16, public bidding rules at least must include:

- The investment, coverage and quality programmes and obligations that bidders propose rendering;
- The business plan;
- Technical specification of the projects;
- Anti-crime measures;
- Cofeco approval.

Foreign investment in the telecommunications sector is allowed up to a maximum of 49% foreign participation. This proportion can be exceeded in mobile services, subject to approval by the National Commission of Foreign Investment. Concessions for frequencies can be granted for up to a 20-year term, which can be renewed by the SCT. There is a power vested with the SCT to amend and transfer concessions. To renew a spectrum license, the SCT must first obtain a technical opinion from Cofetel and a proposed renewal fee based on the spectrum value from the SHCP. This process may be repeated several times until the SHCP agrees on the proposed fee. Finally, the operator must agree on the amount of the fee or withdraw its request for renewal.

The Federal Law on Public Fees (*Ley Federal de Derechos*) establishes that payments for frequency concessions be made at least partially in annual instalments, rather than as a single payment.[29] Accordingly, the Ministry of Finance sets an annual charge, which the concessionaire must pay. Competitors then bid against each other subject to this operation. The Ministry's goal in setting the annual concession price is to capture a significant portion of the rents associated with the frequency in question. For this reason,

it takes an interest in estimates of the opportunity costs of particular frequencies and in auction revenues observed in other jurisdictions.

Except possibly for the statutory role of Cofeco, the above account suggests that Mexico exhibits the same processes that take place in many jurisdictions where spectrum auctions occur. Compared with more market-oriented countries, licensing is neither technology nor service-neutral. Nevertheless, this makes relatively little difference in view of the above-noted projected growth in mobile data traffic. The business plan obligations are fairly extensive; they include technical, coverage, investment and financial projections, as well as matters relating to labour and training, including recruitment.

Recent awards for mobile communications

Two auctions of spectrum for mobile communications, known as Tender 20 and Tender 21 and described in more detail below, took place in 2010. The outcomes of these auctions, in terms of spectrum holdings of the four mobile operators, are set out in Table 2.7, which is only indicative, as some holdings vary by region.

Table 2.7. **Spectrum holdings with national coverage of mobile operators (800, 1900 and 1700/2100 bands) in MHz, 2010**

		Holdings in MHz		
Operator	**% of subscribers**	**Before the Tenders**	**After Tender 20**	**After Tender 21**
Telcel	70	54	54	77
Telefónica	22	39	55	61
Iusacell	4	44	54	53
Nextel	4	22	23	53

Source: For data on spectrum holdings: Cofetel.

A major feature of Tenders 20 and 21 was that they were designed to promote competition. Thus, Telefónica was awarded spectrum that allowed it to offer 3G services in competition with Telcel. Iusacell, Telcel and Telefónica were also subject to spectrum caps, proposed by Cofetel, and agreed after amendment by Cofeco, which prevented them from acquiring all the new spectrum.

In addition, Cofetel made explicit attempts to encourage a new international entrant to enter the market. These efforts were unsuccessful, but the combination of this and the spectrum caps limited competition for spectrum in the second of the two 2010 tenders, allowing the sole qualified bidder to pay the reserve price at auction, which was considerably less than that paid previously by Telcel and Telefónica.[30] However, because most of the spectrum revenues are recovered in annual payments, the difference in total amount due over the 20-year period is proportionately much less.

The successful bidder was a joint venture of Nextel and Televisa. The former is a mobile operator with a large market share of the heavy-using corporate segment of the market and a share of mobile revenues estimated to be 13%, three times larger than its 4%

share of subscribers. The latter is Mexico's largest broadcast television company with substantial cable interests.

However, Televisa pulled out of the joint venture and instead formed an alliance with Iusacell. The entire auction process has been challenged in the courts. However, the process shows how auctions can be designed to achieve competition goals. Some authors[31] have estimated consumer gains associated with Tender 21, as a result of increased competition and lower prices, in the range of six to eight times the amount the government received as a result of the auction. Moreover, if Tender 21 were to be annulled, these authors estimate that consumer loss would be around USD 2.594 billion (MXN 35 billion) in the event of 60 MHz being reallocated in two years.In regard to the release of spectrum to achieve competition goals, another issue is the fact that so few auctions have been held to allocate spectrum.

Prospective spectrum awards for mobile communications

The expected sharp growth in mobile data in OECD countries will require more frequencies to be made available, if a so-called "spectrum crunch" is to be avoided. The analogue switch-off is creating opportunities for spectrum to be released across the OECD for the purposes of mobile communications, further digital terrestrial service or other services.[32] For this reason it is important for Mexico, as argued above, to move forward quickly with its plans to implement the switchover to digital television.

Firm decisions on new allocations of spectrum for mobile communications in Mexico have not been made, and any public tenders will have to go through the process described above, which require the participation of the SCT, the Ministry of Finance, Cofetel and Cofeco. Bands under consideration include some or all of the frequencies below (Table 2.8).

Table 2.8. **Possible additional spectrum awards for mobile communications**

108 MHz at 700 MHz
30-60 MHz at 1.7-2.1 GHz
190 MHz at 2.5 GHz
150 MHz at 3.4-3.6 GHz

Source: OECD interviews.

However, not all of these releases are feasible in their entirety for a variety of reasons, including current occupancy and possible interference with the United States. A more realistic figure is said to be 280 MHz, equivalent to about half the goal for new mobile communications spectrum in the United States' national broadband plan.

Part of the 2.5 GHz band is currently occupied with a multichannel multipoint distribution service (MMDS) broadcast service. The concession has already expired in some areas, whereas in others it will last until 2017. The concessionaires proposed a renewal, initially to provide a worldwide interoperability for microwave access (WiMax) service, latterly a long-term evolution (LTE) service. These plans are currently being litigated in the courts. The government has not accepted the request from the MVS-led

consortium to amend and extend the concession to provide mobile broadband services. Concerns about the viability of the project (which announced plans to invest USD 1 billion to deploy a nationwide network), and about establishing a license fee (by the Ministry of Finance, derived from the new use of the band, *i.e.* mobile broadband services) currently keep the project on hold. In parallel, the SCT is also considering whether to auction part of the 190 MHz licensed to MVS in this band.

Spectrum for broadcasting

Spectrum is the medium for delivering broadcast services, both free-to-air terrestrial services and pay satellite services. The latter sector, which provides a minority of Mexico's pay-TV customers with service, has recently seen the entry of a new competitor, Dish (Section 2.6). Satellite broadcasting frequencies (used for pay-television services) are not contested by mobile communications services, so that allocation decisions involve considerably less balancing of the advantages and disadvantages of competing services.

Cofetel has announced its plans to analyse and hold a public tender for assignment of spectrum to new free-to-air television broadcasters (using digital terrestrial broadcasting). Cofeco has publicly supported Cofetel on this matter. This operator would then compete with the largest broadcasters, Grupo Televisa and TV Azteca. As discussed above, this process was launched in October 2011 and is currently under discussion by Cofetel board, with a planned capacity of up to two transmission channels with national coverage. Cofetel will carry out a public consultation by November 2011 and expects to complete the study by the third quarter of 2012. The legal design of the process will be crucial, as multiple legal challenges are expected from the affected stakeholders. Moreover, the public tender needs to be carried out through a new process, as laid down in the FLRT, that will be undertaken for the first time in Mexico.

Spectrum for mobile broadband

Required reform in the mobile and spectrum market is conditioned by the fact that there is a market player with significant market power with a market share much larger than most mobile operators in other OECD countries, and the fact that Mexico is unlikely in the short to medium term to be able to ensure national fixed broadband coverage. This implies that the simple release of spectrum into the hands of existing operators would be likely to support the continuing dominance of Telcel. This may be challenged by collateral regulatory policy, such as the substantial recent reduction in the mobile termination rate, but the prospect of Telcel translating its dominance in voice into dominance in mobile data is a very uncomfortable one. This implies that new spectrum awards should be designed with the goal of achieving a more competitive structure in the mobile sector. In fact, such restructuring is often best achieved by the spectrum-licensing method than by other interventions, such as the application of competition law. However, they are not mutually exclusive and both can be used to good effect.

Tenders 20 and 21 were designed to promote competition. They produced some favourable outcomes. Nextel gained significant spectrum sufficient to build a 3G network. Despite having only 4% of the total subscribers, its post-paid, high ARPU clientele, principally the business community, may involve heavier usage and therefore greater spectrum needs. Prior to the auction, Nextel had about half the spectrum holdings of Iusacell, and is now at the same level with nearly 53 MHz. Telefónica also gained, as noted earlier, being awarded spectrum that allowed it to offer 3G services.

Where the Cofetel plan to increase competition failed was in its attempt to recruit a new international operator to challenge Telcel directly. Several major international operators were approached, but none took part in the auction.

One powerful deterrent to entry is likely to have been Telcel's dominance and the perception that the regulatory regime had failed to constrain anti-competitive behaviour. As a result, a potential investor considering the history of the Mexican telecommunications sector since liberalisation would be very reluctant to commit capital to Mexico. Indeed, Cofetel has reportedly attributed the failure of the 2010 spectrum auctions to attract a foreign bidder to such investor concerns. Recent developments in regulation may start the process of dispelling such impressions, but investors are likely to want to see improvements in process and decisions more favourable to entrants for a sustained considerable period.

In fact, further awards for mobile communications can probably be postponed for a few years, or may have to be while frequencies are cleared for re-farming. Such an interlude may allow confidence-building measures recommended in this report to go ahead. There is, however, a more direct and efficient approach. The government can take matters into its own hands by allocating a significant part of 700 MHz spectrum to an operator that, instead of being vertically integrated into the downstream retail market, will act as a platform for competing MVNOs; in other words, it would be a carriers' carrier, providing a transport and access network. Coverage would be an objective, and use of 700 MHz spectrum (which permits a wide radius of service from any base station) would make the network particularly well suited to serving rural areas.

The tendering process would be designed to attract private investors. The award criteria would be a combination of the coverage offered, the wholesale price the network would charge for access, and a subsidy, if necessary, if proposed coverage is very ambitious and, as a result, could lead to a negative present value in the short to medium term. It would be structured as a menu auction with tenderers able to offer different configurations to be chosen by the government. This would enable domestic operators to enter the market without incurring the cost of bidding for spectrum and building a network. Existing network operators could also become customers of the new network. In practice, the government would not want the new wholesale network to drive out competing networks, because of the loss of capacity which that would bring, and also because to do so would replace one dominant network (Telcel) with another.

The proposal would deprive the government of significant revenues in the short term, but an intervention of this kind, if properly calibrated, would give a major boost to competition, accelerate the roll-out of mobile data to remote regions, and raise broadband penetration rates with consequent benefits for the economy, which would likely more than compensate for the loss of revenue.

There are, however, risks in the proposal. First and foremost, there is an execution risk. Any such proposal would attract considerable opposition from all the mobile operators and companies with a stake in them. Calibration of the wholesale prices would be particularly hazardous. If they were too high, the network would be a white elephant; if they were too low, the new network would put competitors out of business and create a government-sponsored monopoly. The government would be under constant pressure from the concessionaire to raise the prices it could charge. In practice there would have to be "re-opener" clauses on those prices, which lead to difficult negotiations. Regulators might also exhibit a relationship of co-dependency with the concessionaire. While there

are risks, there is also sufficient international experience that could help in reducing or overcoming these risks.

In short, this policy would be recommended in circumstances when the prospects for alternatives are poor – in particular, if there were reason to believe that any other measures would entail the continued dominance and exercise of market power by Telcel in the mobile voice market and its likely extension into mobile broadband. This should of course be assessed through a market analysis and review, where many parameters are taken into account (*e.g.* market shares, price level, countervailing buying power, etc.). As previously noted, Telcel's market share is very high relative to other OECD markets. The success or failure to translate Cofeco's finding that Telcel is dominant in the mobile telecommunications market into asymmetric regulation would be one important consideration, as it would highlight the lack of capability to impose obligations on a dominant player.

However, it is important for the regulator to curb market power of existing market players so that spectrum caps for future spectrum auctions can be designed in a way that limits additions to existing large spectrum holdings. In addition, consideration should be given to introducing a spectrum floor. This novel approach, recently introduced by Ofcom, will not accept an outcome to a combinatorial bidding process that does not offer a specified amount of spectrum to at least one newcomer. In effect, this gives a preference for a lower bid from an entrant over a higher one from an incumbent.

Auction of dark fibre

After several years of trying to get access to dark fibre owned by the Comision Federal de Electricidad (CFE) [Federal Electricity Commission], the SCT finally obtained a pair of the Commission's optical fibres in 2010 through an auction process. The terms for assignment of the concession were as follows: i) to grant a concession for use of a pair of dark fibre cables in the high-tension network, totalling 19 467 km; ii) to conduct independent processes in the three geographic areas into which the network has been divided to prevent allocation of more than one area to the same bidder; iii) to expand the network by up to 1 735 km (complementary segments), under the responsibility of the selected providers, but with CFE maintaining network ownership; iv) to maximize revenue collection, with the possibility of accepting combined allocation proposals; and v) to sign a mandatory concession contract with the winner renewable for 20 years.

The sole bidder for this fibre was a consortium comprising Megacable, Telefónica and Televisa. They paid the government MXN 884 million (approximately USD 75 million; just over the minimum price) for the "dark fibre" network, and plan to invest MXN 1 400 million (USD 118 million) to build out and light up the network, which can carry voice, data and video. The fibre will provide these companies with a national backbone to expand their telecommunication services, including broadband. Up until now, competitive providers seeking routes to transport long-distance voice traffic had little choice but to rent capacity from Telmex. The fibre auction was an important step forward towards increasing competition in communication markets (*e.g.* long-distance, broadband), although the CFE network only reaches 50% of the population. It was unfortunate that more dark fibre was not made available and that, when making the fibre available, consideration was not given to the fact that some companies had indicated interest in a sub-regional allocation of fibre.

The CFE is also planning to light their own fibres and connect with CFE's network through more than 100 "carrier hotels" to provide connectivity to many remote regions. In addition, another programme is being developed to connect schools, health centres and offices of government throughout the country with resources of the Secretariat of Public Education, the SCT and state governments through a wireless local network that uses the 3.3 GHz band.

Infrastructure sharing and rights of way

The FTL states that any public rights of way made available to a licensee should also be made available on a non-discriminatory basis to other licensees. These rights of way include poles and ducts in which public networks are installed. However, there are no provisions to require operators to share their own passive infrastructure. Operators encounter several barriers when deploying network infrastructure, for example, the need to request rights of way (in the public or private domain); access to third-party facilities; and problems with the deployment of masts, poles, towers, and so on. The procedure to grant permits to deploy infrastructure can take several months and the outcome is by no means certain. This constitutes a huge barrier further impeding the development of competition, particularly as the incumbent already owns a national network of facilities and therefore has no general need to request permits. For example, Iusacell entered the mobile market in the late 1980s, prior to Telcel. However, Telcel was able to deploy its infrastructure much more quickly than Iusacell, as a result of Telmex's nationwide facilities, with poles and antennas capable of deployment without requests for rights of way, and so on. As a result, Telcel experienced a large increase in market share and overtook Iusacell.

Most OECD countries are in one way or another trying to remove barriers to infrastructure deployment. The ability of competitors to deploy fixed and mobile infrastructure easily is key to their ability to provide credible competitive offers, and expand coverage.

A further issue is infrastructure sharing, which is frequently used to increase efficiency and cut costs. It can involve sharing support infrastructure, network elements, access to facilities (collocation), and so on. Infrastructure sharing plays a significant role in adjusting the pace of deployment of mobile network infrastructure, and is becoming increasingly common in OECD countries, especially for rural areas. In 2009, Telefónica and Vodafone reached an agreement to share infrastructure in European markets where both are present (Reuters América Latina, 2009).

So far, no effective policy has been established on infrastructure sharing or rights of way in Mexico. As such, permits are still difficult and burdensome to obtain, and operators (especially entrants) face serious difficulties in deploying their networks. The Technical Plan on Interconnection and Interoperability (2009) put forward significant proposals for facility-sharing, in particular obligations for sharing of ducts, poles and antenna towers as part of its interconnection proposals. However, the proposals were suspended as a result of court injunctions sought by Telcel, Télefonica and Telmex. Article 63 of the FTL requires dominant carriers to meet requests for sharing of ducts, poles and antennae towers. But there is a need to designate a carrier as dominant. This requirement has met with no success in Mexico to date; furthermore, the obligations imposed on a carrier, once declared as dominant, have to be specifically imposed on the carrier.

The recently released Digital Agenda of Mexico (ADN, 2011) includes some proposals to take advantage of state-owned infrastructures to deploy telecommunications networks. Namely, it proposes to provide, at reasonable cost, space in state-owned building for infrastructure deployment, rights of way, and space in street cabinets or in other government-owned facilities. Another goal included in the digital agenda is to simplify and facilitate the grating of permits to deploy networks.

Mexico should look further into ways to facilitate network deployment, thus removing one of the main barriers to competition and network expansion. Given the difficulties in imposing asymmetrical obligations on the incumbent, it seems that the easiest option is to make available government facilities (federal, state-owned, municipal, etc.) for mobile operators to deploy their networks, while at the same time accelerating procedures to grant rights of way.

Mexico would greatly benefit from a revision of its highly heterogeneous set of rules for obtaining rights of way for the deployment of telecommunications infrastructure. Three problems should be noted: *i)* the high number of procedures, permits, and requirements needed prior to the installation of infrastructure at a given location; *ii)* the great differences between written and unwritten rules from county to county in this matter; and *iii)* extortion and/or corruption behind the procurement of rights of way. All these have a non-negligible impact on the time to market for services, their profitability, and the overall dynamics of network deployments.

2.11. Universal service

Universal service or access regulations are used to try to ensure that everyone in a country can access a predefined set of basic telecommunications services at affordable prices. Ensuring universal service may involve the provision of some services to some end users at prices that depart from those resulting from normal market conditions. The method of compensating the universal service provider should not result in a reduction or distortion of competition. This is best achieved by only compensating for the specific net cost involved, provided that the net cost burden is recovered in a competitively neutral way.

The concept of universal service is evolving to reflect advances in technology (notably broadband) and other market developments, as well as changes in user demand. Services typically specified as falling within the concept of universal service include access and voice (and associated directory and public access points). Broadband access is also increasingly considered in this regard, although generally only once initial universal service targets in terms of basic services have been met.

As with most other aspects of regulatory control in Mexican telecommunications, the main instrument regarding provision of universal services is dictated through Telmex's concession. Telmex is obliged to achieve a programme of network expansion and modernisation according to specific goals agreed every four years with the SCT. These four-yearly reviews of targets include programmes of expansion for rural telephony, for which foreseeable conditions of demand and associated costs are considered in determining service provision.

Since 1 January 1995, Telmex has commited itself to install a basic telephone service in all areas with a minimum of 100 connection requests. Installation must be carried out within 18 months of the requests being received. Telmex also has to service populations included in the programme of described expansion of rural telephony. This will include

those populations for which Telmex can recover at least 75% of the costs of installing and maintaining the operating service. In order to cover localities not originally offered cover, the SCT has developed programmes to provide telephone service for common use with satellite and wireless equipment in localities with populations of between 100 and 499 inhabitants. From 1995 to 2010, Telmex reported investments of USD 548 million for the expansion of rural telephony.

In 2002, a universal service fund, the Fund for Social Coverage (*Fondo de Cobertura Social*) was established. The fund is finacing three universal service projects. Two projects (MXN 645 million) were awarded to Telmex to install 254 000 new lines in 11 076 rural communities with over 500 inhabitants. The line would be provided with no monthly rent, no charges for incoming calls, and a pre-paid system, as well as Internet and data transmission. For the lowest income cummunities, the line would be provided with no installation fee. The third project is being implemented by Telecomm (state-owned satellite provider) to connect 11 000 telephony and broadband Internet sites (MXN 577 million) for telecentres. The universal service programme has aimed at providing at least one telecentre (Community Digital Centre) per municipality in the country. Of the telecentres established to date, 71% have been set up in schools and libraries (where they are accessible to the poor and staffed with people offering technical assistance on computer use). Part of the telecentre programme aims to develop local educational, health, economic and government content. Criteria for selecting areas are: i) lowest adoption of residential telephone lines; ii) households that would be able to pay for telephone service; and iii) no commercial operators providing the service. Each area is then weighted in line with an index of social marginalisation, income levels, the portion of households without telephones, and the number of households that would benefit from coverage expansion.

A particular problem with universal service funding is identifying the appropriate level of subsidy required. Historically, universal service subsidies have effectively taxed other telecommunications services via cross-subsidies. However, the introduction of competition makes the use of such mechanisms inefficient; moreover, they may also constitute competitive distortion.

The Universal Service Funding in Mexico is currently allocated on the basis of a reverse auction. In general, the idea behind reverse auctions is that firms bid for subsidies; the firm with the lowest bid, that is, the firm that asks for the smallest subsidy, provides the service. Countries have used reverse auctions to provide universal service with some success, and their experiences show that reverse auctions can decrease substantially subsidies. Nonetheless, their experiences also demonstrate that, as in any auction, the rules matter a great deal. While reverse auctions may be a very good mechanism to reveal the true costs of service provision, there remains an underlying presumption that there is more than one credible bidder. In order to bid credibly, alternative operators need to be in a position to deliver the universal service obligation, and therefore to buy basic wholesale services at a minimum, which they can depend upon with minimum quality of service standards. The value of a reverse auction is discounted to virtually zero (or worse, more is paid than would otherwise be the case) in a monopoly bid situation.

In Mexico, Telmex has significant advantages by virtue of its existing infrastructure, which gives it a comparable advantage relative to potential competitors in terms of preparing a bid to provide universal service. In order for another party to prepare a competing bid to provide universal service, Telmex's advantages need to be minimised,

by making information available, giving access to critical access products and so on. This should be a primary consideration for policy-makers with regard to allocation of universal service funds.

Without access to basic competitive products (or evidence of selective delivery), no competitive universal service bid in Mexico is credible. The structure of current universal fund allocation therefore cannot be separated from more general considerations regarding the competitive conditions in Mexico. Access to unbundled local loops, an established leased line regime, and so on, will be prerequisites to justify a reverse auction type approach. Any finance granted to extend network coverage into non-economic regions should also carry open access obligations.

The continuation of current Universal Service Fund allocation should be dependent on alternative carriers having adequate access to wholesale access products to compete for the universal service delivery contract.

Currently, a 3% tax is in force, imposed by Congress on the industry. The proceeds of this taxation go to the central exchequer, even though they are collected exclusively from the telecommunications sector, except for Internet and rural telephony. The preferred action is to eliminate this sector-specific tax, which essentially gets passed on to consumers. However, if it is to be retained then it should be directed to support the telecommunication sector, in particular to extend the coverage and scope of universal service delivery in Mexico through the Fund for Social Coverage.

The Mexican government can also participate in lowering the costs of providing universal service through the leverage of state assets to extend network coverage. Since many of the areas being covered are remote, yet may have some other general economic infrastructure in place, the leverage of that infrastructure can lower costs significantly. Making available more CFE fibre would be helpful in extending coverage to areas that are not well covered with communication services.

2.12. International aspects

Foreign ownership

Mexico is one of the few OECD countries (together with, for example, Canada and Korea) that impose limitations on foreign ownership in the telecommunication sector. Foreign ownership of a fixed-line operator is limited to 49%. In the case of a cellular operator, a higher level (up to 100%) of foreign ownership may be allowed, subject to the approval of the National Foreign Investment Commission. The restriction on foreign ownership (Article 12 of the FTL) is detrimental to the development of new entry, and therefore to competition in the Mexican market. It also stands in contrast to the active role played by América Móvil in the Latin American market, as well as in the United States.

Foreign ownership restrictions can result in a higher capital costs and potential difficulties for new entrants trying to obtain equity capital. In addition, these restrictions lead to lower investment performance. This has implications for the development of competition in the telecommunication sector, resulting in higher prices and slower diffusion of new technologies. Competition has also changed the nature of service offers. Most multinational businesses want end-to-end service from their telecommunication service companies. Access by these companies to cheap, good quality communications on an end-to-end basis (nationally and internationally) is often important in maintaining their international competitiveness. Foreign investment restrictions effectively limit the choice

of large users of telecommunication services by placing limitations on market access, and consequently penalise the competitiveness of Mexican manufacturing and service industries.

Mexico is committed to the pro-competitive regulatory principles inscribed in the WTO "Reference Paper", attached to the February 1997 Agreement on Basic Telecommunications. Accordingly, Mexico has obligations to ensure that its major suppliers provide interconnection at any technically feasible point of its network at cost-based rates, and to maintain appropriate measures to prevent its major suppliers from engaging in anti-competitive practices. In this context, Comptel (a United States trade association) has issued a complaint on the basis of a report prepared by the United States Trade Representative (United States Trade Representative, 2010), that actions issued by Cofetel to sanction Telmex have not been implemented by the SCT (at least not fully). Furthermore, Comptel highlights the following anti-competitive activities in which Telmex is alleged to have engaged since 1991, the year that telephony was privatised in Mexico:

1. Blocking a major part of the competitive traffic carried into the rural half of Mexico;
2. Illegally inserting lengthy recorded messages into calls carried into Mexico by certain competitive carriers, telling United States and Mexican customers that future calls may be not completed if they use that carrier;
3. Refusing to allow competitors to install local or long haul facilities that would provide competitive termination for United States carriers;
4. Maintaining differential and discriminatory pricing structures for interconnection and termination services;
5. Refusing to provide carriers with interconnection in Non-Equal Access (NEA) calling areas that would represent more competition and better rates for the public;
6. Providing interconnection at a degraded quality level;
7. Failing to consolidate local area codes as ordered by Cofetel such that the calls between two areas would be considered as a local call and not a long-distance call, which would result in huge savings for the public and the carriers.

Comptel complains that these practices and abuses have continued unpunished for lack of authority and effective regulation by the Mexican government/regulatory authorities. Comptel points to the complaints presented by the various companies competing in the Mexican telecommunication market, emphasising that presented by Marcatel in November 2008 regarding interconnection practices, which has, to date, remained unanswered by the SCT. Comptel states that one of Mexico's WTO commitments is to require its major supplier to provide interconnection to its network on non-discriminatory terms and conditions, in a timely fashion and upon request. Comptel argues that the SCT's failure to implement Cofetel's recommendations, with respect to interconnection, and to resolve Telmex's disputes with competitive carriers, is a violation of Article 2 of the WTO Reference Paper.

Comptel also refers to the recordings Telmex inserted into calls made through Marcatel from the United States to Mexico in May 2010, which stated that: "the long-distance carrier was not paying the contracted rate to the local operator (Telmex) and, if that continues, then the local operator will no longer complete calls", causing confusion and distrust among users.

The analysis developed by Comptel was published as a direct appeal to the SCT, which was responsible for resolving these conflicts. Comptel said its requests to facilitate interconnection for Mexican competitors, to fix prices for call termination, and to provide an immediate response to complaints submitted by the competing companies to Comptel, especially the sanctions issued by Comptel against Telmex in April 2010, remain unanswered by the SCT.

2.13. Consumer protection and empowerment

In Mexico, as in other OECD countries, policy-makers and regulators repeatedly assert that the aim of market liberalisation, competition and pro-competitive regulation is the enhanced welfare of consumers. Indeed, the importance of consumer protection is well recognised in Mexico. For example, Annex II of the SCT's 2006 Convergence Agreement includes a number of conditions relevant to consumer protection, such as a licensee's obligation to:

- Make available a code of commercial practices;
- Set up a plan to fulfil the communication need of disabled users;
- Implement systems to receive complaints and fix faulty services, with customer services available 24 hours per day;
- Report certain information by way of a monthly report.

Profeco is a body established within the Ministry for the Economy with responsibility to protect the interests of consumers in Mexico. Cofetel, too, has responsibilities to protect the interests of telecommunications consumers. Indeed, Cofetel has recently established a consumer liaison section. This is a welcome initiative that explicitly recognises the importance of consumer protection. Profeco and Cofetel recently signed a partnership agreement to enhance the welfare and protection of consumers.

However, the specific responsibilities of each authority involved with consumer protection must be more clearly specified. For example, if a customer is dissatisfied with a service provider's handling of a complaint, there should be a clear procedure for taking the matter further, whether through Cofetel, Profeco or some other entity. According to Profeco,[33] if a provider does not respond to a consumer's complaint, the consumer has the right to go to the Attorney General and file a claim against the supplier. The supplier then has one year from the failure to file a complaint with Profeco. Likewise, if the dispute is not resolved during the conciliation proceedings, the parties may seek arbitration if the parties (consumer and provider) agree to the procedure. By helping to empower consumers, the authorities can help to advance competition since consumers can play a significant role in the competitive process. All service providers should be required to establish minimum benchmarks for ensuring timeliness in dealing with complaints, documenting procedures and collecting, analysing and reporting complaints information.

In comparison with other OECD countries, there seems to be considerable scope in Mexico for more concrete action to protect the interest of consumers. Protecting and empowering consumers is essential, not only because it safeguards consumer welfare, but because it is critical to the development of effective competition. The degree of competition is influenced by the extent to which consumers actively engage in markets. Active engagement occurs when consumers know what services, providers and technologies are available; when they can compare services in terms of price and quality; when they can seek out new services and technologies; and when they are able and willing to switch to a preferred supplier.

The ability and willingness of consumers to switch from one service provider to another is of critical importance. It is by switching that consumers punish poor performance. The ability of consumers to switch between service providers easily and at low cost, encourages providers to cater to customer requirements or risk losing them to the competition. High search and switching costs deter consumers from switching. Number portability lowers the cost of switching by allowing telephone users to keep their number when changing telephone service providers. This option has been introduced in Mexico. The growth in numbers ported between April 2010 and April 2011 and corresponding breakdown are shown in Table 2.9.[34] The net gainers from number portability in April 2011 were Bestphone, Cablemas, Megacable and Telcel.

There have been complaints about the number portability process, including delays in porting numbers and the fact that, contrary to expectations, Telcel has gained rather than lost customers. Cofetel chairs and co-ordinates a Number Portability Committee, which comprises industry representatives. It is important that a future glide path be developed to reduce the porting process to a single day with a minimum loss of service for customers.

Table 2.9. **Total of all ported numbers in Mexico (as of April 2010 and April 2011)**

	April 2010	April 2011
Ported numbers of post-paid fixed service	523 185	828 123
Ported numbers of pre-paid fixed service	2 696	3 495
Ported numbers of post-paid mobile service	64 607	106 650
Ported numbers of pre-paid mobile service	1 142 053	2 532 572
Total effective ported numbers	1 73 2541	3 470 840

Source: Cofetel.

In the context of high mobile subscription penetration, three important steps could increase consumer empowerment: required unlocking of mobile handsets to facilitate customer switching, reduced limits to the "lock-in" period in contracts, and reduction of early exit penalties.

According to Profeco,[35] there is no legislation in Mexico governing forced deadlines and penalties for early termination. The agreement signed between the provider and consumer constitutes the obligations to be met by both parties. Profeco and Cofeco share responsibility to ensure that the contract does not contain unfair terms or conditions, and that penalties are proportionate to the service and equitable between the parties.

In the context of broadband, ISPs have a strong tendency to advertise their broadband products based on fast headline speeds. In practice, these headline speeds are frequently unachievable by many consumers.[36] With consumers' interests in higher broadband speeds likely to rise, it is important to address this mismatch between service provider promise and customer expectation, so as to avoid confusion, frustration and complaints. The mismatch can be very significant. For instance, in the United Kingdom, data released by Ofcom in March 2011 show that the actual average broadband speed of 6.2 Mbps achieved is less than half the average advertised speed of 13.8 Mbps (Ofcom, 2011). A code of practice would be helpful to encourage ISPs to provide consumers with more information at point of sale on the speeds they could expect to obtain from their broadband service.

Cofetel recently established a microsite called "MiCofetel" on its website with the objective of geographically collecting consumer complaints of consumers about telecommunication services. It provides consumers with information about their rights and how to assert them, and advice to make informed consumer decisions. It is also intended to improve transparency on the quality of services offered by local operators. One of its most important services is to measure the actual broadband speed received by consumers. MiCofetel provides data about the main complaints of every concessionaire, in such a way that Cofetel can address its monitoring activities efficientiently while fostering the protection of consumer rights in a co-ordinated action with Profeco.

2.14. Streamlining regulation and application of competition principles

Many OECD countries endorse regulation in the telecommunications sector (as elsewhere) as a necessary minimum. With regard to efforts to streamline such regulation, this means that a regulatory provision that becomes unnecessary (*e.g.* because effective competition has developed in that market) should be abandoned. In some OECD countries, regulators abstain from applying regulation. In some countries (*e.g.* the United Kingdom), the regulator, (Ofcom) applies a geographically segmented approach to withdrawing regulation from segments of a national market assessed to be competitive, without waiting for the entire national market to be considered competitive. The guiding principle is that regulation should be withdrawn when no longer considered necessary. This would be premature at present for the telecommunication market in Mexico where, as discussed earlier, vigorous *ex-ante* regulation is required. The task here is to install a robust pro-competitive regulatory regime, with streamlining towards a general competition law regime some way off yet.

Another aspect of streamlining regulation, particularly in an era of convergence, is the importance of treating converging sectors symmetrically to avoid distortions due to application of different regulatory requirement. Towards this end, regulation on the basis of general competition law should increase as competition develops, thereby moving towards symmetrical regulation. But, as noted earlier, where competition is at an early stage of development – as in Mexico's telecommunication markets – sector specific *ex-ante* regulation may be necessary as a complement to competition law regulation. This situation may result in some overlap in regulatory responsibilities.

In this context, it is important that Cofetel and Cofeco co-operate closely to co-ordinate their roles on enforcement activities. In some OECD countries (*e.g.* Australia and the United Kingdom), *ex-ante* sector specific regulation of the telecommunications sector is performed within the same regulatory agency as competition law regulation of anti-competitive behaviour. Where the roles are performed by separate agencies, it is crucial that mechanisms for co-operation and common/co-ordinated approaches be formally established. To this end, many telecommunication regulators and competition bodies have created an official co-ordination mechanism, or the sector-specific regulator and the competition authority have agreed upon, and published, a co-operation protocol. Such a protocol describes the mechanism that will determine the regulatory institution in charge of specific cases/issues and ensures that both bodies use a common terminology to avoid misunderstandings.

In the Mexican context, Cofeco's input into Cofetel's regulatory deliberations is invaluable, in view of its expertise in assessing how regulatory constraints affect anti-competitive behaviour. However, it is important that this input be incorporated in ways that avoid/minimize overlap and delay (*e.g.* by Cofeco's views being taken into account as part of Cofetel's wider consultation). In other words, it would be preferable if Cofeco's advice has the same status and is subject to the same deadlines as other evidence-based submissions, with Cofetel solely responsible and accountable for making decisions.

The overlap between Cofetel's responsibilities and that of the SCT is another example of the need to streamline regulation in Mexico. As already noted, the so-called "double window" results in long delays in decision making, which is harmful to competition.

Notes

1. *Ley de Entidades Públicas Paraestatales*, *www.siem.gob.mx/siem2008/Leyes/LeyFederalDeLasEntidadesParaestatales.pdf*, Ley Orgnánica de la Administración Pública Estatal, *www.ordenjuridico.gob.mx/Federal/Combo/L-165.pdf*.

2. See *http://gaceta.diputados.gob.mx/Black/Gaceta/Anteriores/61/2011/jul/20110711/Iniciativa-8.html*

3. After the last spectrum auction, Cofetel should have received additional funding but the Ministry of Finance did not provide these funds.

4. Information about Commissioners appointment is found in articles 9-B, 9-C, 9-D and 9-E of the Federal Telecommunications Law. De facto it appears that the President of Mexico plays a key role in the appointment.

5. Cofetel is subject to the Federal Law on Transparency and Information Access.

6. The current internal rules (*Reglamento Interno de la Comisión Federal de Telecomunicaciones*) are available at: *www.cft.gob.mx/wb/Cofetel_2008/Cofe_reglamento_interno_de_la_cofetel*.

7. Federal Competition Law (*Ley Federal de Competencia Económica)*, *www.diputados.gob.mx/LeyesBiblio/doc/104.doc*

8. In the context of obtaining information, Telcel obtained an *amparo* that allowed it to refuse to provide Cofeco with information. It is not clear whether the new provisions in the law overturn this ruling or whether Cofeco may still appeal or overturn the decision.

9. Article 71 of the FTL.

10. In EU 27 countries, the National Regulatory Authority defines the market and designates any SMP (dominant) undertakings. The National Competition Authority is asked for a formal opinion on the findings but is not binding. A similar approach is also adopted in Chile, Norway and elsewhere.

11. In countries such as France, Germany and Spain an administrative decision is fully enforceable unless it can be clearly shown that there will be damage or result in an irreversible situation. In France, suspension of decisions of the regulator is only granted in cases where there is prima facie illegality and irreparable harm. In Spain, suspension is very rare.

12. As an example, in 2009 in Spain out of 50 lawsuits against the regulator only one led to a suspension. In France, over the period 2007-09 there were 12 appeals, 8 were dismissed, 3 partly quashed, 1 withdrawal and 1 went to the Court of Appeals.

13. Access can be defined access as follows: “access” means the making available of facilities, services or both facilities and services, to another undertaking, under defined conditions, on either an exclusive or non-exclusive basis, for the purpose of providing electronic communications services. It covers, inter alia, access to network elements and associated facilities, which may involve the connection of equipment, by fixed or non-fixed means (in particular this includes access to the local loop and to facilities and services necessary to provide services over the local loop), access to physical infrastructure including buildings, ducts and masts, access to relevant software systems including operational support systems, access to number translation or systems offering equivalent functionality access to fixed and mobile networks, in particular for roaming, access to conditional access systems for digital television services, access to virtual network services; access does not include, apply or refer to access by end users” See Regulation 2 of the European Communities (Electronic Communications Networks and Services) (Access) Regulations 2003 (“the Access Regulations”).

14. *Plan Técnico Fundamental de Interconexión e Interoperabilidad* (PTFII).

15. Alestra *vs.* Telmex and GTM – participated in by Telefónica – *vs.* Telmex.

16. With calling party pays the fixed-line operator collects a retail charge from the caller and retains part of that as a fee providing the rest to the mobile operator for termination.

17. The CFE has a nationwide fibre network of around 22 000 km.

18. About one-twelfth of total capacity.

19. The general framework for price regulation in Mexico is established in the Federal Telecommunications Law (FTL), 2005. While the FTL was amended in 2009, articles pertaining to price regulation were left unchanged.

20. Cofetel submission to OECD questionnaire, 2011.

21. In regard to telecommunications, the term "essential facility" is used to describe the asset or infrastructure that is essential to provide services to consumer or to let competitors take their services from one point to another one, and that is not easily replicable because it requires a huge investment.

22. Teléfonos del Noroeste: Telmex's subsidiary with operations in the north of the country.

23. The change in Telmex's concession prohibiting it from offering television services was also linked to the fact that Telcel was the only mobile operator to receive a license for all nine regions, while its competitors only received regional concessions.

24. *Acuerdo de convergencia de servicios fijos de telefonía local y television y/o audio restringidos que se proporcionan a través de redes públicas alámbricas e inalámbricas*.

25. Telmex itself, with its proposal for a Telmex Social, is in fact putting forward an accounting separated solution for rural areas.

26. The Court argued that auctions based only on the highest offer (economic criterion) contravened the principle of equality in the Constitution, as it would privilege those players with the most economic resources.

27. Cisco Visual Networking Index Forecasts.

28. Special features of the regime for broadcasting are noted below.

29. Note that turning spectrum payments from a sunk into a predominantly variable is likely to change competitive interactions.

30. MXN 180 million as against MXN 5.1 billion.

31. Acosta, Carreón, Elbittar and Huver (2011), *"Evaluación de los Resultados de la Licitación del EspectroRadioeléctrico de la COFETEL y su Impacto en el Sector de Servicios de Telecomunicación Móvil en México"*, CIDE

32. An earlier 2006 law on this matter was partially struck down by the Supreme Court in 2007.

33. Profeco answer to OECD questionnaire, July 2011.

34. Further information about portability and related statistics and the regulatory framework is available at *www.cft.gob.mx/swb/Cofetel_2008/portabilidad.*

35. Profeco answer to OECD questionnaire, July 2011.

36. The reasons for this include: the nature of the customer's line, the capacity of ISPs' networks, the number of subscribers sharing the network, and the number of people accessing a particular website at a particular time. This disparity between actual throughput speeds and headline speeds has led to consumers feeling confused and frustrated.

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Chapter 3

Review of telecommunication policy and regulation in Mexico: Conclusions and recommendations

This final chapter concludes that the unsatisfactory performance of the telecommunications industry in Mexico is the result of the relentless behaviour of an incumbent fixed and mobile provider with significant market power and a dysfunctional legal system that promotes an inefficient industry which is unattractive to international partnerships and therefore is damaging to the economic potential of the country. It then outlines a series of remedies, such as providing the telecommunication regulator with effective powers to create conditions of competition, greater transparency in regulatory processes and a clearer allocation of responsibilities between the Ministry responsible for the telecommunication sector and the regulator.

3.1. Conclusion

The Mexican telecommunication market opened to competition some 15 years ago, but still maintains many of the characteristics of a market in the early stages of liberalisation, in terms of market concentration, observable incumbent behaviour and outcomes. Currently, the fixed line, mobile and broadband markets are characterised by low levels of competition, and about 80% of the fixed-line market is still held by Telmex, with no alternative means of market access available to new entrants. At the same time, about 70% of the mobile market is controlled by Telcel, significantly ahead of the largest competitors (both Telmex[1] and Telcel are owned by the same company – América Móvil; full takeover of Telmex by America Movil is subject to regulatory approval). Telecommunication prices are high, well above equivalent tariffs in most other OECD countries, and are not cost-oriented. Consumer empowerment to exert pressure on competitors to deliver the benefits of competition is insufficient, and has not received adequate attention. The penetration rates for fixed line, mobile and broadband are amongst the lowest in the OECD, and sharp differences in regional penetration prevail. Levels of investment and modernisation have also been lower than in other OECD countries.

The unsatisfactory performance of telecommunication markets in Mexico is, as noted at the beginning of this report, having a significant negative impact on the Mexican economy and resulting in a welfare loss to its citizens. The performance is due in part to the incessant monopoly behaviour of the fixed and mobile incumbent, which cannot be controlled because of a dysfunctional legal system which has, *de facto*, replaced to a large extent the right and responsibility of government to implement economic policy and economic regulation of markets. The fact that telecommunication policy and regulation have in the past been, in general, very weak in Mexico, has exacerbated this inability to develop a dynamic and competitive market in the telecommunication sector.

Many regulatory instruments present in most, if not all other OECD countries, are absent in Mexico (such as *ex-ante* access regulation, including local loop unbundling; asymmetric regulation of dominant operators; cost-oriented interconnection requirements; Reference Interconnection Offers; and mandated functional separation). Inadequate compliance assessment, uncertainty and long delays in regulatory decision-making are common. Penalties are inadequate to deter repeated anti-competitive and predatory conduct and, consequently, the dominant operators appear to disregard important determinations made by the regulator. Other market participants express frustration and loss of confidence with prevailing pro-competitive regulation. This has extended to cultivating the perception held by some overseas operators that the Mexican telecommunication market might just be "too hard" to compete in. A number of foreign operators having exited the market, Telefónica of Spain and Nextel are the only foreign operators directly involved in the Mexican market at present.

Foreign operators may have the resources, expertise and technology to contribute to Mexico's communications needs. Thus, perceptions of ineffective policy and regulation that deter their entry will erode Mexico's strengths and economic potential and, in particular, severely hamper the country's ability to achieve its aspirations regarding high-speed broadband and a digital economy. So the cost of regulatory and policy weakness in regulatory reform could be high.

The view is sometimes expressed that rather than focus on stronger regulation such as *ex-ante* regulation, including local loop unbundling, it would be less intrusive if regulatory effort were put into facilitating the development of alternative networks. However, it is not a matter of either one or the other; both these and other means must be applied. That is, robust *ex-ante* regulation based on asymmetric regulation is needed, as well as development of alternative networks such as access networks based on wireless local loop for broadband and/or optic fibre next generation access and backhaul networks.

Moreover, in view of the ability of major operators to frustrate regulatory determinations through judicial appeals, other approaches may need to be used. A feasible threat is needed that can and will be implemented as a measure of last resort if regulatory decisions continue to be frustrated. The cancellation of a concession is of course available if concessionaires do not meet their obligations, but more realistic measures would be to require functional or even structural separation. Notably, in some OECD countries (such as the United Kingdom), the threat of structural separation has led to voluntary functional separation and "undertakings" by BT to improve provision of "equivalent" inputs to market participants. Other OECD countries such as Australia and New Zealand (and some non-OECD countries, too, such as Singapore) have included structural separation as a central component of the regulatory environment of their next generation networks. Notably, the first results of network separation suggest that achieving "equivalence of inputs'" may in fact be less disruptive and costly to the operators than feared.

Commendably, the last few years have seen important efforts made in Mexico at the policy and regulatory levels to try to reform the sector and implement best practice frameworks. But this willingness to change is only a part of what is necessary. The ability to *implement* recommendations is crucial, and this ability has been frustrated by legal processes that have involved the suspension of regulatory decisions through *amparos* (legal injunctions) and, often, the overturning of policy/regulatory decisions by the courts. Implementation has also not occurred because the institutions responsible for policy and regulation have often themselves not taken advantage of opportunities to implement change.

There are encouraging signs of changes taking place that will support the process of developing competition. There is increasing recognition that the high cost of telephone and Internet service is hindering Mexico's economic growth, eroding its international competitiveness and penalising industry and residential customers. Mexico is recognising that it cannot allow anti-competitive practices to threaten the development of the Internet and the digital economy.

Efforts to strengthen regulation have emerged in the form of determinations by the competition agency, Cofeco, that Telmex is a dominant player in the fixed-line sector and Telcel a dominant player in the mobile sector. These decisions paved the way for Cofetel to impose stricter regulations on these operators. In September 2011, Cofetel finally put forward rules, which would apply to the fixed-line incumbent, with the aim of imposing asymmetric regulation covering tariffs, quality of service and information in the local leased-line market, long distance and international interconnection.

Another notable indication that the regulatory authorities have been trying to take a tougher stance emerged in April 2011, when Cofeco fined América Móvil USD 1 billion for abusing its dominant position by overcharging for network access. Amendments to the Federal Economic Competition Law of May 2011 considerably strengthened Cofeco and now enable it to punish an economic agent that commits an anti-competitive monopolistic practice with fines of up to 10% of its income. A decision in May 2011 made by the

Supreme Court, which states that resolutions issued by Cofetel relating to interconnection between public networks cannot be suspended by judicial appeals to the courts, is also a major step forward in the regulatory process.

In addition, the Mexican government has taken a more active role, calling for further reform of the sector and acknowledging its weaknesses. In early 2010, the government reiterated its intention to strengthen laws and regulatory institutions in Mexico in the interests of greater competition. The recommendations proposed in this report are designed to identify action to support such reform in the telecommunication sector

3.2. General assessment of current strengths and weaknesses

Strengths

In general, Mexico's telecommunication regulation regime has several strengths. Mexico designed and implemented a process of regulatory reform. The first stage of this reform, from 1988 to 1994, involved privatisation and a re-organisation of the government's role. From the Telmex concession in 1990, it is clear that the Mexican regime recognised the importance of and prepared for the development of full competition. The concession itself includes specific competition safeguards, including provisions for price regulation, which were relatively far-sighted for the time.

Box 3.1. **Strengths of Mexico's telecommunication regulation regime**

- A framework/principles for a pro-competitive regulatory regime is available to build on;
- Modern competition law safeguards and a competition enforcement agency has been installed;
- A sector-specific regulatory agency that can become independent of major industry players has emerged;
- Transparent market-based mechanisms have been used to allocate scarce spectrum with explicit provision for a role for the competition authority in assessing impacts on competition;
- There has been some progress in addressing a major problem, interconnection, with a rapid fall in interconnection tariffs, which should place downward pressure on end-user prices;
- The state-owned electricity monopolist owns a fibre-optic network and measures to open some of its capacity to competitors of the market dominant telecommunications company have the potential of significantly spurring competition;
- There is widening recognition that policy-makers and regulatory authorities should ensure that dominant telecommunication operators do not systematically hinder development of effective competition.

The second stage involved a completely new law, the Federal Telecommunications Law (FTL) 1995. This statute incorporates central elements of effective telecommunications regulation. The FTL promotes market mechanisms for the allocation of scarce spectrum rights and explicitly provides for a role for the federal competition authority in assessing market competition. There is an explicit role for competition law.

The FTL also sets out a basic framework for interconnection by rivals to the incumbent's public switched telephone network, and establishes the basis of the institutional framework necessary for independent regulation of the industry. It provided for the establishment of a distinct regulatory agency separate from the government and designed to be independent of the major industry players. Aspects of the structure of the

interface between competition law and sector-specific regulation are included but there is need for improvement.

The Telmex concession also includes provisions for competition safeguards and other regulatory aims, such as quality of service and coverage. There is provision for asymmetric regulation to be applied to an operator that the competition authority (Cofeco) determines to be dominant.

The spectrum allocation regime is market-based and transparent. These mechanisms, together with the active role played by Cofeco, have generated the potential for a competitive market structure in mobile and wireless communications. This strength is reflected in positive developments in the mobile market. In regard to wireless service, some change in the competitive landscape is anticipated with 3G and WiMAX spectrum auctions offering the chance for new entry and the strengthening of competitors such as Telefónica's Movistar. In addition, the proposed acquisition by Mexico's leading television company, Televisa, of a stake in Iusacell would, if it proceeds, add a potentially strong multi-play competitor to the communications landscape. Mobile subscriber growth rates have been strong, although the market share of the largest competitor (at about 20% in terms of subscribers and 12% in revenues) is well below the level of most OECD countries. Mobile subscribership is also low by Latin American standards. This is an important observation since wireless (particularly wireless local-loop) may become a likely alternative to wireline access in countries facing network penetration challenges. Also, mobile broadband is expected to develop strongly. The auctioning of broadband spectrum may further contribute to a more competitive telecommunication sector. Interconnection charges have fallen significantly in recent years.

The state-owned electricity monopolist *Comision Federal de Electridad,* CFE*,* owns a fiber-optic network and opening some of its capacity to competitors of the market dominant telecommunication company has the potential to spur competition in the sector. The network has already been opened to competitors, which is a major step forward. The tariffs should be based upon a long-run incremental cost methodology.

Mexico's large population and economic potential makes it attractive to foreign investment, which can introduce capital, expertise and new technologies to the telecommunication sector.

Finally, there is widening recognition that policy-makers and regulatory authorities must ensure that dominant telecommunication operators do not systematically hinder the development of effective competition, which can make a real difference in the market to the benefit of consumers and businesses.

Weaknesses

Alongside strengths in the policy and regulatory system, there are significant weaknesses and an urgent need for improvement.

Although the FTL provides a basis for the development of competition, it has its flaws and is outdated. To begin with, the FTL places a great deal of power in the hands of the SCT in regard to decisions to grant concessions and the conditions placed on those concessions. Although the FTL explicitly sets out the sanctions that can be applied, the monetary sanctions are too small to make an impact on a large operator, and the only alternative is the draconian step of revoking a concession. The ability to require functional and, if necessary, structural, separation of an incumbent (as a "last resort" measure), would strengthen the ability of the regulator to develop market competition.

Box 3.2. **Weaknesses of Mexico's telecommunication regulation regime**

- An outdated and inadequate Federal Telecommunications Law (FTL), which does not provide sufficient powers to the regulator;
- A flawed concession for Telmex which does not embed obligations that are sufficiently detailed;
- Legal judicial recourse involving suspension and rejection of regulatory decisions through amparos has time and again frustrated/delayed regulation, at times for years;
- Insufficient transparency and accountability in regulatory proceedings, which increases possible legal challenges.
- Mexico is one of the few OECD countries without asymmetric regulation for SMP operators;
- Absence of ex-ante access regulation;
- Absence of asymmetric regulation;
- Available penalties provide inadequate deterrent: withdrawal of concession is probably unrealistic;
- Inadequate assessment and enforcement of obligations under concessions;
- Foreign investment restrictions in the fixed-line market;
- Perception by foreign operators that, because of ineffective regulation, the Mexican telecommunication market is "too hard", deterring their entry.

Telmex's concession also has its flaws and there seems to have been inadequate assessment and enforcement of compliance with conditions in the concession.

There are areas that, in theory, are open to competition, but deficiencies in statutory authority and judicial review procedures constrain the regulators' ability to effectively and efficiently address barriers to the development of competitive conditions. Decisions that the government and regulators should have taken years ago are just being now taken. Even where legal powers exist, inadequate implementation of those legal powers has meant that, in practice, competition is constrained.

The existence of judicial recourse (*amparos*) has allowed the incumbent to delay the implementation of asymmetric regulation. Mexico is one of the few OECD countries that does not have the power to apply asymmetric regulation. There are important entry barriers, notably the absence of *ex-ante* access regulation, including absence of wholesale access products such as bitstream and local loop unbundling (LLU). In 2009, Cofeco declared Telmex, among others, to be a dominant player. Asymmetric obligations, such as LLU, could have been imposed, but have not because the decision concerning the measure is still under judicial review.

This is an example of a broader problem. Appeals to the courts resulting in suspension of regulatory decisions have enabled operators to derail or delay for years the implementation of regulatory decisions. However, there was an encouraging development in May 2011 when Mexico's Supreme Court determined that resolutions issued by Cofetel with respect to interconnection could not be suspended by *amparos* or judicial appeals to the courts. The Supreme Court determined that when disputes between telephone operators on interconnection rates occur, Cofetel resolutions must be complied with and may not be suspended by appeal court judges. Nonetheless, this is only one a single step in the right direction in that the courts still grant suspensions on other regulatory issues (see Annex A).

Regulation cannot be implemented if decisions are not enforced and suspending regulatory decisions can erode the process of developing effective regulation. This is one of the main barriers to competition in the Mexican telecommunication market. Insufficient transparency and accountability in regulatory decision making should be blamed for underperforming regulation. Despite recent improvements, many decisions have not been widely consulted with the industry, and evidence provided by the regulator has not been sufficient to build a solid basis for its decisions. Although the lack of powers to obtain relevant information from the operators is one of the remaining problems, improved transparency and wider consultation procedures would assist in underpinning regulatory decisions.

The foreign direct investment restrictions weaken competition by deterring potential market entry by foreign companies that may have the resources, expertise and technologies to compete successfully.

3.3. Potential benefits of further regulatory reform

The significant potential benefits of regulatory reform have already been referred to above. In fact, Mexican consumers have already received some benefits from regulatory reform. Long-distance prices, in particular, have declined rapidly and sharply. But, as noted earlier, prices for telecommunication services in Mexico remain high. In terms of purchasing power parity, Mexicans pay more than subscribers in most other OECD countries. For example, average monthly price calls baskets for residential services in Mexico are among the highest in OECD countries. According to OECD data, Mexican fixed-line prices for moderate-use consumer and business services exceed OECD averages. This report has already highlighted the loss in consumer surplus arising from high prices.

For broadband too, prices are again among the highest in the OECD, while the penetration rate is the lowest in the OECD and behind other Latin American countries like Argentina and Brazil.

Strengthened competition, which lowers prices, provides more choice, improves quality of services, facilitates consumer empowerment and expands network coverage, can only help to serve the interests of the economy as well as consumers.

The potential benefits of further regulatory reform include investment towards further network development and diffusion. In Mexico's present highly concentrated markets, the entry of additional formidable operators is needed. The new operator based on the Televisa-Iusacell[2] venture has potential, but other operators too, including foreign operators, should be able, and indeed encouraged, to enter the market. Further regulatory reform would help in this regard. Foreign investment restrictions in the fixed-line market have deterred market entry, as have concerns over ineffective regulation, which deterred foreign interest from participating in the 2010 radio spectrum auction, derailing the hope that a new foreign operator would emerge. Curtailing anti-competitive conduct by Telmex and Telcel is a key element in introducing effective competition in the market.

3.4. Recommendations

The following recommendations are based on the assessment presented in this report and on best-practice regulation, as well as the main principles set out by the OECD in its horizontal work on regulatory reform. There are a range of recommendations and their implementation may vary in terms of the ability of Mexican authorities to put them in place: in certain cases implementation may require changes in existing laws, whereas others may require only changes in procedures and practices. There is no single recommendation that will help develop a more efficient and competitive market – change is required on all fronts in order to tackle deeply ingrained monopolistic tendencies in the market. Many of the recommendations necessarily aim at strengthening the sector specific regulator, Cofetel, since market competition must come from constraining abuse of dominant position, while creating opportunities for new entrants to obtain effective and equivalent market access. These areas fall within the ambit of a regulator, but would need in many cases the support of the policy-making body to ensure that new laws are in place, and to confirm the powers of the regulator.

1. Ensure low barriers to entry and "contestable" telecommunication markets

It is widely accepted in OECD countries that telecommunication markets must be kept "contestable", that is, that potential competitors find barriers to entry and exit low such that the market is easily accessible to new entrants. Potential entry acts as a discipline for established operators to behave, thus preventing monopoly rents to be earned. Moreover, the "contestable markets" (Baumol, 1982, pp. 1-15) that prevail when barriers to entry and exit are low will help exert sustained pressure on the behaviour of existing operators in the form of potential competition. That is, where prices are too high, service quality low and technology lagging, there is potential for new operators to enter the market. Maintaining the conditions for such contestable markets is especially important in the technologically dynamic telecommunication industry.

Foreign ownership

The limits on foreign ownership and investment in fixed-line networks that prevail in Mexico erect an obvious barrier to entry, which constrains network development. Foreign investment is important not only because of the financial resources it contributes, but because of the up-to-date technology and expertise it can introduce. The Foreign Investment National Commission has indicated that they are beginning a review of investment caps in Mexico including those on telecommunications.

Despite the rapid growth of mobile telephony, fixed lines remain important. For instance they constitute an important complement to wireless (*e.g.* in providing backhaul). Also, fixed lines will be important for next generation access networks as countries shift from copper to fibre local loops.

Foreign investment restrictions on fixed-line telecommunication operators in Mexico should be eliminated. The current review of these restrictions should aim at total elimination of existing foreign investment caps.

Licensing

Consideration could be given to abandoning the individual concessions still being used for telecommunication operators, replacing them with a class-licensing regime. In other words, there would be one kind of licence for all companies. A license need only require that the carrier subject itself to reporting requirements and agree to operate under Cofetel's regulations. In most parts of the industry, licensing should be virtually automatic, and can be implemented by creating a standard form application that includes an agreement by the firm to be bound by regulations and to submit information as and when requested by Cofetel. In some countries, this is done by means of a "registry", whereby the operator only has to notify its intention to provide service and adhere to regulation. The incumbent, in such a market entry framework, would be subject to specific asymmetric provisions that could be withdrawn over time once effective competition has developed. Cable operators should be able to obtain a national license rather than being required to obtain individual licenses for various regions.

Changing the concession system would require a modification in the FTL; therefore, steps could be taken in the interim to minimise the number of commitments required of concessionaires. In a competitive environment, a regulatory agency does not need to be responsible for dictating the specific investment and business plans of a carrier. One exception would be wireless licences where spectrum is provided. In such cases, the licensee should be subject to build-out requirements that would normally form part of the auction specifications.

The present system of concessions imposes obligations on market participants; as such, compliance with these obligations should be monitored and enforced with sufficient deterrent penalties for inadequate compliance. Obligations as well as the results from monitoring obligations should be transparent.

Entry of resellers, including MVNOs, should be further facilitated. For instance, the regulator could introduce mechanisms to make the competitive environment more favourable to MVNOs by making national roaming obligatory among operators, so that MVNOs in Mexico can offer the same coverage as Telcel and Telefónica (Movistar). Although non-facilities-based competition exerts a limited discipline on facilities-based carriers, non facilities-based entry may be a legitimate entry strategy for new players. In addition, facilitating resale may enhance the value and therefore incentives to invest in new infrastructure.

Reform the market entry framework to a simpler class-licensing regime, except where there are resource scarcity constraints, such as spectrum. In the interim, steps could be taken to simplify entry procedures in particular by limiting obligations on licensees. Where obligations exist, these should be monitored and enforced. Entry of resellers should be simplified and encouraged and entry of MVNOs facilitated by requiring obligatory national roaming requirements.

2. Ensure that regulations and regulatory processes are transparent, non-discriminatory and applied effectively

Judicial review and suspension of regulatory decisions

Data in this report have shown that Telmex, Telcel, as well as other operators, have consistently filed *amparos* challenging regulatory decisions. This abuse of *amparos* has frustrated and delayed regulation designed to promote competition. In addition, the fact that the courts do not defer to the regulator or policy-making bodies is also problematic. The problem with the *amparo* process is not so much that decisions can be reviewed. Regulatory decisions *should* be subject to judicial review and may require review on procedures and, possibly in some cases, on the substance of specific issues. The problem lies in the fact that appeals lead to a suspension of the regulatory action. Appeals that freeze, or delay, regulatory decisions undermine the timeliness and legal certainty that is vitally important in a regulated market. Mexico has a surprisingly high number of court appeals that result not only in suspension, but also in the overturning of application of a regulatory decision. In this context, given the frequency, scope and impact of the problem, the case of Mexico is unique among OECD countries.

Important regulatory decisions are subject to judicial review in every OECD country, but it is rare that such decisions are suspended as a matter of course. Since legal processes are usually lengthy and resource-demanding, telecommunication operators, especially incumbents, use this as a tool to delay, prevent or undermine regulatory decisions. Suspending a regulatory decision could result in significant financial loss, and thus economic harm, to new entrants, and financial gain to the incumbent. This fact alone creates a significant incentive for the incumbent to appeal decisions.

The current legal system, together with the frequent recourse to *amparo*, is arguably the main factor in preventing the application of regulation in Mexico. The result, as the report explains, is a regulator unable to regulate, as the responsibility for actually implementing the regulation is fully exercised by the courts. This current structure is clearly inefficient and has resulted in an incumbent operator virtually escaping regulation for 15 years. Clearly, this situation is no longer sustainable.

The current legal system, which allows the courts to suspend and overturn policy and regulatory decisions, is harming the public interest and needs to be reformed. A number of proposals have already been put forward for reform and these should be pursued. These include setting up special judicial panels to hear court appeals on telecommunication issues, where the judges have knowledge of the telecommunication sector, or creating a specialised Federal Court that can deal with appeals in this sector. Perhaps the most rapid way to stimulate a change in behaviour is that recently taken by the Supreme Court on interconnection; that is, the regulator's decision remains in force until the appeal process has run its course. This is, however, only a first step in the right direction, and further steps are urgent in order to prevent regulatory decisions from being constantly derailed by the affected operators.

Institutional issues: Policy and regulatory functions

Develop effective regulatory frameworks

The decision-making processes of the regulatory authorities are inordinately long and uncertain. Cofetel provides an opinion that the SCT does not have to accept. Following receipt of Cofetel's opinion, the SCT starts its own investigation and draws its own conclusion. This so-called "double window" system generates long delays and uncertainty. For instance, where Cofetel has found misconduct, it must make a proposal to the SCT. The SCT then commences a new process to again review the issue, and makes a decision. One approach towards addressing concern over the "double window" would be to decide that if an issue commences with an investigation at one agency, it should end with a binding decision by that agency. The other parties should be able to provide opinions that should receive due consideration.

As a broader issue, the relationship between policy and regulatory bodies, and between regulatory agencies, must be clarified and formalised. Lack of clarity on institutional roles can raise uncertainty, perceptions of an unstable regulatory framework, and can result in "forum shopping". The institutional framework has to be modified urgently to disallow such possibility. The different institutions should maintain close co-operation underpinned by clearly established procedures that ensure good co-ordination, and which do not depend solely on personal relationships.

A restructuring of responsibilities and powers between the SCT and Cofetel is important in order to ensure an efficient process. The SCT should be assigned the responsibility for periodic performance assessments of the telecommunication sector. It should set the goals and targets as well as the main policy objectives. But, a ministerial body should not have direct responsibility for making decisions about prices, interconnection arrangements, *ex-ante* regulation, fining or issues dealing with market competition.

Enforcing and revoking concessions is a regulatory and not a policy function, so it is appropriate that Cofetel should have these powers. Accordingly, the power to enforce and revoke concessions should be transferred from the SCT to Cofetel. In addition, the SCT is not under the same expectations or obligations to act in a transparent and impartial manner as Cofetel.

The SCT should have the right to submit evidence and arguments in an open regulatory process, to propose regulations, and to comment on the submissions of others, but should not have the right to communicate secretly with Cofetel or to overturn Cofetel's decisions. The responsibility for making a decision should belong to Cofetel, and Cofetel's decisions should be reversible only by the courts through judicial review or new legislation. As mentioned above, the SCT should be responsible for policy-making, not regulate the market.

Measures need to be put in place to eliminate the so-called "double window" and separate responsibilities for policy formulation (the SCT) and regulatory and market monitoring functions (Cofetel).

Cofetel, in fact, lacks the power to effectively carry out its mandate to supervise, review and promote competition and efficiency in the development of the telecommunication sector. Both its powers as a sector regulator and its independence need to be improved. Institutional arrangements for the regulator do not yet provide adequate independence from the government, a crucial issue for a sector regulator. Cofetel does not have its own legal status as it fully relies on the SCT, and does not control its own budget or have autonomy. This implies that Cofetel is very much a part of the government. In this sense, Cofetel is unlike many of the telecommunication sector-specific regulators in OECD countries, which have significantly more autonomy, and powers to impose sanctions on firms and require them to adhere to regulatory decisions. For instance, Cofeco has significantly more powers and independence from the Ministry of Economy, and is able to impose fines and make decisions on practices considered to be anti-competitive, and to enforce these decisions. Cofetel should have similar powers to carry out its mandate in the telecommunication sector.

Cofetel should have greater autonomy in carrying out its responsibilities as regulator.

Beyond Cofetel and SCT, there needs to be a better general co-ordination between different regulators, including Cofetel with Cofeco, Profeco, the Ministry of Finance, and so on. The interaction process until now appears to have been dependent on personal relationships and is not sufficiently rigorous or durable. Clear and agreed written rules of procedures, having a common terminology, as well as agreed timelines and processes for formal functions should be put in place.

Cofetel must assume sole and unambiguous competence for all aspects of regulatory oversight and its powers must be clearly defined. This is of primary importance. Countries establish specialised sectoral regulators precisely so that processes can move quickly and entrants can have the confidence and legal certainty they need before investing. While a Competition Authority is an important complement to *ex-ante* regulation, unless competition is very strongly established, it should not be expected to act as a substitute. In this context, Cofetel should have the authority to declare *ex-ante* that a company has significant market power and take appropriate measures.

Cofeco's views should receive due consideration on matters related to the competitive effects of Cofetel's decisions. Cofeco is the expert on competition policy and ought to have the responsibility to assist Cofetel in understanding the competitive implications of its regulations. Because the Act envisions a competitive industry, among the issues to be resolved in judicial review is whether Cofetel has reasonably taken into account the effects of its regulations on competition and dealt adequately with the views of Cofeco.

Cofetel should be provided with the authority to declare that a market participant has significant market power and subject that company to appropriate remedies. The jurisdictions of Cofetel and Cofeco and the various other regulatory bodies should be clearly defined through bilateral protocol agreements between the various bodies.

Cofetel has insufficient budgetary independence. Currently, Cofetel's budget is set by the SCT even though it obtains certain revenues independent of the SCT, the most important of which are spectrum licence fees. Cofetel has the right to 35% of annual fees paid by spectrum holders, as well as a percentage of the excess price paid in an auction bid. The most efficient way to ensure budgetary independence would be for all operators to pay a small percentage of their turnover to Cofetel. In lieu of this, a portion of the 3% tax recently imposed on telecommunication operators could be allocated directly to Cofetel.

Cofetel should have greater budgetary independence and should have a clearly identified source of funding that will meet its needs.

Sanctions

To be able to effectively regulate the market, Cofetel needs to be able to impose sanctions that act as a deterrent to market participants. The existing level of fines it can impose is extremely low. Fines should be raised to the level where they would act as a deterrent even for large companies. Similarly, Cofetel should be able to request information from companies necessary for it to monitor performance, and to determine if a company is meeting its obligations and whether it is engaging in unfair market practices. The obligation to provide information to the authorities should not, again, be prevented by the courts, as occurred with Telcel and Cofeco. Non-compliance to requests for information should be subject to fines.

Cofetel should be empowered to impose meaningful fines that are sufficiently high to act as a deterrent, and ensure that regulations are adhered to and regulatory objectives met. It should also have the power to request information from firms to be able to carry out its responsibilities and sanction firms that do not meet reasonable requests.

Quality of service

Quality of service information, both on wholesale offers as well as retail, are important in the context of regulatory monitoring, as well as for consumers and market participants. The recent initiative to expand the number of mobile quality of service indicators and publish these is a very positive development. The quality of service data that the incumbent is required to provide as part of its concession agreement should also be published. This has not taken place to date. For new entrants, a range of wholesale indicators from Telmex should be made available, such as those for delivery of leased lines, and so on. Quality of service indicators for broadband are also important, for example, real speeds compared to advertised speeds.

Quality of service indicators should be published on a regular basis and wholesale indicators from the incumbent, which are of relevance to new entrants, should also be made available to them.

Transparency of regulatory procedures

It is important that Cofetel develop an open and transparent process for reaching decisions and putting forward regulations. Market participants, as well as consumers and users, should have the opportunity to comment on proposals and these comments should be made public, while respecting commercial confidentiality issues. Cofetel, in reaching decisions, should provide the underlying rationale for these decisions, as well as other rejected proposals. Transparency also requires that Cofetel establish and adhere to clear rules of procedure, and establish appropriate timeliness, reporting processes, and so on. Some of these matters may require legislative changes. It is also essential for reasons of transparency that a clear code of ethics be established for Cofetel employees, as well as rules on reporting personal interests and behaviour vis-à-vis companies. Transparency also requires that periodic market reviews be made available that provide data on the state of competition in markets and on quality of service developments.

Cofetel should make efforts to increase transparency in the decision-making process, including publication of the reasons for decisions, and establishing opportunities for stakeholder comments to be made and considered. Improved transparency in decision-making processes would reduce the risk of litigation and improve the overall quality of Cofetel's decisions. Formal consultation and transparency procedures should be established for Cofetel based on internal rules that Cofetel needs to follow, in order to enhance the speed of response to complaints and requests, and in carrying out its other responsibilities.

Cofetel should set out clear internal rules and procedures that establish and vigorously enforce a clearly expressed and understood internal code of ethics, as well as clearly defined responsibilities for each area. For this purpose, Cofetel's new internal rules should be published rapidly by the government (SCT).

3. Reform regulations to stimulate competition and eliminate regulations except where clear evidence demonstrates that they are the best way to serve the broad public interest

In a number of OECD countries the development of competition is leading regulators to streamline regulation and eliminate regulations where possible. Mexico is still at an early stage where the regulatory framework is insufficient, and it would be premature to begin a process of eliminating regulations. The emphasis needs to be put on reform of policy and regulatory frameworks.

Ex-ante *access regulation for interconnection*

Cofetel has issued an interconnection plan that calls for interconnection rates to be based on cost models. This is a good approach and consistent with that used in other OECD countries. The development of long run incremental cost models and the determination of relevant parameters should be based on a transparent methodology and subject to audits by independent experts. The regulator should have the authority to determine interconnection rates *ex-ante* rather than, as at present, waiting for disputes to arise.

Cofetel should be authorised to regulate interconnection tariffs ex-ante *to foster competition among operators and facilitate sector development and growth.*

Consolidation of calling areas

The issue of local calling areas (ASLs) has been of particular concern to new entrants who do not have national coverage. Several attempts in the past to consolidate local calling areas have failed, mainly as a result of injunctions. Telmex has refused to provide points of interconnection in so-called non-competitive areas requiring new entrants to pay significantly higher wholesale long-distance charges ("long-distance resale rates"). The SCT has, in the past, unsuccessfully tried to consolidate 70 of the country's 397 local dialling areas to enable calls between two areas to be considered as local calls and not long-distance calls, so that the interconnection charges applied would be those applicable to local calls. Such a change would have important economic and social benefits in those areas, most of which are poorer areas of Mexico. Cofetel should move forward urgently, and as a matter of public interest, to review the arguments for consolidation, and decide, on the basis of objective criteria which and how many areas should be subject to consolidation. Consolidation would require providing local area codes so that the calls between two areas would be considered a local call and not a long-distance call.

Telmex should be required to consolidate local dialling areas as determined by Cofetel.

Market access

Former monopoly telecommunication operators have had an inherent advantage in that they developed their networks, in most cases, in a monopoly environment and, in many cases across the OECD, benefitted from public funding. The difficulties encountered in replicating the existing fixed-line telecommunication network has led regulators to put in place market access requirements, making available bottleneck facilities to new entrants and requirements for carrier selection and pre-selection, as well as, in most OECD countries, local loop unbundling.

Cofetel should be authorised to declare bottlenecks and essential facilities and to establish non-discriminatory conditions for access to these facilities. Access to essential facilities should include local loop unbundling of the incumbent's local loops, including collocation at cost-based pricing.

In the presence of dominant operators, the application of asymmetrical remedies is appropriate and can act to promote competition by restraining the dominant operator's market power, which would otherwise be used to constrain entry and competition. Cofetel's findings of significant market power should be made available to Cofeco so that it can provide an opinion on these findings. In view of the substantial overlap in the functions of Cofetel and Cofeco, it is important for the two bodies to develop a consistent approach to preventing anti-competitive behaviour. This could be facilitated through explicit formal co-operation and interaction arrangements.

Cofetel should be empowered to undertake market reviews, declare that a player or players have significant market power, and put forward appropriate remedies including asymmetric regulation.

Convergence

The SCT and regulator should foster convergence and facilitate entry by cable operators in the telephony and broadband markets and, conversely, entry by telecommunication operators in the broadband and video distribution markets. Telmex should also be authorised to provide broadcast services, on condition that it is subject to adequate asymmetric regulations and there is evidence that it is complying with them. Competition also needs to be developed in the television broadcasting market. The current situation of only two free-to-air national broadcasters does not meet media plurality standards, especially considering the high penetration of this technology in Mexico, and existing cross-ownership links with the pay-TV industry. The Supreme Court clearly did not take the public interest in account when delaying the government's decision to move more quickly in implementing the transition to digital television. Delaying the availability of scarce spectrum resources to allow mobile broadband to develop impacted the public interest, by delaying the development of new TV channels and thus competition in the broadcasting sector.

Telmex should be authorised to provide television services only when it is subject to adequate asymmetric regulations and there is evidence that it is complying with them and not resorting to judicial challenges to delay or suspend their fulfilment.

*In order to ensure media plurality, the government should award a third and a fourth free-to-air national television license, on a fair, non-discriminatory and neutral process, and restrictions on foreign ownership of Mexican television broadcasters should be lifted. Must-carry obligations should apply to all pay-TV providers, which should be obliged to carry all terrestrial broadcasting signals. Must-offer obligations should be applied on free-to-air broadcasters, and be reassessed accordingly (*e.g. *price, channel bundling) to improve competition.*

The renewed efforts by Cofetel to move forward with the transition to digital terrestrial television are welcome, and continued efforts should be made to ensure that the process moves forward rapidly to ensure that the transition is complete by 2016. In this context, the licensing of new DTT broadcasters should move forward.

Functional or structural separation

As noted earlier, the current maximum monetary sanctions allowable under the FTL are inadequate and should be enhanced. However, fines alone may not be adequate to control recidivist behaviour. The major sanction that exists at present – the withdrawal of the concession – is probably unrealistic and offending operators may consider it unlikely to be exercised in practice. Cofetel should have the authority to take appropriate steps for repeated abuse of market power or for continued non-compliance with existing concession agreements. There is a need to install other "incentive compatible" threats that could be carried out as a last resort measure.

Cofetel should have the authority to impose functional, and, if necessary, structural separation of an operator that continues to abuse its dominant power, and to help ensure that there is equal access and equivalence of inputs.

Regulation of prices

Price regulation of a dominant operator remains important. The administration of the price cap regulation scheme – a regulatory function – has been inappropriately transferred from Cofetel to SCT.

Responsibility for setting and administering the price cap scheme used to regulate Telmex's end-user prices should fall under the responsibility of Cofetel.

The price cap framework needs to be changed so that Cofetel has the sole responsibility for determining the "X factor" in the cap.

*The price cap framework should be strengthened through the use of sub-caps, such that average prices borne by consumers do not remain high because the sharp fall in some prices where competition exists (*e.g. *long distance service) permits rises in other prices where there is no or less competition (*e.g. *local service, including line rentals).*

The practice of registering prices by telecommunication operators should not be necessary other than for wholesale prices of operators with significant market power.

Effective use of scarce resources issues: spectrum

It is unlikely that fixed broadband networks will develop to provide adequate geographic coverage; therefore, it is important that mobile broadband be developed and adequate competition be created in this market. The government should give careful consideration to developing a mobile wholesale network available for operators to provide national coverage for mobile data.

Mexico should revise its framework for obtaining rights of way for the deployment of telecommunications infrastructure. There are currently neither incentives for operators to share infrastructure, nor clearly established criteria that may force landholders to lease rights of way for infrastructure deployment. This increases the barriers to deploy telecommunications and harms competition.

Sufficient spectrum should be released to meet the growing demand for mobile broadband data service. Care should be taken in the auction design to ensure that a single firm does not emerge as dominant in the mobile broadband data market. To facilitate the development of the broadband market the government should auction more of CFE's "dark fibre". Incentives should be put in place in order to promote efficient infrastructure sharing. Barriers to obtaining rights of way should be removed by means of legal changes.

Universal service

Policy and regulation relating to universal service is unclear. There should be a comprehensive assessment and reporting of compliance with universal service requirements thus far. This is an essential precursor to considering what (if any) programmes are needed in the future. Policy-makers should define universal service in terms of both the services to be provided and the targets/benchmarks to be used to measure and assess progress.

The government should clarify the policy on universal service and articulate explicit plans on how to implement this policy.

Enhance consumer empowerment

Consumer protection and empowerment is an essential part of developing effective competition. A number of initiatives are required to help empower consumers:

- A clear division of responsibility between Cofetel and Profeco in regard to consumer protection and empowerment is necessary, including the establishment of a clear dispute-resolution procedure, specifying timelines for resolution of customer complaints concerning service quality and delivery.
- Switching from one telecommunication operator to another should be made easier, cheaper, and faster, including reducing the time for number portability and introducing a requirement for mobile operators to unlock handsets after a period of time (*e.g.* six months).
- Service providers in Mexico should be required to develop and publish a Code of Commercial Practice, as provided for in the 2006 Convergence Agreement, This code should contain commitments to a common set of customer service standards and consequences for failing to deliver on those commitments.

Consumers can play an important role in developing market competition if they are empowered. Profeco and Cofetel should clarify their roles and responsibilities in this regard, and the action they can take to facilitate consumers in switching service provider.

Notes

1. Pending regulatory approval.
2. However, while from the telecommunication service perspective this merger could be welcomed, from the perspective of the broadcasting market the merger could have negative implications for competition in the broadcasting market unless conditions are placed on the merger.

Reference

Baumol, W.J. (1982), "Contestable Markets: An Uprising in the Theory of Industry Structure", *The American Economic Review*, Vol. 72, No. 1, *www.jstor.org/stable/1808571.*

Annex A

Regulatory decisions and the judicial process (2005-10)

Amparos (legal injunctions)

Regulatory decision	Denied
Auctions	40
National registry of mobile users	15
Interconnection	23
Technical Plan for Interconnection and Interoperability	3
National calling party pays	13
Quality plan	1
Convergence agreement	10
Voice message	2
Local service areas	5
Pre-subscription	1
Supervision	1
	Granted
National registry of mobile users	3
Interconnection	6
Auctions	3
Supervision	1
Portability	1
Technical plan for interconnection and interoperability	1
National calling party pays	6
Convergence agreement	3
Total	**138 (83% denied, 17% granted)**

Juicios de nulidad (judgements of annulment)

Regulatory decision	Denied
Auctions	2
Interconnection	11
Fines imposed on radio and TV	6
Technical Plan for Interconnection and Interoperability	5
National calling party pays	2
Supervision fines	1
Judicial review	7
	Granted
Fines imposed on radio and TV	12
Interconnection	4
Auctions	1
Supervision fines	1
Concessions	1
Technical Plan for Interconnection and Interoperability	1
National calling party pays	4
Judicial review	1
Total	**59 (58% denied, 42% granted)**

Judicial review

Regulatory decision	Denied
Local service areas	5
Registry of tariffs and services	11
Interconnection	13
Supervision and monitoring	4
National calling party pays	9
Resale	2
Others	15
	Granted
Supervision and monitoring	2
Registry of tariffs and services	2
Local service areas	1
Others	1
Total	**65 (91% denied, 9% granted)**

Annex B

Ofcom *vs.* Cofetel: Competencies in telecommunications and spectrum policy

	Powers	Ofcom	Cofetel
1.	Radio spectrum management and the promotion of its efficient use.	✓	✗ This is a function under Article 9-A fraction VIII of the Federal Telecommunication Law, but is actually not undertaken
2.	The Secretary of State may grant the regulator specific instructions on performing their functions in managing the radio spectrum.	✓	✗
3.	To co-ordinate the auction processes of radio spectrum.	✓	✓
4.	To publish the Plan for Frequency Authorisation as often as deemed necessary, setting out the purposes for which the different frequencies have been assigned.	✓	✗ This is not published periodically.
5.	To consult with the Secretary of State on the designation, modification or termination of a concession.	✓	✗ It provides an opinion to the SCT. It does not consult.
6.	To impose fines for violations of the laws, regulations and administrative provisions.	✓	✗ It proposes the fines to the Secretary of State.
7.	To ensure the efficiency of service providers, sustainable competition between them, and the best benefits for consumers through the provision of network access and interoperability, including that with foreign networks.	✓	✗ The Technical Plan for Interconnection and Interoperability was suspended for certain operators (through *amparos*).
8.	To determine conditions, which have not been agreed between service providers, regarding provision of access to their networks.	✓	✓
9.	To determine conditions, which have not been agreed between service providers and facilities providers, regarding provision of access to the network.	✓	✗ The concept of a facilities provider is not present In the Federal Telecommunications Law.

	Powers	Ofcom	Cofetel
10.	To establish specific conditions related to prices of concessionaires with significant market power.	✓	✗ This needs judicial review. So far unsuccessful.
11.	To establish obligations to the network or service providers in the provision of their services.	✓	✗ Not implemented, stopped in the courts by operators declared dominant by COFECO
12.	To require of service providers the necessary information to enable knowledge of the operation and exploitation of telecommunications services.	✓	✗ This is required; however, operators do not provide it, or provide incomplete information.
13.	To require of facilities and equipment providers the necessary information to enable knowledge of the operation and exploitation of telecommunications services.	✓	✗ The concept of a facilities provider is not present In the Federal Telecommunications Law. Cofetel has no powers concerning equipment providers.
14.	To establish and impose fines or service suspension to service providers for non-compliance with requests for information.	✓	✗ Cofetel proposes the fine, but the Secretary imposes it.
15.	To establish and impose fines or service suspension to facilities or equipment providers for non-compliance with requests for information.	✓	✗ The concept of a facilities provider is not present In the Federal Telecommunications Law. Cofetel has no powers concerning equipment providers.
16.	To establish and carry out the legal procedures related to their functions as regulatory bodies.	✓	✗ Partially, together with the Secretary of State.
17.	To facilitate the implementation of proposals, or ensure proposal modifications concerning telecommunication regulation matters.	✓	✗ Partially, together with the Secretary of State.
18.	To conduct studies and investigations relating to the matters with which they have functions.	✓	✓
19.	To commission such studies and research to third parties about issues related to their functions.	✓	✓
20.	To issue official standards in telecommunications.	✓	✗ In the last ten years, no official standards have been issued in telecommunications.

	Powers	Ofcom	Cofetel
21.	To publish the National Telephony Numbering Plan.	✓	✗ The current numbering plan is obsolete.
22.	To establish and maintain procedures, standards and policies to ensure effective protection of telecommunication services consumers.	✓	✗ Neither the Federal Telecommunications Law nor the Internal Rules of Cofetel specify powers about protection of telecommunication service consumers.
23.	To provide representation on behalf of its government on international issues in the field of competence.	✓	✗ Cofetel should have an efficient international agenda. Cofetel's participation should be active, not passive.
24.	To register the grant of concessions, the withdrawals of such appointments, and the notifications done by service providers.	✓	✗ Only a registry for telecommunication services tariffs exists.
25.	To determine the operator with significant market power in a specific market of electronic communication devices.	✓	
26.	To determine the operator with significant market power in a specific market for electronic communications networks, electronic communications services or associated facilities.	✓	
27.	To identify harmful interference and other disruptions to telecommunications systems and services, in order to ensure the best performance of services and efficient spectrum use.	✓	✗ Cofetel has not been able to ensure the best performance of services.
28.	To designate the service providers to whom the universal service conditions must apply.	✓	✗ This is a power of the Secretary of State.
29.	To review universal service rates and monitor their changes.	✓	✗ This is a power of the Secretary of State.
30.	To regulate the provision of broadcasting services.	✓	✓
31.	The powers that the Law of Radio and Television, the treaties and the international agreements confer to the regulator in matters of broadcasting services.	✓	✓
32.	To receive payments that proceed from telecommunication matters. The payments received due to duties and fines must be sent to the government's Consolidated Fund.	✓	✗ Some concessionaires do not pay for their duties.
33.	To fix charges for duties to particular cases and to exclude certain service providers from this payment obligation.	✓	

	Powers	Ofcom	Cofetel
34.	To notify service providers in case of non-payment of their corresponding duties, as well as to impose fines or suspension of service for non-payment of fees.	✓	
35.	To request the annual budget from the Secretary of State.	✓	✓
36.	To prepare annual reports of the amounts received for payment of concession rights and fines implemented, as well as the costs incurred in carrying out functions that generated these amounts	✓	
37.	To withhold duties payments received by auctions, or from the use of radio spectrum, for use by the regulatory body, instead of sending these to the government's Consolidated Fund.	✓	

Source: FTL, Office of Communications Act 2002 (2002 Chapter 11).

Annex C

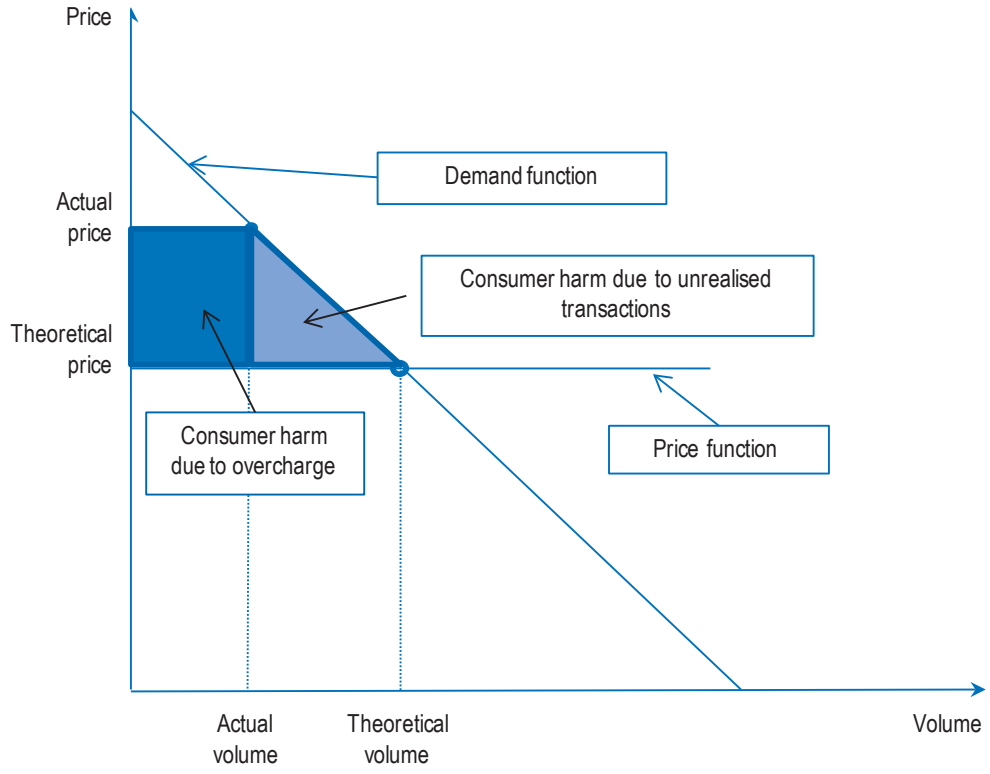
Estimation of loss in consumer surplus resulting from excessive pricing

Econometric techniques were used to evaluate loss in consumer surplus caused by a supposedly low degree of competition in the Mexican telecommunication sector, and to estimate the prices for telecommunication services and the corresponding numbers of subscriptions to telecommunication services that would have been observed in Mexico if there had been more competition in the Mexican telecommunication sector. The estimation applied a 3SLS technique to OECD telecommunication pricing data (price baskets for the mobile and fixed telecommunication and the evolution of a representative broadband subscription over time for broadband); OECD data on the number of subscriptions (number of fixed paths, number of mobile subscriptions and number of broadband subscriptions); and OECD/World Bank data concerning various factors affecting the number of subscriptions or the costs of those subscriptions (such as population size, age distribution, level of education, degree of urbanisation and population density).

The estimates of loss in consumer surplus (see Figure A.1) resulting from a potentially low degree of competition in the Mexican telecommunication sector used a three-step approach. First, the demand function and the price function were estimated applying a 3SLS technique to the available data for all the OECD countries except Mexico. Second, the estimated demand function and price function were extrapolated to the Mexican telecommunication sector in order to estimate prices and numbers of subscriptions that would have occurred in Mexico if there had been more competition in their telecommunication sector. Third, the loss in consumer surplus in the Mexican telecommunication sector was estimated by comparing the estimated prices and numbers of subscriptions to the actual values observed in Mexico.

In this method, more competitive prices and corresponding numbers of subscriptions are estimated for Mexico by supposing that the level of actual competition in Mexican telecommunication sector would be similar to the average level of competition in telecommunication sector in any other OECD country. Hence, estimated prices and volumes do not correspond to prices and volumes that would have been obtained in Mexico if there was perfect competition in the Mexican telecommunication sector, but indicate the prices and volumes that would have been achieved in Mexico in a given year if its telecommunication sector had been characterised by the average achievable level of competition.

Figure A.1. **Illustration of the estimation technique**



The estimated values of the loss in consumer surplus are presented in Tables A.1 to A.3. The average loss in consumer surplus in the Mexican telecommunication sector in 2005-09 is estimated at USD 25 835 million PPP (1.8% of Mexican GDP). The estimated loss in consumer surplus consists of two components: loss in consumer surplus caused by overcharging existing consumers and loss in consumer surplus caused by unrealised subscriptions. The first component of the estimated loss in consumer surplus (consumer overcharge) constitutes 52% of the total loss in consumer surplus (USD 13 386 million PPP, 0.9% of Mexican GDP). The second component (unrealised subscriptions) amounts for 48% of the total loss in consumer surplus (USD 12 449 million PPP, 0.9% of Mexican GDP).

The average loss in consumer surplus in the Mexican fixed telephony sector in 2005-09 is estimated at USD 13 549 million PPP (0.9% of Mexican GDP). The average estimated loss in consumer surplus in the Mexican mobile telephony sector in 2005-09 amounts to USD 10 007 million PPP (0.7% of Mexican GDP). The average estimated loss in consumer sector in the Mexican broadband (DSL and cable) sector in 2005-09 is USD 4 988 million PPP (0.3% of Mexican GDP).

Table A.1. Estimated total loss in consumer surplus (USD PPP millions) resulting from excessive pricing of telecommunication services in Mexico, 2000-09

Year	Fixed telecommunication	Mobile telecommunication	Broadband (DSL and cable)	Total
2000	14 763	11 116	na	25 879
2001	14 173	10 339	na	24 512
2002	14 855	20 548	na	35 403
2003	13 530	16 043	na	29 573
2004	13 818	14 344	na	28 162
Average 2000-04	14 228	14 478	na	28 706
2005	14 276	13 678	6 880	34 834
2006	15 507	10 470	5 055	31 032
2007	11 313	7 815	4 426	23 554
2008	13 102	7 288	5 165	25 555
2009	na	10 783	3 415	14 198
Average 2005-09	13 549	10 007	4 988	25 835
Average 2000-09	13 926	12 242	4 988	27 270

Table A.2. Estimated total loss in consumer surplus (expressed as % of Mexican GDP) resulting from excessive pricing of telecommunication services in Mexico, 2000-09

Year	Fixed telecommunication	Mobile telecommunication	Broadband (DSL and cable)	Total
2000	1.5%	1.1%	na	2.6%
2001	1.4%	1.0%	na	2.4%
2002	1.4%	2.0%	na	3.4%
2003	1.2%	1.4%	na	2.7%
2004	1.2%	1.2%	na	2.4%
Average 2000-04	1.3%	1.4%	na	2.7%
2005	1.1%	1.1%	0.5%	2.7%
2006	1.1%	0.7%	0.4%	2.2%
2007	0.7%	0.5%	0.3%	1.5%
2008	0.8%	0.4%	0.3%	1.6%
2009	na	0.7%	0.2%	0.9%
Average 2005-09	0.9%	0.7%	0.3%	1.8%
Average 2000-09	1.2%	1.0%	0.3%	2.2%

Table A.3. Estimated loss in consumer surplus (USD PPP million) due to unrealised subscriptions to telecommunication services in Mexico, 2000-09

Year	Fixed telecommunication	Mobile telecommunication	Broadband (DSL and cable)	Total
2000	8 432	7 932	na	16 364
2001	8 174	4 641	na	12 815
2002	8 463	8 274	na	16 737
2003	7 813	10 063	na	17 876
2004	7 445	7 817	na	15 262
Average 2000-04	8 065	7 745	na	15 811
2005	6 844	6 602	6 180	19 626
2006	7 649	3 785	5 055	16 489
2007	7 099	2 230	4 426	13 755
2008	6 565	1 117	2 550	10 232
2009	na	0	2 141	2 141
Average 2005-09	7 039	2 747	4 070	12 449
Average 2000-09	7 609	5 829	4 070	14 130

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