

Regulatory Reform in the United States

Regulatory Reform in the Telecommunications
Industry



ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

Pursuant to Article 1 of the Convention signed in Paris on 14th December 1960, and which came into force on 30th September 1961, the Organisation for Economic Co-operation and Development (OECD) shall promote policies designed:

- to achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries, while maintaining financial stability, and thus to contribute to the development of the world economy;
- to contribute to sound economic expansion in Member as well as non-member countries in the process of economic development; and
- to contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations.

The original Member countries of the OECD are Austria, Belgium, Canada, Denmark, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The following countries became Members subsequently through accession at the dates indicated hereafter: Japan (28th April 1964), Finland (28th January 1969), Australia (7th June 1971), New Zealand (29th May 1973), Mexico (18th May 1994), the Czech Republic (21st December 1995), Hungary (7th May 1996), Poland (22nd November 1996), Korea (12th December 1996) and the Slovak Republic (14th December 2000). The Commission of the European Communities takes part in the work of the OECD (Article 13 of the OECD Convention).

Publié en français sous le titre :

LA RÉFORME DE LA RÉGLEMENTATION DANS L'INDUSTRIE DES TÉLÉCOMMUNICATIONS

© OECD 1999

Permission to reproduce a portion of this work for non-commercial purposes or classroom use should be obtained through the Centre français d'exploitation du droit de copie (CFC), 20, rue des Grands-Augustins, 75006 Paris, France, tel. (33-1) 44 07 47 70, fax (33-1) 46 34 67 19, for every country except the United States. In the United States permission should be obtained through the Copyright Clearance Center, Customer Service, (508)750-8400, 222 Rosewood Drive, Danvers, MA 01923 USA, or CCC Online: www.copyright.com. All other applications for permission to reproduce or translate all or part of this book should be made to OECD Publications, 2, rue André-Pascal, 75775 Paris Cedex 16, France.

FOREWORD

Regulatory reform has emerged as an important policy area in OECD and non-OECD countries. For regulatory reforms to be beneficial, the regulatory regimes need to be transparent, coherent, and comprehensive, spanning from establishing the appropriate institutional framework to liberalising network industries, advocating and enforcing competition policy and law and opening external and internal markets to trade and investment.

This report on *Regulatory Reform in the Telecommunications Industry* analyses the institutional set-up and use of policy instruments in the United States. It also includes the country-specific policy recommendations developed by the OECD during the review process.

The report was prepared for *The OECD Review of Regulatory Reform in the United States* published in 1999. The Review is one of a series of country reports carried out under the OECD's Regulatory Reform Programme, in response to the 1997 mandate by OECD Ministers.

Since then, the OECD has assessed regulatory policies in 16 member countries as part of its Regulatory Reform programme. The Programme aims at assisting governments to improve regulatory quality — that is, to reform regulations to foster competition, innovation, economic growth and important social objectives. It assesses country's progresses relative to the principles endorsed by member countries in the 1997 *OECD Report on Regulatory Reform*.

The country reviews follow a multi-disciplinary approach and focus on the government's capacity to manage regulatory reform, on competition policy and enforcement, on market openness, specific sectors such as electricity and telecommunications, and on the domestic macroeconomic context.

This report was principally Patrick Hughes, Directorate for Financial, Fiscal, and Enterprise Affairs, with the participation of Bernard J. Phillips, the Directorate for Financial, Fiscal, and Enterprise Affairs, and Dimitri Ypsilanti, Directorate on Science, Technology, and Industry in the OECD. It benefited from extensive comments provided by colleagues throughout the OECD Secretariat, as well as close consultations with a wide range of government officials, parliamentarians, business and trade union representatives, consumer groups, and academic experts in the United States. The report was peer-reviewed by the 30 member countries of the OECD. It is published under the authority of the OECD Secretary-General.

TABLE OF CONTENTS

1. THE TELECOMMUNICATIONS SECTOR IN THE UNITED STATES	5
1.1. The national context for telecommunications policies.....	5
1.2. General features of the regulatory regime and market participants	7
1.3. The promotion of local competition.....	10
2. REGULATORY STRUCTURES AND THEIR REFORM	13
2.1. Regulatory institutions	13
2.2. Telecommunications regulation and related policy instruments.....	14
2.3. The dynamic view: convergence in communications markets.....	27
3. MARKET STRUCTURE AND PERFORMANCE	27
3.1. The structure of the market	27
3.2. Market performance	28
4. CONCLUSIONS AND RECOMMENDATIONS	31
4.1. General assessment of current strengths and weaknesses.....	31
4.2. Potential benefits and costs of further regulatory reform.....	33
4.3. Policy options for consideration.....	34
NOTES.....	37

Executive Summary

Background Report on Regulatory Reform in the Telecommunications Industry

The telecommunications industry has seen significant regulatory reform in OECD countries in recent years. Twenty-three OECD countries now have unrestricted market access to all forms of telecommunications, including voice telephony, infrastructure investment and investment by foreign enterprises, compared to only a handful only a few years ago. The success of the liberalisation process depends on the presence of a transparent and effective regulatory regime that enables the development of full competition, while effectively protecting other public interests. There is a need to promote entry in markets where formerly regulated monopolists remain dominant and to consider elimination of traditionally separate regulatory frameworks applicable to telecommunications infrastructures and services, and to broadcasting infrastructures and services.

The United States has led the world in the reform of telecommunications regulation. The 1984 divestiture was, at the time, a bold step that led to lower prices and more consumer choice in markets for long-distance and international services. It also opened network equipment markets thus contributing to the dramatic fall in telecommunication switching and transmission costs. The recent WTO Agreement builds on these successes in the international context.

The 1996 Telecommunications Act prohibited state and local governments from retaining legal barriers to local entry into local telecommunication markets. The Act was concerned to let competitors choose the mode of entry that makes the most technical and economic sense to them. Accordingly the Telecommunications Act maintained three entry routes for new competitors -- resale, unbundling and separate facilities. To date, all three methods have been used in efforts to enter the local market.

While the Act was, in principle, a salutary measure in pro-competitive regulatory reform, many legal, technical and economic issues have had to be addressed and competition has not developed quickly in local and short-distance toll markets under state jurisdiction.

1. THE TELECOMMUNICATIONS SECTOR IN THE UNITED STATES

1.1. The national context for telecommunications policies

By any measure, the telecommunications market in the United States is large. Although NTT (the incumbent telecommunications company in Japan) is the world's single largest telecommunications company, nine of the world's twenty largest carriers are American. The total revenue of the US market at a little over \$250 billion is equivalent to forty per cent of the OECD total.

It is also a dynamic industry that has adopted innovations quickly. In part, this is due to the leading role the United States has taken among OECD countries in pro-competitive telecommunications regulatory reform. Over fifteen years ago, with the intent of promoting competition, the 1984 divestiture split the incumbent telecommunications operator into a long-distance company and seven regional local operating companies. At the time, the divestiture was a bold step that led to lower prices and more consumer choice in markets for long-distance and international telecommunications services. It also helped to indirectly open network equipment markets and thus contributed, as one of many factors, to the dramatic decline in telecommunications switching and transmission costs. Today, the US has one of the most competitive domestic long-distance market in the world.

To date, the benefits of regulatory reform in the United States by way of price falls have been concentrated in long-distance, international and mobile communications markets. As FCC data presented in Box 1 indicates, price reductions of some 30 per cent and higher have caused the overall costs to subscribers of long distance toll and international services (as well as mobile) to fall significantly¹ for business and residential subscribers.

The distribution of consumer benefits due to price reductions has, however, been unevenly distributed across users of telecommunications services. Large business customers have experienced the most substantial gains while the savings experienced by individual residential subscribers varies depending on their calling patterns. In particular, as Box 1 indicates, customers who mainly consume local services have not benefited from the significant price reductions that have occurred in long distance and international services.

Disadvantaged groups have received special attention. Indeed, the promotion of “universal service” has been a central objective of US telecommunications policy.²

Reductions in the price of telecommunications services benefit US consumers also indirectly since reductions in the telecommunications costs of doing business permit lower prices for goods and services throughout the economy. Moreover there are other benefits that are difficult to fully quantify³ partly because some of them will manifest only in the longer term and because these benefits include dynamic changes such as the introduction of new products and increased consumer choice. Indeed, perhaps the most important observation concerning the impact of regulatory reform in the US is the extraordinary level of innovation that has flourished and transformed the telecommunications industry with significant positive effects throughout the economy. Regulatory decisions such as the *Computer I, II and III* inquiries played an important role in facilitating the development of markets for competitive value added network services (*i.e.*, enhanced services) and for the rapid diffusion of the Internet in an unregulated environment. Available estimates suggest that over thirty million people in the US use the Internet. Further diffusion of innovation is likely in future years as new initiatives, such as Internet II,⁴ are considered.

Box 1. Indicators of the benefits of regulatory reform			
	Price (nominal)		Incumbent Market Share
	'84 - '92	'92 - '96	'84 - '96
Local Residential:	up 45%	up 5%	still near 100%
Intra-state Toll:	down 10%*	up 3%*	still near 100%**
Inter-state Toll:	down 50%* **	down 17%	85% down to 55%
International:	N/A.	down 33%	100% down to 55%
Mobile:	N/A.	down 37%	competitive

* Based on Bureau of Labour Statistics data that does not include discount plans. Thus the data may understate price reductions.

** Incumbent market share in individual states varies considerably and, in select cases, may be considerably lower.

*** Includes both long-distance and international and composed only of AT&T information.

Source: FCC (1998), *Trends in Telephone Service*, CCB, July. Local price is the average monthly rate including taxes and the subscriber line charge, long-distance (interstate) and international is average revenue per minute. Mobile is average monthly bill and includes both cellular and broadband Personal Communications Service. Incumbent market share is according to total revenue.

1.2. *General features of the regulatory regime and market participants*

Decisions of the Federal Communications Commission (the “FCC”) over many years have shaped the general features of the regulatory regime as well as the identity of market participants. The *Hush-A-Phone* and *Carterfone* decisions, for example, facilitated the development of competition in customer premise equipment. Decisions in the early 1980s also provided a basis for vigorous resale competition while, as noted above, the *Computer II* and *Computer III* decisions played an important role in facilitating the development of markets for competitive value added network services (*i.e.*, enhanced services). These decisions were emulated in other OECD countries where, in many cases, incumbents tried to extend their dominant positions to value added network services.

Over the 1960s and early 1970s, the FCC started to allow the private use of the radio frequency spectrum giving rise to several competitors entering long-distance markets. To this point, there were no established provisions to mandate access to the incumbent’s public switched telephone network, and the regulatory regime did not establish effective controls to restrict cross-subsidisation (whereby the incumbent is able to support low prices for some *e.g.*, competitive services, through high prices charged to captive subscribers of its monopoly supplied services). The FCC responded to the changing market conditions of the 1970s by beginning to develop competitive safeguards including interconnection requirements and accounting mechanisms to prevent cross-subsidies from monopoly activities, but these were not effective.⁵

The root cause of the problem was that the incumbent was participating in both regulated monopoly and competitive markets. The scope this presented for anticompetitive conduct was magnified by the control of a bottleneck facility -- the local exchange -- possessed by the regulated monopolist. Such an incumbent can and has an incentive to protect its market power in newly competitive markets by denying new entrants equal access to its network.

The 1984 antitrust decree, was essentially a response to this problem.⁶ It established a market structure in the United States unique in OECD countries. Under the terms of the decree, AT&T was required to divest its local operating subsidiaries, creating seven Regional Bell Operating companies (the “RBOCs”) which, subject to several waivers and exceptions, were not allowed to provide “long-distance” service. These restraints on providing long-distance was designed to ensure that regulated monopolists of local loops would not participate in competitive long distance markets, thus eliminating the incentive to discriminate.⁷ The divestiture was also premised on the view that local exchanges had natural monopoly properties but technological developments since 1984 have eroded such properties.

The divestiture established a distinction between long-distance (or interexchange) services and local exchange services. It defined 164 different Local Access and Transport Areas (“LATAs”), generally smaller than states, and stipulated that RBOCs were not allowed to provide any services that crossed these lines.⁸ It also stipulated that RBOCs were not allowed to provide information services. The basic idea behind the divestiture was address natural monopoly concerns by ensuring that RBOCs provided only basic telecommunications services subject to regulation.

Following the 1984 divestiture, vigorous competition in long-distance markets between AT&T and new interexchange carriers developed in the market for inter-LATA/inter-state telecommunications services under federal jurisdiction as well as the market for inter-LATA/intra-state services under state jurisdiction.⁹ These markets account for roughly half of the US telecommunication market by revenue. The divestiture did not, however, facilitate the introduction of competition into intra-state/intra-LATA or local exchange services. In fact, most states maintained legal entry restrictions into intra-state/intra-LATA and local exchange markets throughout the 1980s and early 1990s. In revenue terms, intra-state/intra-

LATA is a relatively small but not unimportant segment of the market that constitutes a little under ten per cent of total industry revenue.¹⁰ At the end of 1997, there were approximately 1 300 licensed Competitive Local Exchange Carriers (“CLECs”). The top ten CLECs have switches in 132 cities spanning 33 states and the District of Columbia. Over the past two years, \$14 billion has been invested in CLECs, and their combined market capitalisation is over \$20 billion. Since the 1996 Act, the RBOCs and GTE have lost more than 1.5 million access lines. As a result of this loss in access lines by local exchange carriers, the total market share of CLECs is about 2 per cent.¹¹

Changes in the regulatory framework, as well as changes in the competitive strategies used by telecommunication operators, have given rise to significant changes in market structure. Most significantly, the number of important carriers in the market has increased as competition has been introduced. Box 2 notes some selected aspects of the evolution of the market structure in the US telecommunications industry.

Box 2. The evolving market structure in US telecommunications

1960s & '70s	Rivals such as MCI and Sprint entered the long-distance market. Inadequate competitive safeguards limited the competitive significance of these entrants. Competition was also allowed in customer premise equipment.
Early 1980s	Numerous competitors entered as resellers.
Early-1980s	The Bell system was broken into AT&T (which competed with rivals such as MCI in long-distance and international) and seven RBOCs with geographically separate local monopolies: Bell Atlantic, NYNEX, SBC Communications (formerly South-western Bell), US West, Pacific Telesis, Ameritech and Bell South. Line-of-business restrictions enforced a vertical separation.
Mid-1980s	Cellular licences originally issued in 1981 were put into commercial use and a new product market emerged. The initial market structure was a duopoly in each of separate license regions. Market penetration of cellular services expanded markedly, though somewhat slower than some other OECD countries. ¹²
1980s & '90s	Long-distance competitors became firmly established as the divestiture provided an effective safeguard against the incentive for local exchange carriers to discriminate against rival carriers on access terms. The market share levels attained by new entrants in long-distance increased significantly beyond levels experienced in other OECD countries.
1994	Acquisition of the leading cellular provider, McCaw by AT&T.
Jan. 1998	The February 1997 WTO Agreement on basic telecommunications services was signed by sixty-nine countries. By 1998, twenty-two of the OECD countries had unrestricted market access to all forms of telecommunications, including voice telephony, infrastructure investment and investment by foreign enterprises.
Mid-1990s	British Telecom/MCI and; Sprint/Deutsche Telekom/France Telecom entered into alliances.
1997	Local operating companies: SBC/Pacific Telesis and NYNEX/Bell Atlantic merged.
1997-98	Four applications by RBOCs to provide long-distance service were denied by the FCC.
1998	The number two and number four long-distance providers, MCI and WorldCom merge.
July 1998	AT&T acquires a leading Competitive Access Provider, Teleport.

There has been mounting pressure for change in the structure of the US telecommunications market. Beginning in the mid-1990s, US long-distance carriers entered into international alliances with carriers from other countries. As part of a policy to promote open international competition, the alliances were permitted on the condition that safeguards be put in place to assure that other US carriers were not discriminated against in regard to the terms of access to foreign local exchanges. In an important recent development, British Telecom announced that it plans to enter into an international agreement with AT&T.

Another notable development is the recent increase in concentration at the level of local exchange carriers. Two mergers approved in 1997 (Nynex/Bell Atlantic and SBC/Pacific Telesis) have reduced the number of major local exchange carriers from eight to six. There are two additional merger proposals pending (Ameritech/SBC and Bell Atlantic/GTE) which would reduce the number of local exchange carriers still further to four.

An important recent development in the US domestic long distance market is the recent merger between MCI and WorldCom that has reduced the number of major long-distance carriers to three. Not surprisingly MCI and WorldCom were the second and fourth largest providers of domestic long-distance services in the US. Moreover, MCI and WorldCom also had a significant presence in the market for international and Internet backbone services. Not surprisingly, the merger proposal was subject to review by the FCC as well as the U.S. Department of Justice, Antitrust Division (the "DOJ") and antitrust authorities in the European Union. In its analysis of the market for domestic long distance services, the FCC stated that: "In light of the significant new transmission capacity that we believe will become available by the end of 1999, we conclude that existing market participants as well as potential market entrants will likely be capable of using the newly available capacity to constrain any attempted exercise of market power."¹³ Also, market share information shows that there is a relatively large competitive fringe - *i.e.*, the market share held by interexchange carriers other than AT&T, Sprint and the merged MCI/WorldCom carrier is comparable to MCI's pre-merger market share. Thus, the FCC held that the merger was in the public interest subject to the condition that MCI sold its Internet business to a competitor.¹⁴

Box 3. Developments in the emergence of competition in mobile communications

- In the early 1980s, two cellular licenses were granted in each of numerous separate geographic areas across the United States. One license was reserved for the in-region local exchange carrier, a second license was granted to an independent player.
- Throughout the 1980s and early 1990s, cellular communications constituted a fairly small segment of the telecommunications industry, appealing largely to a narrow sub-set of subscribers with quite specialised needs. As of December 1993, national subscribership was about 16 million and the penetration rate was about 6 per cent. The average monthly bill was just over \$60.
- As part of the 1993 Budget Act, Congress authorised the FCC to use competitive bidding to award certain licenses for the right to use the electromagnetic spectrum. Over 1995 and 1996, four blocks of spectrum used for broadband Personal Communications Services were auctioned.
- By December 1997, mobile communications (*i.e.*, both cellular and PCS) had become a large and growing segment of the telecommunications market. National subscribership was about 55 million and the penetration rate was just over 20 per cent with the average monthly bill had falling to just over \$40.¹⁵
- In its Third Annual CMRS Competition Report published in June 1998, the FCC concluded: "...this past year has seen the beginnings of a shift in the relationship between wireless and wireline services. A number of wireless technologies have begun to take aim at services long thought of as the sole province of wireline operators."

As in several other OECD countries, mobile telecommunications services provides an example of where market liberalisation has had a significant impact. In the US, the FCC introduced cellular competition through a duopoly licensing process. Throughout the 1990s, mobile service penetration grew strongly in the US, but has nevertheless lagged behind the growth in other countries.¹⁶ The US mobile market has recently been opened further through the use of auctions to allocate licenses for the use of spectrum to provide PCS (Personal Communications Services). Some highlights relating to the development of mobile competition are provided in Box 3.

1.3. *The promotion of local competition*

In the years since the 1984 divestiture, the promotion of local competition has been a central policy focus. Conditions of entry into local markets varied, and still vary, significantly across states. In the early 1990s, some state regulators developed initiatives to extend the beneficial effects of regulatory reform into their local markets. By 1995, at least twenty-three states had certified one or more local competitors. Competitive Access Providers were the first carriers to break into local monopolies. Starting with Teleport's entry in New York,¹⁷ cable companies and new fiber carriers began providing dedicated access for large business customers to the increasingly competitive interexchange market. This entry was a form of by-pass of the incumbent's local exchange network. Competitive Access Providers offered little, if any, switched local exchange services. Entry into local switched services was also allowed in Connecticut, the state of Washington, Maryland, Massachusetts, Michigan and New York.

In the early 1990s there were high expectations surrounding the prospects for cable companies and Competitive Access Providers as possible entrants into local telecommunications. Providers of cable services were seen to possess the potential for offering alternative access since they "pass-by" more than 95 per cent of residences in the United States.¹⁸ Cable companies themselves announced optimistic investment plans, and alliances between cable providers and out-of-region RBOCs were explored. Several Competitive Access Providers applied for permission to provide switched local services, and as noted above, by 1995 several states had authorised entry. Some commentators were quick to conclude that entry into local markets was imminent. Potential new entrants into local have not yet been a significant competitive influence. Despite disappointments in regard to the extent of successful entry so far, cable companies remain strong potential competitors in the coming years, particularly as they develop the ability to provide broadband Internet access on a widespread commercial basis.

In addition to permitting entry, initiatives were taken by some states, in co-operation with the FCC, to actively promote local competition. In November 1993, Ameritech submitted its "Customers First" plan to the DOJ under which Ameritech offered to "unbundle" its service offerings in Illinois so as to facilitate entry.¹⁹ In January 1995, the New York Public Utility Commission approved Rochester Telephone's "Open Market Plan."²⁰ In exchange for relief from regulatory rules, Rochester Telephone voluntarily separated itself into a network operator and a retail company. The network operator intended not to engage in any direct sales to individual subscribers to instead act as a carriers' carrier, providing service on a wholesale basis to its own retail company as well as any entrants at a rate 5 per cent below the regulated retail price. Time Warner entered the market on a trial basis, providing access through its cable plant and relying on the Rochester Tel network company for other elements of local service.

The approach taken to promoting local competition differed from that taken in regard to promoting competition in long-distance markets in 1984. Rather than implementing a structural divestiture, US policy makers attempted to promote entry by relying on co-operation from incumbent local exchange carriers. The basic theory behind the Ameritech and Rochester initiatives was that even if natural monopoly characteristics made full-scale facilities-based entry into local markets uneconomic, it may be possible for competitors to engage in some aspects of local competition.

In the Rochester Telephone case, the intention was that cable companies might be able to use their cable access to individual subscribers and rely on Rochester Telephone's network for switching, aggregation and termination. In the Ameritech example, the idea was that entrants could self-supply some services and rely on Ameritech's network for the services that were the most difficult or expensive to self-supply. Thus, for example, interexchange carriers or Competitive Access Providers might be able to supply their own bulk transport and switching, but rely on Ameritech for access to individual subscribers (*i.e.*, Ameritech's local loops). Neither of these strategies to open local markets has, as yet, proven to be effective.

The next significant development in the policy to promote local competition was the *Telecommunications Act of 1996*, which represents a renewed attempt to facilitate the development of competition in all telecommunications markets, including local. The *Act* was implemented by three major FCC orders known as the "Competition Trilogy"-- local competition; universal service reform; and access charge reform -- designed to reform the regulatory regime. The interconnection, unbundling and resale provisions of the 1996 *Act* are closely related to earlier attempts to facilitate local entry. In fact, specific aspects of the implementation of these provisions are modelled after pre-existing initiatives of state Public Utility Commissions (the "PUCs"). The *Act* attempts to strengthen these initiatives by making approval to enter in-region inter-LATA toll markets contingent on a demonstration that local markets are open to competition. Key provisions of the 1996 *Act* are summarised in Box 4 below.

Box 4. Key features of the 1996 Telecommunications Act

Interconnection: Incumbent local exchange carriers (the incumbent "LECs") are required to provide interconnection to any requesting carrier at any technically feasible point. The FCC concluded that prices should be based on Total Element Long-Run Incremental Cost (TELRIC) plus a reasonable share of forward-looking joint and common costs.

Unbundling: Incumbent LECs are required to provide requesting telecommunications carriers non-discriminatory access to network elements on an unbundled basis at any technically feasible point. The FCC concludes that prices should be based on TELRIC plus a reasonable share of forward looking joint and common costs.

Resale: Incumbent LECs are required to offer for resale, any telecommunications service that the carrier provides at retail to subscribers. The FCC concludes that the price of resale services should be set at a discount off retail based on the costs that the incumbent LEC can avoid by selling at wholesale rather than retail.

Universal Service: An explicit mechanism to maintain local rates at affordable rates is mandated.

Access Charge Reform: To facilitate the development of an explicit mechanism for universal service, the FCC reformed the access charge rate structure.

Entry into long-distance: RBOCs are allowed to provide out-of-region inter-LATA service. A procedure is provided for under which the RBOCs are permitted to enter in-region inter-LATA when their local markets are found to be sufficiently open to competition. In assessing whether the local markets are open, the FCC is directed to give "substantial weight" to the DOJ's assessment of a "competitive checklist." Once an RBOC gains approval to offer inter-LATA service, they are required to do so subject to an accounting separation for a three year period.

Forbearance: The FCC is directed to forbear from aspects of regulation that are deemed to be unnecessary.

Removal of State Barriers to Entry: State regulation that raises barriers to entry into local markets is pre-empted.

In public statements, the FCC and DOJ have acknowledged that local competition has not developed as quickly as hoped.²¹ The current share of nation-wide local service revenues of new entrants is about 1.4 per cent.²² In response to Section 271 applications in Michigan, Louisiana, Oklahoma and South Carolina, the DOJ concluded that the local markets in question were not sufficiently open to competition and the FCC rejected the RBOC applications to provide inter-LATA service. The FCC established recently a Local Competition Task Force to “identify trouble spots” and “initiate enforcement actions” to ensure open entry into local markets, and undertook a survey to better understand local competition.

Box 5. Questions regarding the failure of local competition to develop as quickly as anticipated

Local Rate Distortions? Are continuing subsidies that hold down the price of local service maintaining disincentives to entry?

Technical Impediments? Many states do not provide intra-LATA equal access and number portability will not be fully implemented until 1999. Unlike traditional telecommunications carriers, cable networks’ voice telephony service cannot operate in the case of a power outage. Have these technical barriers made entry unattractive?

Restraints on Competition? RBOCs have been prevented from providing one-stop-shopping -- *i.e.*, providing local and long-distance service on a single bill. Prior to the 1996, AT&T and other interexchange carriers were faced with legal barriers to intra-LATA entry in some states. Are these barriers to the provision of one-stop-shopping inhibiting competition?

Judicial Uncertainty? Central aspects of regulatory policy are currently the subject of judicial challenge. Has uncertainty surrounding regulatory rules created a disincentive for investments by new entrants?

No Clear Strategy to Promote Facilities-Based Competition? Local competition initiatives in the US has encouraged resale entry as well as some facilities-based entry. Would a focused effort to promote local interconnection at a small number of points of the network, and selected unbundling of elements (if any are necessary) be more successful?

Technical Problems Faced by Cable Operators? Efforts to provide telephony on cable networks have experienced technical problems. Were claims in the early 1990s that cable systems are capable of providing two-way communications excessively optimistic?

Incumbent LEC Anticompetitive Conduct? An objective of the 1996 Act was to give incumbent LECs an incentive to co-operate in facilitating competition. Was the promise of inter-LATA toll entry a sufficient incentive?

There remains considerable promise that local competition will develop. Technological advances such as digitalisation, compression, and fiber optics are expected to pave the way for a variety of alternative delivery systems. Information stemming from technological trials and small scale new entry²³ suggest that alternative networks can provide local access that is superior to traditional networks in terms of bandwidth and speed. These technological advantages indicate that new networks will emerge to provide both traditional voice telephony and new services such as interactive broadband video services, tele-medicine or electronic commerce. Exactly what networks or standards will emerge, and which new information services will be demanded on a widespread basis is unpredictable. There is, however, strong evidence that relative costs are changing in a manner that will create new markets and new infrastructures capable of offering new as well as existing information services.²⁴

Potential alternative technologies to provide telephone service include cable systems, mobile services and wireless local loop. A primary advantage of cable systems is their access link to a large number of homes. Cable systems “pass by” over 95 per cent of homes with a broadband access. In coming years, this broadband access link will likely allow cable companies to provide not only traditional voice telephony, but also Internet service on a widespread commercial basis. The current technological challenge for cable systems is to “upgrade” their networks to allow for interactive communications.

Existing networks providing mobile services (including cellular and PCS) provide a second potential substitute for the provision of traditional local telecommunications. When they were initially introduced, price and reliability considerations meant that mobile services were used almost exclusively as a complement to primary wireline. Increasingly, however, cellular and now digital PCS are gaining acceptance as a substitute as well as a complement to traditional wireline telephony.

The scope for mobile telecommunications services to provide competition for wireline telephony could be increased if the option of “calling party pays” is made more widely available. It is common in the U.S. that mobile carriers cannot offer billing arrangements under which subscribers pay only for the calls they originate and not those they receive. One important reason is that local exchange providers often do not provide the identity of the originating party to the mobile carriers. The availability of “calling party pays” would enhance the ability of subscribers to control their monthly bills for mobile telecommunications service. This issue has attracted the attention of the FCC which has initiated a hearing on this matter.

New technologies employing wireless local loop access provide a third potential entrant to local markets. Networks using these technologies are currently less developed than cable or mobile telecommunications networks. However, such alternative networks are likely to have a considerable comparative advantage in providing access services to rural or remote subscribers. An added advantage is that the investments necessary for entry are less likely to involve irreversible (*i.e.*, “sunk”) investments.²⁵

The speed with which these alternative delivery systems are likely to develop depends in part on regulatory developments such as local rate rebalancing. Current geographic rate averaging requirements mean that some high-cost (*e.g.*, rural) subscribers are served at prices below economic cost. These are the customers for which wireless technologies are likely to be best suited. The speed with which these alternative delivery systems are likely to develop also depends on how quickly new information services are introduced. There is an increased incentive for entry if a new network can expect to earn revenue from both voice telephony and other new information services.

It is notable, however, that Section 706 of the Telecommunications Act directs the FCC to examine whether advanced telecommunications services are being made available to all Americans on a reasonable and timely basis.

2. REGULATORY STRUCTURES AND THEIR REFORM

2.1. *Regulatory institutions*

The regulatory structure in the United States is a complex web that involves the interface of jurisdiction over sector-specific regulation between the states and the federal government, the relationship between sector-specific regulation and antitrust law, as well as between these agencies and the courts. In other OECD countries such as Canada and Australia, the regulatory structure is somewhat simpler because there is exclusive federal jurisdiction. The dual federal-state role can give rise to both costs and benefits. While the scope for states to pursue different policy initiatives can sometimes promote the development of innovative schemes to forward regulatory reform, the jurisdictional overlap also generates costs and uncertainties in policy development. The dual federal-state role in the US telecommunications industry has been the source of numerous jurisdictional battles in the Court of Appeals.²⁶ Box 6 describes institutions relevant to the regulatory regime.

Box 6. Regulatory institutions for the telecommunications industry

The US regulatory regime provides for joint Federal and State jurisdiction:

- Federal Communications Commission (the “FCC”): The FCC is an independent agency consisting of five Commissioners. Commissioners are nominated by the President subject to confirmation by the Senate. Once confirmed, they cannot usually be removed from office during their five year term. One of the Commissioners is appointed Chair by the President. Decisions are made by simple majority rule of the Commissioners. The Federal Communications Commission has exclusive jurisdiction over inter-state matters, as well as intra-state matters where legislation pre-empts State authority.
- State Public Utility Commissions (the “PUCs”): Each of the fifty states and the District of Columbia have public utility commissions. The legal authority of PUCs derives from the relevant State legislature. The State PUCs, in general, have jurisdiction over intra-state matters such as prices and entry conditions into local markets as well as intra-LATA long-distance.
- In addition, a number of other federal level institutions play a role:
- The Department of Justice, Antitrust Division (the “DOJ”): For historical reasons, the DOJ rather than the Federal Trade Commission takes the lead role in antitrust enforcement in telecommunications.
- The Courts: Regulatory or antitrust decisions in telecommunications can in general be appealed to the Courts. Prior to the 1996 Telecommunications Act, the divestiture consent decree (*i.e.*, Modification of Final Judgement) was administered by the US District Court for the District of Columbia.
- The National Telecommunications & Information Administration: an agency of the US Department of Commerce, is the Executive Branch's principal voice on domestic and international telecommunications and information technology issues. The NTIA focuses on telecommunications infrastructure and the US government's legislative initiatives in telecommunications.
- The Office of the US Trade Representative: is responsible for developing and co-ordinating US international trade, commodity, and direct investment policy, and leading or directing negotiations with other countries on such matters (including telecommunications issues). The US Trade Representative is a Cabinet member who acts as the principle trade advisor, negotiator, and spokesperson for the President on trade and related matters.

2.2. Telecommunications regulation and related policy instruments

Regulation of entry and service provision

Historically, regulation of entry and service provision have varied depending on whether the market was under state or federal jurisdiction. Entry conditions have been significantly liberalised in markets under federal jurisdiction many years before comparable reforms were undertaken in other OECD countries. The liberalisation of entry conditions in markets under state jurisdiction has proceeded more slowly.

At the federal level, the FCC liberalised entry conditions through a number of decisions dating back as early as the 1950s and continuing over many years. For example, FCC decisions liberalised the conditions of entry into customer premise equipment, value-added and resale markets. In regard to facilities-based entry into long-distance, entry conditions were liberalised gradually. In 1959, in the Above 890 decision, the FCC permitted private use of the spectrum, in effect allowing rivals to enter into the provision of long distance services.²⁷ In the late 1960s, the FCC took additional steps to lower barriers to entry in the *Carterphone* decision as well as decisions to grant microwave licenses in 1969 and 1971.²⁸

Important barriers to entry into inter-LATA markets remain. Section 271 of the Act requires RBOCs to show that the local market in a particular state is sufficiently open to competitors before it is permitted to enter into the provision of inter-LATA service within that state. Under this section, the FCC “shall not approve” a RBOC application to enter long distance markets unless it finds that the RBOC has concluded agreements with one or more facilities-based competitors to provide access or interconnection (which satisfies the “competitive checklist”) as well as a public interest test. Alternatively, if a RBOC has not received a qualifying interconnection request within a designated period of time, the 271 test can be satisfied by providing a statement of generally available terms and conditions that complies with the competitive checklist and that “has been approved or permitted to take effect by the [relevant] state commission.” Importantly, in the assessment of a Section 271 application, the FCC must give “substantial weight” to the DOJ’s evaluation.

Section 271 of the Communications Act, as amended by the Telecommunications Act of 1996, maintains the pre-1996 Act prohibition against a RBOC providing inter-LATA long-distance service originating in a state within its local service region until the FCC approves an application demonstrating that the RBOCs local telephone market is open to competition. Section 271 contemplates that to permit the RBOCs immediate entry into the long-distance market would allow the RBOCs to leverage their bottleneck control in the local market into the long-distance market, thus both threatening competition in the long-distance market and entrenching the RBOCs monopoly in the local market. Apparently, the US Congress believed that unless the RBOCs had some incentive to open their markets to competition, it was highly unlikely that competition would develop quickly in the local market. Congress thus decided to use the promise of long distance entry to entice the RBOCs to open their markets to competition.

The rationale underlying Section 271 of the Act, which is to offer entry into long-distance (a highly competitive relatively low profit margin market), as an incentive for RBOCs to open their high margin, monopolistic local markets, has been open to question.

The analysis of local competition by the DOJ and FCC in recent Section 271 applications makes a strong case that, based on the available facts, the specific markets considered were not “irreversibly” open to competition. Thus, this analysis shows that a potentially important role remains for the restraints on RBOC entry. The DOJ analysis follows the framework provided by the so-called “competitive checklist.” The approach relies on the proposition that, by denying inter-LATA authority, the prospects for local competition are advanced because the relevant RBOC would have an incentive to co-operate with new entrants.

The remaining line-of-business restrictions are potentially an important constraint on economic activity. The RBOCs argue that as a result of these restraints they, as well as consumers, forego the benefits of potentially important economies of scope in the joint provision of local and long-distance service. Because of the RBOCs bottleneck control of the local market and the early stage in the opening of local markets, these restraints will likely remain in place under the existing regime for the foreseeable future.

The FCC has promoted flexibility in spectrum licensing in order to reduce barriers to entry that spectrum scarcity would otherwise impose on communications markets. In recent proceedings to license personal communications services and general wireless services, the FCC permitted extensive flexibility in licenses. Such flexibility can help assure that spectrum use adjusts to accommodate new technologies that might become available in the future. Also, allowing flexibility to transfer authorisations to use the spectrum causes licensees to bear the opportunity costs of allowing spectrum to remain idle. This reduces barriers to entry and reduces the incentive that might otherwise exist for license holders to withhold spectrum from the market for anticompetitive purposes.²⁹

An additional example of the role the FCC can play in promoting competition is provided by the policy framework in mobile telecommunications. In 1993, Congress amended the Communications Act to provide for an expanded federal role to lower entry barriers by authorising competitive bidding to allocate spectrum to the private sector (*e.g.*, spectrum currently being used to provide PCS services) and to broadly prohibit state regulation of mobile services.³⁰ The successful development of competition in mobile services may be indicative of the benefits of an expansive federal role in telecommunications regulations.³¹

State PUCs have been slower to promote entry into inter-state toll and local markets. Thus, the 1996 Telecommunications Act attempted to address this barrier by pre-empting state legislation and imposing expanded obligations on incumbent local exchange carriers with a view to promoting local entry. Notably the Act maintains three main paths of entry: *i*) through resale of the incumbent's network services; *ii*) through purchase of unbundled network elements; and *iii*) through largely facilities-based entry.

Regulation of interconnection

The need for mandated interconnection to an incumbent's networks as a competitive safeguard is well established. As a result of network externalities inherent in communications networks, the value of service provided to a subscriber is a function of the number of other subscribers that can be reached on a given network. Absent interconnection to the public switched local telephone networks of local exchange carriers, entry by competitors to an incumbent provider with a nearly one hundred per cent installed base, would not be feasible. It is necessary for regulation to mandate the terms of interconnection since incumbents typically have an incentive to foreclose competition.³²

Progress toward a procompetitive interconnection regime has been considerably faster in inter-state (*i.e.*, inter-LATA) markets. This progress has been seen both in the quality and pricing of access. The regulation of interconnection has been an important factor underlying the relative success of regulatory reform in inter-state markets.

In regard to the price of interconnection, inter-state access charges have fallen toward forward-looking cost much faster than intra-state access charges. In 1985, the inter-state common carrier line charge for switched access service (termination only) was about 10 per cent higher than the median of the corresponding intra-state rate. Between 1985 and 1990, the inter-state rate for termination fell much faster than the intra-state rate, and by 1990, the inter-state rate was about 50 per cent below the median of intra-state rates.³³ The inter-state rate continued to fall over the 1990s. In terms of the total charge per conversation minute (*i.e.*, including charges both at origin and termination), the interstate charge has fallen dramatically, from over 17 cents in 1984 to less than 4 cents in 1998.³⁴

In regard to quality of interconnection, a primary issue has been "equal access" (sometimes referred to as "dialling parity"). Equal access was implemented much more quickly in regard to inter-state services. FCC information shows that equal access for subscribers was implemented rapidly after the 1984 divestiture in regard to inter-LATA toll.³⁵ Equal access in regard to intra-LATA markets has been implemented much more slowly. The result is that, in many states, a subscriber who chooses to switch to a rival intra-LATA toll carrier must dial extra digits every time he or she makes a call. The Telecommunications Act imposed a three-year moratorium on states introducing intra-LATA dialling parity. This moratorium expires in February 1999.

The 1996 Act builds on policies to reduce interstate access fees. First, as discussed above, the FCC concluded in the *Local Competition* decision that interconnection prices should be based on Total Service Long Run Incremental Cost plus a “reasonable share” of forward-looking joint and common costs. Second, it provides for an explicit mechanism to fund universal service. This has allowed the elimination of the implicit subsidy that excessive interstate access fees formerly provided while allowing other policy objectives to be met. The observable result has been effective competition in inter-LATA long-distance markets.

The 1996 Telecommunications Act, provides for the concept of interconnection to be extended into local markets.³⁶ The *Local Competition* decision provides that, at a minimum, incumbent local exchange carriers must provide interconnection at four points: the line-side of a local switch, the trunk-side of a local switch, the trunk interconnection points for a tandem switch, and central office cross-connect points. The idea behind interconnection at these points on the local network is to lower barriers to entry and increase the incentive for new entrants to make investments in their own local networks. In this regard, if incumbent local exchange carriers could deny interconnection within the local network, it could raise rivals costs by forcing the new entrant to interconnect at the same point as interexchange carriers. By mandating four minimum points of interconnection, the FCC sought to avoid favouring the entry of one technology over others.

Some state PUCs have “mirrored” federal initiatives relating to the price of interconnection. However, access charges remain considerably above comparable federal levels in many states. The continuation of above cost access charges in these states restricts the ability of rivals of local exchange companies (both domestic and foreign) to compete.

An emerging issue for US telecommunications policy in the area of interconnection charges is the treatment of Internet traffic. Internet service providers generally pay incumbent local exchange companies a flat monthly rate for their connections regardless of the amount of usage they generate.³⁷ This pricing arrangement, designed for circuit-switched basic telephony, may not be well suited for packet-switched uses and could give rise to concerns about switch congestion.³⁸ Pricing of access to the Internet using local exchange networks is becoming a particularly pressing issue as convergence increasingly allows traditional telecommunications services to be provided over the Internet (*e.g.*, Internet telephony).

Unbundling and resale competition

As discussed above, beginning with the FCC’s Open Network Architecture initiative as well as the Rochester Tel and Ameritech experiments, the FCC and some state PUCs have been attempting to promote local entry through making unbundled elements of the local exchange network available to entrants. The 1996 Act takes these initiatives one step further by requiring an incumbent local exchange carrier to base prices of a specific network element on Total Long Run Incremental cost plus a reasonable share of forward-looking joint and common costs.³⁹ The 1996 Act also requires that incumbent local exchange carriers sell wholesale service for resale by competitors at prices that equal the retail price minus the cost that the local exchange carrier avoids by not having to retail the service itself.

The main procompetitive rationale for resale and unbundling is that it may accelerate the development of competition. Resale can play a role in accelerating and sustaining competition in telecommunications services. Both resale and unbundling may be effective entry vehicles for new entrants that may initially lack the necessary capital to build their own networks, in whole or in part. Resale may also allow small competitors that do not intend to become facilities-based players to offer service. Indeed, such resellers may stimulate the usage of the incumbent’s network, and thus may benefit the incumbent facilities-based provider and further the growth of an information economy. Restricting methods of entry can result in investment distortions and higher prices.

It is important to note that resale can also impede facilities competition if, in practice, the price is set too low. Specifically, if elements are made available at low prices relative to economic cost, entrants will use the incumbent's facilities even if, on a stand-alone basis, the investment would have been an economic proposition for the entrant. That is, there is a danger that regulatory prescriptions for unbundling at prices that are excessively low may act against the consumer's longer run interests through the reduction of incentives for companies to install their own wired (or wireless) networks. In general, the obligation on an incumbent to permit resale should be used as a temporary measure since the method of determining the price (a discount relative to retail that reflects avoided cost) incorporates any distortions embodied in the retail price.

Regulation of pricing

Historically, the goal of promoting universal service has given rise to prices that do not reflect relative costs.⁴⁰ Prices charged to business users and for long-distance services were set at higher than competitive levels to allow low rates (sometimes below cost) for local service to be maintained. At the same time, local rates in rural and remote areas were held at low levels relative to rates in urban areas. The maintenance of low rates for local telecommunications service in rural and remote areas can be particularly distortive since these are generally serviced at higher cost.

The adoption of policies to rebalance these rates have been an important feature of telecommunications regulatory reform in the United States. Three main types of rate rebalancing are long-distance/local, urban/rural and business/residential.

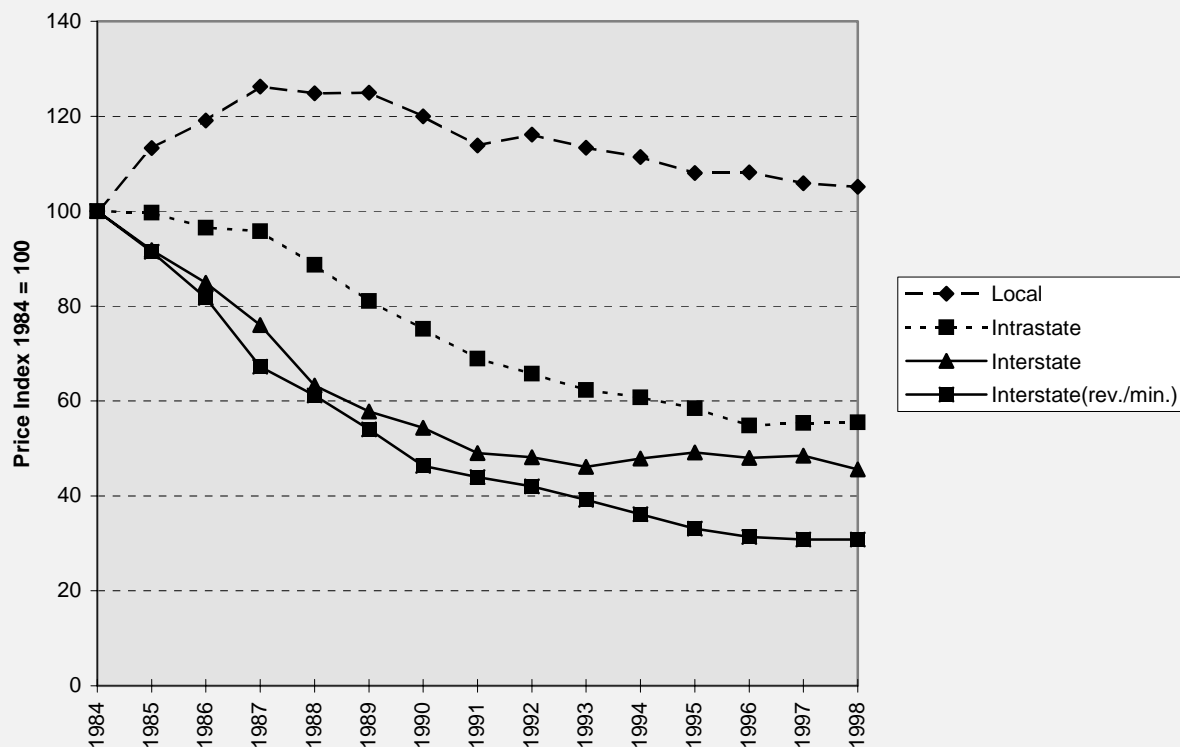
The increase in competition in inter-LATA markets since the 1984 divestiture has given rise to significant long-distance/local rate rebalancing. Information on changes in prices of local service, intra-state toll (including some inter-LATA and some intra-LATA) and inter-state toll (*i.e.*, inter-LATA) service since 1984 are provided in Box 7. As the box illustrates, while there has been considerable rebalancing of inter-state rates, there has been less rebalancing of intra-state prices.⁴¹

This data suggests that reductions in toll prices have been concentrated in inter-state markets.⁴² This is consistent with the FCC's analysis of AT&T's market power which led to the finding that AT&T was non-dominant. At the same time, it appears that RBOCs remain as dominant incumbents in intra-LATA markets. Commentators such as Vogelsang and Mitchell (1997) conclude that competition in these markets is currently comparable to that which existed in inter-LATA prior to divestiture.⁴³ Progress toward rate rebalancing in inter-state markets (particularly intra-LATA) has been slower. The lack of viable intra-LATA competition is probably due to a lack of presubscription for intra-LATA service Box 8 discusses economic arguments for such rate rebalancing.

The ability to maintain intra-LATA prices above competitive levels limits the pressure on state PUCs to rate rebalance because it provides continued scope for some prices to remain below true economic cost. The degree to which individual local rates are below cost varies significantly depending on the specific fact situation in a state or municipality. It is less expensive to provide local loops in densely populated urban areas and central business districts than in suburban and rural areas. In most cases, geographic tariff averaging limits the extent to which carriers can tailor prices depending on the costs of serving various subscribers. This means that revenues tend to cover costs in urban areas and in some suburban areas and tend to fall short of economic costs in remote and rural areas.

Box 7. Changes in prices in intra-state and inter-state markets

The Bureau of Labour Statistics provides information on the percentage change in real (1984=100) prices of: flat-rate local monthly calling (for residential users), inter-state (inter-LATA) toll and intra-state toll (which includes intra-LATA and inter-LATA). The FCC also provides information on revenue per minute in interstate toll markets. This information is provided graphically below to illustrate the degree to which long-distance toll rates have fallen relative to local monthly rates.



The FCC reports that in 1992, interexchange carriers began to increase the basic rate while at the same time, greatly expanding their range of discount plans available to subscribers. It is for this reason that reported interstate revenue per minute is significantly below the interstate price index reported by the Bureau of Labour Statistics.

Source: FCC, Trends in Telephone Service, July 1998, Table 13.2.

Box 8. Economic arguments for rate rebalancing

There are three main economic benefits of rate rebalancing:

- **Enhancing Productive Efficiency:** The maintenance of rates either above or below their true economic cost distorts entry decisions and thus constricts productive efficiency.* For example, the maintenance of prices above costs for long-distance calls may lead subscribers to choose less efficient arrangements or networks that “by pass” the national network. Alternatively, the maintenance of below cost rural rates may impede substitution toward more efficient technologies for providing access such as wireless. Rate rebalancing that raises rates for local service to economic cost, particularly in high cost rural areas but also less dense suburban areas, promotes local entry because it removes an artificial incentive for subscribers to remain with the wireline incumbent network rather than switch to carriers with the most efficient technology.

- **Enhancing Allocative Efficiency:** Reductions in prices toward cost increases allocative efficiency since consumers, faced with a price reflecting true relative costs, appropriately adjust their use of these services. The total of consumers' and producers' surplus is enhanced where prices move toward cost.
- **Enhancing Business Competitiveness:** The increased economic efficiency noted above will confer not only the benefits from direct use of telecommunications but also increased efficiency and lower prices for a variety of goods and services throughout the economy.

*Prices are unambiguously distorted if they are above "stand alone" cost, or below "incremental" cost. Prices may be distorted if they are within this range (*i.e.*, below stand-alone cost or above incremental cost) but do not reflect the relative demand elasticities or remaining differences in relative costs.

Price cap regulation

For many years, price control in the US was determined indirectly through regulation of the level of profit -- the so-called "Rate-of-Return" regulation. As it became increasingly recognised that "rate-of-return" regulation generated strong incentives for inefficient expansion and use of capacity, the concern over profits changed to a more direct focus on prices through a scheme known as "price cap regulation". In essence, under such a scheme, price increases would be permitted so long as, on average, prices do not exceed the level of inflation minus some agreed productivity improvement expectation. The 'Inflation - X' price cap scheme (now in use in an increasing number of countries) was first applied to AT&T in 1989 and subsequently to a growing number of Local Exchange Carriers.⁴⁴ Access charges are regulated by a price cap scheme, with an 'X' factor of 6.5% (raised from 5.3% in May 1997 at which time the profit sharing provision that had required carriers to return profit above 10.5% to customers was abandoned).

The fact that interstate switched access and trunking prices have remained close to the FCC prescribed price cap maximum suggests that regulation has played an important part in containing ILEC price increases. It is noteworthy that price caps on AT&T's competitive services were withdrawn in 1994 when the FCC found the company to be no longer dominant. It is noteworthy also that in the UK, price cap coverage of BT's services have been significantly reduced⁴⁵ (from about 63% of revenue to some 23%) for the current price cap regime (which is expected to be the last). Special note has been made of this withdrawal of price control since -- as an increasing number of countries apply price caps -- it is important to reiterate the advice that price caps are meant to be temporary. As competition increases, price caps should be streamlined then removed since price regulation is undoubtedly distortive, particularly when maintained for long periods.⁴⁶ The example of the US (and the UK) in doing so is therefore to be commended and followed by other countries. The US itself should bear this in mind in regard to its regulation of LEC prices.

This withdrawal of price regulation and the constricting effect it can have over the level and structure of prices for telecommunications becomes even more important with convergence. Innovative pricing packages must be allowed to play a key role in promoting new convergent services in the Information Age, including the stimulation of a wide take-up and use of on-line and other services.

Social regulation, including universal service obligations

As noted above, the promotion of "universal service," has been a central policy goal of the United States.⁴⁷ For many years, state regulators have maintained low prices for telecommunications services to meet a variety of other policy objectives.

Policies aimed at promoting universal service through distorting prices impede regulatory reform efforts to rebalance rates and thus giving rise to reductions in economic efficiency.⁴⁸ Furthermore, the introduction of competition erodes the ability to maintain price distortions thus causing proponents of other policy goals to oppose regulatory reform initiatives so as to protect implicit subsidies.⁴⁹ Cross-subsidies, which have traditionally been the mechanism used to support universal service programmes, are coming under increased pressure as competition develops. As a result, a growing number of countries are establishing alternative competitively neutral mechanisms such as general tax revenues (Chile), contributions from carriers (United States, Dominican Republic) or contributions from spectrum auctions (Guatemala).

There are three principal universal service programs in the US. First, the traditional programs to subsidise service to high cost areas are continued with operators delivering universal service⁵⁰ being able to draw compensating support from a Universal Service Fund. Second, the “Lifeline Assistance” and “Link Up” programs are designed to subsidise hook-up cost and the cost of monthly phone bills to qualifying low income customers provided by all eligible telecommunications carriers. Third, discounts to assist schools, libraries and rural health care centres to connect to the ‘Information Superhighway’ have been initiated. These discounts became colloquially known as the “E-rate” and were designed to cut between 20 and 90 per cent off the monthly charges of connecting to the network, and in some cases, some of the internal wiring costs. The discounts attracted applications from more than 40 000 schools and libraries. Box 9 provides highlights of recent reforms to universal service.⁵¹

Box 9. Reforms to universal service

- 1) Introduction of transparent and explicit support for universal service. All carriers satisfying specific conditions can obtain support from the federal Universal Service Fund regardless of the technology used. All carriers, including wireless carriers, are required to make contributions to the universal service fund based on end-user revenues. To qualify for access to the fund, a carrier must be able to offer (and advertise) service throughout a geographic region known as a “service area.” The size of these service areas is left to the discretion of state regulators.
- 2) Revision and extension of support for low-income customers (Lifeline and Link-Up America).
- 3) Introduction of a specific fund for the needs of schools, libraries and rural health care centres.
- 4) Restructuring of the Subscriber Line Charge and the Common Carrier Line Charge, to partially transfer Universal Service Fund support costs to subscribers and interexchange carriers; increased subscriber line charges for second residential lines and multiline business customers; gradual phasing out of the existing traffic sensitive Common Carrier Line charge with a flat-rate Presubscribed Interexchange Carrier charge.

A central economic principle for the development of a universal service fund is that it should achieve other policy goals in the manner that distorts competition as little as possible. That is, any subsidies to carriers should be portable and available to all competitors. In principle the fund should be financed to the extent possible from general tax revenues.⁵² In practice, however, few countries (Chile is one exception) fund universal service through general tax revenues. Competitively neutral contributions from all carriers can contain the economic distortions that could otherwise result from universal service funding.

An additional principle is that the fund should be targeted so that, for a fund of a particular size, maximum positive impact toward the relevant policy goals is achieved. To the extent that high telephone penetration is a policy goal, funding should be focused on marginal subscribers that are most likely to fall off the network as a response to a price increase. Similarly, to the extent that income redistribution is a policy goal, funding should be targeted on low income subscribers. In this regard, it is noteworthy that the US Link-up and Lifeline programs are targeted to those with the most need.

It should be noted that rate rebalancing and other entry promoting reforms need not threaten but on the contrary can promote the achievement of universal service goals. Increasing competition may expand the availability of low-cost telephone services. In some countries (*e.g.*, the United Kingdom) niche market operators have begun operating payphones profitably even though, due to their previously unprofitable provision by the incumbent carrier, payphones had to be mandated as an aspect of universal service obligations (*e.g.*, in the UK and Australia). It should be recognised that low priced subsidised services delivered as part of universal service programs can generate disincentives for commercial provision.

Important aspects of the initiative to reform universal service funding in the US have not yet been fully implemented. The FCC is currently examining models to establish revenue benchmarks that will allow universal service funding to be targeted at high cost subscribers. This initiative appears to hold considerable promise as a means of promoting the policy goals related to universal service without distorting competition. On the other hand, initiatives to reform universal service funding do not currently apply to rural telephone companies that service many of the areas where local prices do not cover costs by a large margin.⁵³

International aspects

As discussed in the background report on Enhancing Market Openness through Regulatory Reform, progressive liberalisation of the US market for telecommunications services over time has meant that the sector has a strong historical record of international market openness. Certain US service sectors such as domestic long distance, international value added network services, and the IMTS switched resale (basic telephony) market have been open to foreign participation for years. More recently, important policy developments at national and international levels have dramatically altered the competitive landscape for telecommunications services and further improved prospects for enhanced market openness in the sector. At the national level, the *Foreign Carrier Entry Order* issued by the FCC in November 1995 ushered in a new regulatory philosophy on foreign participation in the US telecommunications market. But the defining event in shaping the current US regulatory regime for foreign participation in the telecommunications services market was the successful conclusion in February 1997 of the WTO agreement on basic telecommunications.⁵⁴

Recent substantive regulation and market openness in the sector are thus best understood from pre and post-WTO agreement perspectives. Pre-WTO, foreign participation in the market was regulated on the basis of the *Foreign Carrier Entry Order* and through application of a reciprocity-based “effective competitive opportunities” (ECO) test as part of an overall public interest analysis for authorisations relating to the provision of international telecommunications services. The ECO policy ordinarily required several months to process each application by a foreign carrier seeking to provide service in the US market. For example, applications by Japanese carriers to enter the U.S. were delayed over a year before they were ultimately approved.

New FCC rules introduced in anticipation of the entry into force of the WTO agreement took effect on 9 February 1998. The *Foreign Participation Order* significantly liberalised treatment of foreign telecommunications carriers and investors from countries that are signatories to the WTO agreement. A key outcome of this process was the removal of the ECO test in favour of an open entry standard for carriers from WTO Member countries. To explain briefly, open entry standard means that these carriers benefit from a rebuttable presumption that applications do not introduce concerns that would justify denial on competitive grounds.

The revised rules retain certain safeguards designed to prevent foreign carriers with market power from distorting competition in the US market and by maintaining the Commission's authority to deny or condition such entry if required by the public interest. The FCC therefore retains discretionary power to decline licenses for reasons which may be unrelated to anticompetitive conduct in the international telecommunications services market. Some foreign carriers interviewed for this project expressed concern that this leveraging of licenses in support of US objectives in other policy areas may inhibit license applications by other prospective competitors, thereby eroding prospects for enhanced foreign participation in the sector.

Improvements in processing procedures concerning the FCC's undertaking to act on Section 214 license applications should contribute to market openness. With its adoption of the new foreign participation rules, the FCC committed to act within 90 days on all Section 214 applications except those that raise issues of "extraordinary complexity." In addition, the Commission expanded its streamlined processing rules under which, absent any objections, a license may be presumed granted after 35 days. Foreign and domestic carriers alike have benefited from streamlined treatment: recent examples of foreign beneficiaries include an application by Japan's NTTA Communications to operate as facilities-based and resale carrier to Japan and an application by Canada's Teleglobe Inc. for the transfer of control of Excel Communications to Teleglobe. However, processing of applications by carriers affiliated with foreign carriers that possess market power in non-WTO markets are not eligible for streamlined processing. On a broader level, potential new market entrants, whether they are domestic or foreign, may encounter licensing and approval delays when incumbent competitors introduce opposing arguments to pending applications. The degree to which such applications (and those which raise issues of extraordinary complexity) may experience such delays in processing remains of considerable concern to affected carriers.

More specific concerns sometimes arise regarding regulatory treatment of foreign-affiliated carriers. Licenses granted under Section 214 enable a foreign carrier to use its own facilities (*e.g.*, its own cable circuits) or engage in resale of existing US carrier facilities in order to provide a service. Applications for global switched resale service by carriers from WTO countries are eligible for streamlined processing without restriction. Applicants for facilities-based and switched resale service with affiliates with market power in non-WTO countries will receive authorisation to provide service on the affiliated route only to the extent that the foreign market satisfies the FCC's ECO test. In the experience of one foreign-affiliated carrier with geographically far-flung operations around the world (many of which are located in non-WTO countries where "monopoly" models prevail), such licensing criteria have proven particularly onerous. In one illustrative case, the same carrier processing a Section 214 application for a global calling card service based in the United Kingdom dropped a number of desired destination countries from its application in order to meet licensing criteria, with attendant consequences vis-à-vis competing calling card schemes.

The US led initiatives to reform the existing international settlement system. However, in the continuing absence of a global solution to the issue, international settlement rates (per-minute rates paid by US and foreign carriers to terminate international traffic at its domestic destination) continue to

generate tension with foreign competitors. Much of the issue turns on the FCC *Benchmark Order*, which would require US carriers to reduce the settlement rates they pay to foreign carriers and impose certain conditions on participation in the US market aimed at “reducing the incentives and ability of a foreign carrier to act anticompetitively to the detriment of US consumers.” Thus, facilities-based licenses to serve markets in which a licensee’s affiliate possesses market power would not be activated until the affiliated foreign carrier agrees with US carriers to *benchmark settlement rates* linked to the level of economic development in a terminating country. Under the proposed matrix, target benchmark rates of 15, 19 and 23 cents per minute would apply to high, medium and low-income countries respectively.⁵⁵

An additional issue from an international perspective relates to intra-state interconnection charges. As noted above, some states have not “mirrored” reductions in federal charges and have continued to maintain above cost rates. Such rates impede competition from both domestic and foreign carriers.

Number portability

Number portability is defined by the 1996 Telecommunications Act as the ability of users of telecommunications services to retain, at the same location, existing telecommunications numbers without impairment of quality, reliability, or convenience when switching from one telecommunications carrier to another. As noted in the *Local Competition* decision, vigorous competition would be impeded by technical disadvantages and other handicaps that prevent a new entrant from offering services that consumers perceive to be of equal quality to the offerings of incumbent LECs. Thus, the FCC undertook to eliminate the “operational” barrier to competition that an absence of number portability would generate. The *Local Competition* decision required that long-term number portability be completely deployed by 31 December, 1998.

In August 1997, the FCC took action to address various long-term number portability implementation issues by adopting, with minor modifications, the recommendations of the North America Numbering Council.⁵⁶ The various working groups are currently implementing number portability.

Streamlining regulation

As an independent commission the FCC is, in general, not covered by presidential orders on regulatory quality. This is rooted in the historical relations between the independent commissions and the President. In some circumstances, systematic initiatives to promote regulatory quality are applied (the *Paperwork Reduction Act* and the *Regulatory Flexibility Act*).⁵⁷ Until recently, however, initiatives to assure that regulations are only used when benefits exceed costs have been undertaken through an *ad hoc* approach in the case of telecommunications. Section 11 of the Communications Act as amended by the 1996 Telecommunications Act requires the FCC to review all its regulations applicable to providers of telecommunications service in every even numbered year beginning in 1998, to determine whether the regulations are no longer in the public interest due to the development of effective competition and whether such regulations should be appealed or modified. Beginning in January 1998, the FCC initiated a series of rulemaking proceedings as part of its 1998 Biennial Regulatory Review.

The FCC has long recognised that economic regulation imposes costs on market participants and thus articulated the view in the 1995 AT&T non-dominance proceeding that: “when the economic costs of regulation exceed the public interest benefits, the Commission should reconsider the validity of continuing to impose such regulation on the market.” Thus in its administration of rate regulation requirements, in the

early 1980s, the FCC significantly relaxed the degree of price regulation non-dominant interexchange carriers such as MCI and Sprint were subjected to. The non-dominance test assessed: whether the carrier possessed market power, and whether the carrier controlled “bottleneck facilities.”

In 1995, AT&T was reclassified as non-dominant and, as a result, the degree of price regulation imposed on it were similarly relaxed. In declaring AT&T non-dominant, the FCC recognised that the degree of market power possessed by AT&T had declined to the point where the benefits of regulation (*i.e.*, constraining AT&T’s ability to increase price) were exceeded by the costs. According to this approach, market forces were deemed to be a more efficient way of constraining any residual market power that AT&T possessed.

The 1996 Act provides two mechanisms for systematic review of FCC regulations. First, as noted, the Act requires a so-called “Biennial Regulatory Review.” This formal requirement to conduct a biennial review of whether a specific regulation continues to be necessary is a commendable measure of emulation by other countries.

Second, the 1996 Act provides explicit “forbearance” procedures whereby the concept of eliminating regulations that are no longer necessary given current market conditions is codified.⁵⁸ The forbearance procedures are of central importance because there is scope for carriers to request the initiation of the procedure in cases where regulations are a commercially important restraint on business conduct. While the enactment of these provisions is an important step, it is important to note that they do not include an explicit recognition of the costs that regulation imposes, and important provisions of the 1996 Act are exempted.⁵⁹

Application of competition principles

The United States telecommunications industry provides a striking example of the central role for competition policy in regulatory reform. As discussed above, the 1984 divestiture was a pivotal step that promoted complementary regulatory safeguards such as interconnection and equal access. By directly addressing underlying anticompetitive incentives, the antitrust action provided a sound foundation for procompetitive regulatory reform. Today, the market share of the incumbent, AT&T, in long-distance is below 50 per cent and there is no longer any regulation of inter-LATA long-distance prices.

Important aspects of the consent order implementation process have correctly been criticised by some observers. First, even at the time the LATAs were established they may have been larger than they needed to be today. Second, the maintenance of an antitrust distinction between who can provide increasingly competitive toll services within the LATAs gave rise to costly interference in business decisions in the late 1980s and 1990s. While the remedy embodied in the consent order may have been conceptually sound, the lack of a sunset or significant adjustment to the terms of the decree has failed to keep it focused on any “natural” monopoly elements of the network.

At the time the consent order was adopted in the early 1980s, the architecture of the US telecommunications network was such that network economics dictated the use of different billing arrangements for short-distance local calls as compared to inter-city long-distance. The consent decree sought to accomplish several goals. In principle, the order separated local “basic” service (*i.e.*, switching of traffic within a local exchange) from inter-city toll service and “enhanced” (*i.e.*, information) services by focusing on the switching, transport and aggregation functions of inter-city switches. The order also sought to disaggregate the switching function of local service (*e.g.*, the switch and the local loops) from the transport services. The line the consent decree drew between exchange and inter-exchange service also

sought to incorporate the regulatory distinction drawn by the FCC in *Computer II* in 1980 between competitive enhanced services and monopoly basic services. Finally, the decree sought to make a judgement on an efficient size of a “local exchange.” As a result, the boundaries of the 164 LATAs were designed not only to isolate monopoly from potentially competitive services, but also to distinguish between classes of services in a cost efficient manner.

It was foreseen at the time that the distinction created by the divestiture would have to be adjusted over time. For example, for any new services, a decision would have to be made as to which carriers would be permitted to provide it under the terms of the decree. Similarly, it was envisioned that dynamic technological developments would require the distinction between “enhanced” and “basic” services to be subject to ongoing review.⁶⁰ In theory, such a regulatory distinction can delay new product introduction and (especially given the complexity of distinctions that may need to be drawn in a dynamic industry such as telecommunications) can impose costs on market participants.

Developments since 1984 have eroded the basis for the distinctions the consent order created. First, in 1986, the FCC abandoned the distinction between monopoly and competitive services drawn in *Computer II*. It replaced structural separation (*i.e.*, the requirement that AT&T could engage in competitive services, such as enhanced services, only by forming a separate corporate affiliate) with non-structural (*i.e.*, accounting and pricing) safeguards that would ensure that neither AT&T nor the RBOCs could use revenues from their basic services operations to cross subsidise their provision of competitive services. Second, over time, the distinction between the switching, transport and aggregation functions that had been drawn before divestiture on the basis of whether they were used to provide local or long-distance services has largely disappeared. Finally, in a related point, information services are now often provided by both local and long-distance networks. At the same time, functions and services that were likely “monopoly” services in 1984 (*e.g.*, local exchange and intra-LATA toll services) are potentially competitive. There are possible substitutes for most, if not all, parts of RBOC networks -- including even the local loop. This suggests that the pre-divestiture notion that some aspects of the RBOC networks are a “natural” monopoly is no longer applicable. Yet, it is unclear whether the limited entry by new competitors into many RBOC local exchange areas suggests that some elements of the RBOC networks remain as natural monopolies. Until the 1996 Telecommunications Act, the decision to allow competition in the local exchange area was under the authority of the states and many states did not allow such competition. With implementation of the 1996 Act, legal barriers to local entry have been removed and it is believed that, over time, local competition will develop.

On balance, however, it would appear that over the last decade and a half, the benefits resulting from the market structure created by the divestiture decree outweigh any detriments that resulted from implementation of that decree. The order has allowed the creation of a competitive market structure with three major and many smaller interexchange carriers. The decree has also allowed the emergence of several major local exchange companies. The regime mandated by the divestiture decree that requires interconnection between interexchange carriers and local exchange companies is well established. With these effective regulatory safeguards now firmly in place, the need for the antitrust divestiture may be reduced. An antitrust policy focused on effective merger control and, where appropriate, application of monopolisation provisions is likely appropriate in today’s telecommunications industry as well.

In the transition to a relaxation of restraints on competition between local and interexchange carriers, there will be a need for vigilant enforcement of competition law. The scope to provide inter-LATA services will increase the incentive for local exchange carriers to discriminate against competitors in interexchange markets. In addition, the prospect of impending competition in local markets increases the incentive of RBOCs to merge with potential entrants, including other RBOCs and long distance firms such as AT&T. Given the inherent difficulties in assessing mergers involving parties that are, or were

recently, “precluded” from competing with each other, a transitional merger ban may be necessary by FCC regulation (subject to sunset provisions). As an alternative, DOJ antitrust review of particular cases must be rigorous. In this regard, the volume of proposed mergers (in some cases involving firms becoming significantly less regulated) is unusually large in historical terms.

2.3. *The dynamic view: convergence in communications markets*

While traditional telecommunications and broadcasting are both regulated by the FCC at the federal level, there are significant differences between the regulatory regime applied to these sectors. As technology develops, the possibility of entry into broadcasting by telecommunications carriers is quickly becoming more realistic. In fact, many users of the Internet are currently making use of telecommunications networks to download video images. As a result, traditional distinctions between broadcasting and telecommunications are quickly breaking down.

With the convergence of communications media, it is becoming increasingly difficult to designate individual operators and even services as falling into one category or another. Such fragmented regulation not only restricts companies from taking full advantage of technological innovation and business opportunities but also prevents users from enjoying better possible services. Problems raised by relatively burdensome broadcasting regulation can be crucial since it may determine the extent to which convergence is effectively reflected in laws, policy initiatives and regulations.⁶¹

3. MARKET STRUCTURE AND PERFORMANCE

3.1. *The structure of the market*

The telecommunications industry is a relatively large part of the US economy which encompasses traditional common carrier service as well as other activities such as network equipment manufacturing, customer premise equipment, and private line services, and accounts for about \$600 billion in economic activity.⁶² Looking specifically at total revenue from traditional common carrier services, the most comprehensive data is available for 1996. In 1996, total revenue from traditional common carrier services was about \$222 billion. Local exchange carriers accounted for about \$96.5 billion and interexchange carriers accounted for about \$93.2 billion. Cellular and PCS providers accounted for about \$26 billion and resellers of various services accounted for about \$6.5 billion. Box 10 sets out this data.

	Box 10. 1996 total revenue of US carriers (in millions)		
	<u>Local Service</u>	<u>Long Distance</u>	<u>International</u>
CAPs and CLECs	\$1 328.1 (1.4%)	0	0
Local Exchange Carriers	\$95 188 (98.6%)	12.0 %	0
AT&T	0	42.1 % (\$39 300)	\$8 900
MCI	0	17.6 % (\$16 400)	\$3 800
Sprint	0	8.5 % (\$7 900)	\$1 700
World Com	0	4.8 % (\$4 500)	\$600
Other IXC's	0	15.0 %	

Source: FCC Trends in Telephone Service, July 1998.

As in most countries, telecommunications services in the US are differentiated on the basis of whether they are local or long distance communications. However, in the United States, long-distance communications are divided into intra-LATA and inter-LATA regions and carriers charge differently depending on service areas. Local service is generally billed on a flat, per month basis and in 1996 accounted for about \$96 billion. Long distance toll is generally billed per minute and accounted for about \$93.2 billion during the same time period, \$74.8 billion for domestic toll and \$18.5 billion for international toll.⁶³

The revenue figures in Box 10 demonstrate the dichotomy in the structure of the US market. Local exchange carriers continue to dominate local service, neither interexchange carriers or cable service providers have established a significant market presence. Similarly, local exchange carriers are restricted in their ability to compete in long distance and international markets. Most of the LECs twelve per cent market share consists of intra-LATA long distance, though as noted above, the 1996 *Act* allowed them to provide out-of-region inter-LATA services. In February 1997, the FCC extended this authority to include international services originating from “out-of-region” points in the US and terminating at various international points.⁶⁴

3.2. *Market performance*

The rationale for regulatory reform is the desired effects it is expected to deliver. Thus in assessing the performance of regulatory reform, the primary criterion is how well it has delivered these desired effects. The perspective adopted here is primarily that of the customer. This is appropriate since government policy makers, as well as telecommunication regulators (including those in the US) have repeatedly declared that it is the impact on the customer (both residential and business) which should and does drive regulatory policy. The main elements of market performance are:

- Lower prices.
- Increased range of product choice.
- Improved quality of service.
- Services based on leading edge technology and infrastructure.

These effects are among those promised by effective competition. Indeed, it is this promise of such desirable effects that has been the primary driver of competition-enhancing regulatory reform that is now widespread. The remainder of this section considers available indicators of these main elements of performance. Subsection (1) considers recent price trends and indicators of profit levels. Subsection (2) discusses available information on customer choice. Subsection (3) comments on indicators of product quality. Subsection (4) provides information on technological developments.

Price and quantity trends

The price effect of regulatory reform on individual subscribers depends crucially on how much long distance service they demand. The average total monthly local telephone rate paid by residential customers has increased in nominal terms from \$13.35 in 1984 to \$19.07 in 1994 (or 3.4 per cent per year).⁶⁵ Thus a subscriber who consumes no long distance services has not been made significantly better off, and depending on the consumer price index used to account for inflation over the period, may have been made marginally worse off. As discussed below, subscribers who consume long-distance or international services have been made considerably better off.

A full assessment of the effects of cuts in long-distance and international price levels is difficult because much price competition has taken the form of price discounts for off-peak use. As competition developed, a wide range of price discounts have been introduced, with varying discounts and eligibility conditions, including up front fees for some schemes.⁶⁶ Apart from price discounts, various promotional offerings have included free months of calling, airline frequent flyer points, and coupons toward merchandise at national buying clubs.⁶⁷ Information on average revenue per minute for long-distance and international services is available, as is information on average monthly bills for cellular service. This information was noted earlier in Box 1.

Customer choice and prescribed lines

A telephone line is said to be “prescribed” to the long distance carrier that receives the ordinary long distance calls placed on that line. Monitoring changes in prescribed lines is important because it indicates the potential for customers to choose between suppliers of a service. In this context it is notable that AT&T’s share of prescribed lines has decreased in favour of other carriers. By the end of 1996, about 63% of lines were prescribed to AT&T, 15% to MCI, 7% to Sprint, and 3% to WorldCom. Over 600 smaller carriers serving 19.2 million lines accounted for the remaining 12% of the industry.⁶⁸ This trend of a diminishing share of prescribed lines for AT&T indicates that customers were in fact given an effective choice of long distance which an increasing number exercised in favour of AT&T’s competitors. Indeed, according to MCI, in 1993, an estimated 20 million people switched long-distance companies, with the number growing to 27 million in 1994, to 42 million in 1995 and to 50 million in 1996.⁶⁹

Quality

The quality of telecommunications service in the US has improved, particularly for large business customers, because of technological improvements and also because service quality is a major feature of competitive strategy for major telecommunication operators. The FCC’s published data on quality of service is extensive and includes the number and nature of customer complaints. During 1996, the FCC processed 35 095 written complaints and inquiries. Of these, 36% involved slamming issues (becoming the customers’ telephone service provider without their knowledge or consent), 13% involved pay-per-call services, and 12% involved operator service provider rates and services.⁷⁰ The remaining complaints covered a range of issues including international telephone rates, unsolicited calls or faxes and telemarketing.

The number of households with telephones increased over the period. In 1988, the fraction of households with telephone service was 85.4 per cent and the fraction of additional lines for households with telephones was 2.7 per cent. By 1992, the respective fractions had risen to 91 per cent and 9.1 per cent. By 1996, the respective fractions were 95.1 per cent and 16.5 per cent.

Productivity and technological development

FCC statistics provide information on labour productivity index for the telecommunications industry which relates output to the employee hours expended in producing that output. The growth in average labour productivity is higher than in other US industries. This higher-than-average annual growth rate is likely the result of telephone companies installing more efficient, advanced technology as well as increases in human capital. Information on labour productivity is shown in Box 11.

Box 11. Labour productivity

Investments in new technologies, particularly by interexchange carriers, have increased the quality of capital available. Information published by the FCC from the US Bureau of Labour Statistics relates output per employee hours expended. Over the period 1951-1995, the index rose an average 5.8 per cent. The FCC reports that this labour productivity factor is higher than the average in other industries (typically between three and four per cent):

Labour Productivity Index (1987=100) for the Telephone Communications Industry

Measured in output per hour

Year	Index	Year	Index	Year	Index	Year	Index
1965	28.9	1980	67.6	1991	119.8	1994	141.6
1970	35.6	1985	88.9	1992	127.7	1995	144.6
1975	49.3	1990	113.3	1993	135.2		

Source: FCC (Common Carrier Bureau), *Trends in Telephone Service*, February 1998, Table 5.2.

There are signs that even the limited amount of competition in local service markets has stimulated network modernisation. The new local service competitors (CLECs) doubled the total amount of fiber optic transmission systems they had in place from approximately 0.6 million fiber miles at the end of 1995 to about 1.3 million fiber miles at the end of 1996. By contrast, the incumbent local telephone companies, which still have an estimated 90% of their facilities linking customers to the first point of switching in copper-based facilities, increased their fiber miles by 15% in 1996 over 1995. Nevertheless, these modernisation programs mean that fiber technology is being deployed closer to customers.

Newer signalling systems have been developed that permit calls to be set up more quickly and efficiently. From 1990 to 1996, the proportion of fiber used for transmission paths or carrier links that connect switching offices increased from 60% to over 90% and ISDN penetration has spread. The Bell companies, computer companies and cable operators have announced standards for a ground-breaking digital modem and phone service that promises to bring mass market, high-speed Internet access to every US home and business. The agreement between the Bells, Microsoft, Intel and others involves digital subscriber line technology that allows copper phone lines to transport multiple channels of data. Originally developed for video transmission, the new technology will move data at speeds between 0.6-1.5 Mbps compared to today's modems which operate at a top speed of 56 Kbps.

Qwest, IXC, Williams Communications and Level 3 Communications Inc. are expected to build new fiber networks which will result in six national long-distance networks in operation. Moreover, several firms, including GTE and Frontier, are purchasing fiber from these firms to use in their networks. The challenge from these new entrants is pressurising the major long distance carriers to further modernise their networks. For instance, MCI has announced plans to quadruple transmission speeds, thereby significantly increasing the capacity of its fiber network.

In regard to international service, AT&T has disclosed that during 1992-1995, it had added more transatlantic telecommunications circuits than in all prior years combined. For instance, the TAT-12/TAT-13 system doubled capacity. These cables, using fiber optic technology, are capable of carrying 5 gigabits (billion bits) per second. In October 1996, the FCC granted MFS Communications Company a license to construct a \$500 million, 10 gigabits per second, non-common carrier optic fiber system between the United States and the United Kingdom. In the Atlantic region, the amount of capacity has increased dramatically as is projected to increase. In March 1997, AT&T, MCI, Sprint, SBS Communications and six Asian carriers signed an agreement to build the first undersea fiber optic cable to directly link the United States and China at a cost of \$1.4 billion.

Another gauge of the degree of competition and efficiency is the level of profits, with high and increasing profits taken to suggest low levels of effective competition or increasing efficiency. This profit indicator is less applicable where price controls prevail. In the US, despite the price cap regulation some carriers became subject to in 1991, and despite falls in access charges, the RBOCs return on equity has grown each year from about 13% in 1991 to some 20% in 1995.⁷¹ The return on equity achieved by the RBOCs have exceeded the return for the Standard & Poors (S&P) 500. This improved financial performance resulted in part from an improved productivity performance and strong growth in ILEC access minutes.

In a discussion of technological development, it is also informative to consider employment levels. Despite considerable “downsizing” by telecommunications carriers, since 1990 employment in the telephone communications industry as a whole has in fact grown modestly. Most of the growth in employment over this period is the result of substantial increases in the radiotelephone (cellular, beepers, paging) industry, which grew at an annual average growth rate of approximately 20%.

4. CONCLUSIONS AND RECOMMENDATIONS

The United States has been the world leader in terms of regulatory reform of telecommunications and has had a long history in efforts to promote competition. Notably regulatory reform has contributed to the dynamism of the US telecommunications industry that now leads the world in such areas as in the development of the Internet and electronic commerce. The benefits experienced by the US indicate the nature and extent of benefits that are attainable by other OECD countries through pro-competitive regulatory reform.

4.1. General assessment of current strengths and weaknesses

For other OECD countries, the US example provides an important example from which to draw insights. Many policy ideas and initiatives have been experimented with by US policy makers and thus other OECD countries can use the experience, both positive and negative aspects, to fine-tune their own policy initiatives. A list of selected strengths and weaknesses of the US regulatory reform experience is presented below to highlight lessons learned.

Box 12. Strengths

- Economically efficient interstate interconnection pricing based on forward-looking costs.
- Effective role of competition policy.
- Domestic market structure with several carriers with facilities and a customer base (as well as resellers and competitive access providers) which, if the conditions were right, could compete in all markets including local.
- Modern telecommunications infrastructure, particularly in regard to long distance and international.
- Quickly converging markets.
- Flexible spectrum licensing regime.

The establishment of effective competitive safeguards that facilitated long-distance competition is an important strength of US telecommunications reform. The regime establishing interconnection between interexchange carriers and local exchange carriers is well developed and rates have been reduced significantly toward levels dictated by economic efficiency. The FCC and individual carriers have many years of experience with the regime and technical specifications are clearly established and understood. This success demonstrates the potential effectiveness of structural divestiture remedies in markets where competition is not well developed.

The United States telecommunications industry provides an example of the central role for competition policy in regulatory reform. As discussed above, the 1984 divestiture was a pivotal step that promoted complementary regulatory safeguards such as interconnection and equal access. Today, the market share of the incumbent, AT&T, in long-distance is below 50 per cent and there is no longer any regulation of inter-LATA long-distance prices.

As a result of the divestiture in the early 1980s, domestic US market structure is characterised by numerous carriers with facilities and a customer base (as well as resellers and competitive access providers) which, if the conditions were right, could compete in all telecommunications markets, including local. There are three major interexchange carriers with extensive national fiber networks and brand names that enjoy considerable customer recognition. Also, there are five remaining RBOCs with existing customer relationships and local networks. These local networks have been modernised in terms of digital switching, but local loops use much the same technology as they have for decades. Investments in ISDN technology has upgraded the access link, but only to a limited degree.

The Internet has a strong presence in the US and telecommunications networks provide packet-switching and other functions that are necessary to promote further Internet growth. The Internet, which originated in the US, has a strong presence. There are alternative infrastructures such as cable systems and digital broadcast satellites that can provide telecommunications services. Cellular and wireless providers are also present. As a result, there are a number of potential competitors to telecommunications carriers that have the potential, in the future, to significantly erode incumbent market power. The availability of these alternative infrastructures also provides the opportunity for efficient networks, including hybrids, to evolve to efficiently provide communications services.

The modern telecommunications infrastructure provides a sound basis for rapid convergence between communications services. Even today, technology is being used that allows traditional broadcasting services to be carried on telecommunications networks and that allows voice telephony to be carried using packet-switching rather than circuit-switched means. At the same time, ISDN has already been widely introduced as a faster access technology, and even faster broadband access technologies are on the horizon.

As in most OECD countries, the US has recently taken steps to significantly increase spectrum available to new entrants into services such as mobile communications. The US has led other countries in adopting flexible licensing frameworks that allow spectrum to be allocated to carriers that can use it most effectively.

Box 13. **Weaknesses**

- *Increasing economic costs of maintaining inter-LATA and information restraints on RBOCs.*
- *Limited competitive entry into the local market.*
- *Overlap in jurisdiction between state and federal regulators.*

As discussed above, local markets are largely monopolies (although not in law). Rather than implementing a structural divestiture to directly address anticompetitive safeguards, policy has attempted to promote co-operation by incumbents with remaining dominant positions. Local prices have not fallen and the technology to provide subscriber access -- the twisted copper pair -- has remained static for decades. The US experience in local markets demonstrates the difficulties that can arise when policy makers depend on co-operation from incumbents to facilitate entry into markets where competition is at an early stage.

The restrictions on RBOCs arising from the divestiture are become increasingly burdensome and costly to the economy (*e.g.*, loss of scope economies). These restrictions have had beneficial effects as a competitive safeguard and as an incentive to open local markets. However, as technological developments increase the importance of being able to provide “one-stop-shopping,” the burden imposed by these restraints will become greater over time.

Relative to other OECD countries, the regulatory structure in the US is a complex web that involves overlapping jurisdiction over sector-specific regulation between the states and the federal government. While the scope for states to pursue different policy initiatives can sometimes promote the development of innovative schemes to promote regulatory reform, the jurisdictional overlap can also generate costs and uncertainties in policy development. Further, the preceding analysis shows that advances in reducing barriers to entry, promoting cost-based interconnection, rate rebalancing and equal access have been most pronounced at the federal level. It may have also limited the scope of procompetitive federal initiatives to promote competition.

Regulations adopted by the FCC are subject to systematic review through biennial review and forbearance procedures. While the enactment of these processes is a significant step, it is important to note that the forbearance provisions do not include an explicit recognition of the costs that regulation imposes, and important provisions of the 1996 Act are exempted. There are likely additional benefits that can be achieved if the overall streamlining process is made more systematic.

4.2. *Potential benefits and costs of further regulatory reform*

Regulatory reform has already provided significant benefits to the US economy. The most concrete benefit has been the dramatic reduction in the overall costs to subscribers of inter-LATA long distance and international telecommunications services. Further reductions in prices during 1995 to present, as well as reductions in the price of mobile telecommunications have provided additional concrete benefits.

These benefits are likely the product of two main factors. First, market power of firms in international and long distance markets has been significantly reduced, thus eroding the distortions of pricing above competitive levels. Second, due to a number of factors including technological change and increased competition in both service and equipment markets, the costs of switching and transmission have fallen dramatically. The degree of the adoption of technological change is reflected in the level of investments in fiber optics and digital switching discussed above.

From a longer-term perspective, the most important impact of regulatory reform is its contribution to facilitating dynamic growth and innovation. Despite the lack of local competition, technological change will continue to improve the prospects for entry in the next few years. A potential task of further reform is to put in place the conditions that allow competition to evolve in the local exchange network. Revenues from local exchanges are considerably larger than inter-LATA long distance and international markets combined. Competition could speed the adoption of new technologies in local exchanges and facilitate the introduction of new services. Competition in local markets could allow a rapid deregulation of many aspects of telecommunications. Eliminating local market power is the most effective way of dealing with competitive concerns of vertical integration.

The development of a broadband subscriber access to national fiber networks would eliminate a technical bottleneck and allow enormous increases in speed and capacity of networks. The new products and services that consumers might demand from such a network are difficult, if not impossible to predict. But the possibilities and potential benefits are substantial.

4.3. Policy options for consideration

There is an extensive analysis of regulatory reform in the US telecommunications industry. Drawing on this analysis, this section builds on international consensus regarding steps to promote good regulatory practices applied to the market realities in the US telecommunications industry. The following recommendations are also based on the “Policy Recommendations for Regulatory Reform” set out in the *OECD Report on Regulatory Reform* (OECD, June 1997).

- ***Promote streamlining of regulation of the US telecommunications industry by extending mandatory regulatory quality controls in executive orders to the regulatory activities of the Federal Communications Commission.***

Ministers have recommended that proposals for new regulations, as well as existing regulations, be reviewed. In general, as effective competitive safeguards are implemented in telecommunications industries and market forces introduced, the need for sector-specific economic regulation declines. As dominant positions of formerly regulated monopolists erode, reliance on market forces subject to economy-wide competition policy rules becomes a more effective means of promoting economic efficiency in the industry. There is a need to continually review and streamline economic regulation as underlying market conditions change.

The US has been effective in implementing effective competitive safeguards to promote competition in markets under federal jurisdiction and in many markets competition is advanced well beyond that in other OECD countries. However, the Federal Communications Commission is not subject to the mandatory regulatory quality controls required by executive orders for most regulatory activities. Regulations adopted by the FCC are subject to systematic review through biennial review and forbearance procedures. While the enactment of these processes is a significant step, it is important to note that the forbearance provisions do not include an explicit recognition of the costs that regulation imposes, and important provisions of the 1996 Act are exempted. There are likely additional benefits that can be achieved if the overall streamlining process is made more systematic.

- ***Competition in intra-LATA markets should be promoted by federal initiative as a necessary step to promote rebalancing of rates to reflect economic costs and thus to promote entry into local markets. If current initiatives fail to eliminate state actions that have the effect of raising barriers to entry, consideration should be given to vesting exclusive authority in the federal government as is done in Australia and Canada.***

Ministers have recommended that those aspects of economic regulation that restrict entry, exit, pricing, output, normal commercial practices and forms of business organisation be reviewed as a high priority. An important challenge relates to barriers to entry and competition in intra-LATA markets. Some state regulators have continued the policy of encouraging intra-LATA prices above competitive levels to limit local rate rebalancing. By allowing intra-LATA toll prices to exceed competitive levels, there is increased scope to maintain artificially low prices for the local services of some subscribers, particularly in rural areas. Historically, states have been able to resist pressures for local rate rebalancing due to the overlap of federal and state jurisdiction.

Regulatory reform initiatives have clearly been more successful in markets under federal jurisdiction. In 1984, limits to federal regulatory reform initiatives reflected market realities in that intra-LATA markets may have had natural monopoly characteristics. Today, however, remaining natural monopolies are much smaller, and therefore the introduction of competition into local and intra-LATA markets is now feasible.

The 1996 Telecommunications Act provides for the pre-emption of state legislation that raises barriers to entry. While it is too early to assess the implementation of this provision, it is a positive step in the right direction. Promoting entry and competition in these markets will reduce intra-LATA prices toward competitive levels and will promote efficient entry into local markets by significantly reducing the scope to charge local rates to some customers that are below true economic cost. However, additional institutional steps may be necessary. In other OECD countries such as Australia and Canada, the nationwide impact of regulatory reform initiatives have been enhanced by exclusive federal jurisdiction.

- ***Promote economic efficiency by establishing a level playing field between Internet-based services and other communications services by harmonising and, in the longer term, phasing out sector-specific obligations.***

Ministers have recommended that governments ensure that procedures for applying regulations are transparent, non-discriminatory, contain an appeals process, and do not unduly delay business decisions. Current policy treats traditional voice telephony and voice telecommunications over the Internet differently in regard to the important issue of interconnection pricing. As Internet telephony becomes a more significant medium for subscribers, it will become increasingly important to assure symmetric regulatory treatment so that usage is not distorted by differential usage fees.

- *Reduce barriers to entry by alternative communications networks by eliminating asymmetries in the treatment of communications services. In particular, the regulatory regime for broadcasting should be reviewed, in the light of convergence, as soon as possible.*

As noted above, Ministers have recommended that governments ensure that procedures for applying regulations are transparent and non-discriminatory. Future local competition will depend importantly on the ability of alternative infrastructures to offer both voice telephony services and newly developing information services. However, as convergence brings the telecommunications and broadcasting industries closed together, fragmented regulation in these areas restricts companies and users from taking advantage of the benefits of convergence. In the United States, one significant asymmetry in regulatory treatment is existing broadcasting licensing procedures designed to promote other public interests. Thus, to promote entry of new alternative networks that could provide voice telephony, non-discriminatory and transparent regulation of entry into other communications services should be advanced.

NOTES

1. The benefit to consumers through price reductions reflects both income transfers from producers to consumers, as well as net increases in overall economic welfare.
2. For example, the *Communications Act of 1934* specifies as a policy objective in communications to: "Make available, so far as possible, to all people of the United States a rapid, efficient, nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges."
3. Crandall and Waverman (1995) provide an estimate of between \$4 and \$30 billion.
4. For discussion see, for example, President William J. Clinton and Vice President Albert Gore Jr., "A Framework for Global Electronic Commerce," posted July, 1997 at <<www.iift.nist.gov/telecom/ecom.htm#background>>.
5. One reason for the inadequacy of these competitive safeguards was a technical one -- *i.e.*, the absence of so-called "equal access." That is, in the 1970s, subscribers choosing to use alternative long-distance carriers had to dial extra digits because the incumbent carrier was the only carrier available as the "default" carrier.
6. The divestiture was very much a "last resort." By 1980, MCI had turned to the legislature, the regulator and private antitrust action but had been unsuccessful in securing a remedy providing effective competitive safeguards.
7. For a more detailed explanation of the theory, see: Timothy J. Brennan, "Is the Theory behind *US v. AT&T* Applicable Today?" *Antitrust Bulletin*, vol. 40, no. 3, pp. 455-482.
8. Soon after the divestiture, the FCC mandated equal access in regard to inter-LATA long-distance, allowing subscribers to choose among long-distance carrier as the default carrier on an equal basis.
9. By the late 1980s, the share of switched minutes held by new entrants was well in excess of 30 per cent -- a level that exceeds comparable new entrant market share figures in other OECD countries such as Australia, Canada, New Zealand, Japan and the United Kingdom even today. See OECD (1997), *The OECD Report on Regulatory Reform: Volume I: Sectoral Studies*, Paris.
10. In January 1998, for example, the FCC reported that inter-state toll accounted for \$58 billion, intra-state/inter-LATA toll accounts for \$19 billion, intra-state/intra-LATA toll accounted for \$11 billion and local exchange (flat-rate monthly unlimited local calling) accounted for \$55 billion in total revenue. Five jurisdictions had no inter-LATA revenue (the District of Columbia, Hawaii, Maine, New Hampshire, Rhode Island and Vermont), presumably because they are one-LATA states. See James Eisner (1998), "Distribution of Intrastate and Interstate telephone by Revenue, *Mimeo*, January.
11. The market share of CLECs based on 1996 market share is 1.4 per cent. Recently, the figure 2.6 per cent was quoted in: Joel Klein (1997), "The Race For Local Competition: A Long Distance Run, Not a Sprint," Speech before the American Enterprise Institute, 5 November.
12. OECD (1997), *The OECD Report on Regulatory Reform: Volume I: Sectoral Studies*, Figure 3.1, Paris, p. 44.
13. FCC (1998), CC Docket No. 97-211, 14 September, p. 32.
14. FCC (1998), CC Docket No. 97-211, 14 September.

15. Where the average “bill” is revenue per unit. The FCC notes that actual price per minute, and thus a subscriber’s actual bill, varies significantly depending on an individual customer’s service plan. According to one study (published in January 1998), the average price for service in the most expensive plans is over \$0.50 per minute while the least expensive plans average in the mid-\$0.20 range.
16. FCC 98-91, June 1998. Growth of mobile penetration has been faster in OECD countries with competitive market structures than those with duopoly or monopoly markets.
17. Application of Teleport Communications N.Y. 7 F.C.C.R. 5986, 5988 (1992).
18. See FCC, In the Matter of the Annual Assessment of the Status of CS Docket No. 97-141 Competition in Markets for Video Programming. In June 1997, the number of homes capable of receiving cable programming was 94.2 million, which accounts for 97.1 per cent of television homes.
19. Under the plan, Ameritech acted to argue for the elimination of state barriers to entry, to provide equal access to intra-LATA toll and to provide access to its network for new entrants into the local exchange. For discussion, see DOJ (1995), “Memorandum of the United States in Support of its Motion for a Modification of the Decree to Permit a Limited Trial of Interexchange Service by Ameritech,” *Mimeo*, 1 May.
20. Hearing Order, “Petition of Rochester Telephone Company for Approval of Proposed Restructuring Plan; Petition of Rochester Telephone Corporation for Approval of a Multi Year Rate Stability Agreement,” New York Public Service Commission, Case 93-C0133, Opinion No. 94-25, 10 November, 1994.
21. See Joel Klein (1997), “The Race For Local Competition: A Long Distance Run, Not a Sprint”, Speech before the American Enterprise Institute, Nov 5, and William E. Kennard (1998), “Section 271 of the Telecommunications Act of 1996,” Statement before the Subcommittee on Communications of the Committee on Commerce, Science, and Transportation, United States Senate, March 25. In particular, Chairman Kennard stated: “I do not come here, however, to announce my satisfaction with the pace of competition. We can and must do better.”
22. FCC, “Local Competition Factsheet,” *supra*, note 1.
23. For detailed discussion of the impact of these technological advances see, for example, the FCC’s *En Banc* hearing dated July 9, 1998 posted at: <<www.fcc.gov/enbanc/070998/tr070998.txt >> and the FCC’s *Bandwidth Forum* dated 23 January 1997 posted at <<www.fcc.gov/Reports/970123.txt >>. The UK provides an additional example of the capacity of cable to provide telephony service. See, for example, Affidavit of Oliver E. Williamson, at p. 14 (31 May 1994), submitted on behalf of Motion by Bell Atlantic Corporation, Bell South Corporation, Nynex Corporation and South-western Bell Corporation to vacate the Decree, *United States v. Western Electric Co.*, No. 82-0192 (D.D.C. filed 6 July 1994) cited in Robert W. Crandall and J. Gregory Sidak (1995), “Competition and Regulatory Policies for interactive Broadband Networks,” *Southern California Law Review*, July.
24. See, for example, Robert W. Crandall and J. Gregory Sidak (1995), “Competition and Regulatory Policies for interactive Broadband Networks,” *Southern California Law Review*, July.
25. In theory, satellite systems provide a fourth possible entrant into local telecommunications markets. However, the prospects for satellite entry on a widespread commercial basis in the coming years is limited. Importantly, satellite communications involve a delay of about one-third of a second that can impede convenient voice communications.
26. See Jonathan Jacob Nadler (1995), “Give Peace a Chance: FCC-State Relations After *California III*” *Federal Communications Law Journal*, Vol. 47; 3 April.

27. 27 FCC 359, Docket 11866 (1959).
28. 13 FCC 2d 420, 18 FCC 953 (1969) and 29 FCC 2d 870 (the *Specialised Common Carrier* decision).
29. For discussion, particularly of the notion of “flexibility” in licenses, see: Gregory L. Rosston and Jeffrey S. Steinberg (1997), “Using Market-Based Spectrum Policy to Promote the Public Interest,” FCC Discussion Paper, January.
30. Subject to limited exceptions, see FCC PR Docket No. 94-107, Released 19 May, 1995.
31. See for example, Leonard J. Kennedy and Heather A. Percell (1998), “Section 332 of the Communications Act of 1934: A Federal Regulatory Framework That Is “Hog Tight, Horse High, and Bull Strong,” *Federal Communications Law Journal*, 50; 3.
32. For a discussion of foreclosure effects in network industries see, for example, Jeffrey Church and Neil Gandal (1992), “Network Effects, Software Provision, and Standardisation,” *Journal of Industrial Economics*, vol. 40, March; or Stanley M. Besen and Joseph Farrell (1994), “Choosing How to Compete: Strategies and Tactics in Standardisation,” *Journal of Economic Perspectives*, vol. 8, Spring.
33. These comparisons using median rates are suggestive of general trends, but hide some of the variation between states. In 1990, Texas, Wyoming, Minnesota, North Carolina, South Carolina and Louisiana had access fees well in excess of triple the comparable interstate rate. States such as Illinois and Virginia that even in 1990 had made significant progress toward regulatory reform in intra-state markets had no common carrier access fee whatsoever. In general, states with high common carrier access fees are predominantly rural. Ingo Volgosang and Bridger M. Mitchell (1997), *Telecommunications Competition: The Last Ten Miles*, Washington, D.C., AEI, p. 133.
34. The specific numbers are 17.26 cents in 1984 and 3.82 cents in 1998, see FCC (1998), Trends in Telephone Service, July, Table 1.2. Figures reported here from Table 1.2 do not include Primary Interexchange Carrier Charges (PICCs). If these charges are included, as the FCC had done in its January 1998 “Trends in Telephone Service” report, the per conversation minute total charge would be about one cent per minute higher.
35. RBOCs, which serve about 75 per cent of all customers, converted almost half their lines to equal access between December 1984 and December 1985, and an additional 40 per cent in the next three years. See FCC (1998), “Trends in Telephone Service”, February, p. 22. More than a decade after equal access was widely introduced in inter-LATA toll markets, in February 1996, Minnesota was one of the first states to introduce intra-LATA dialling parity.
36. The 1996 Act requires incumbent local exchange carriers to provide interconnection to any requesting carrier at any technically feasible point. The FCC has concluded that prices should be based in Total Element Long Run Incremental Cost plus a reasonable share of forward-looking joint and common costs.
37. CC Docket 96-262, paras 283-290, <<www.fcc.gov/Bureaus/Common_Carrier/Notices/fcc96488.txt>>. The reason is that Internet service providers typically pay business line rates (that typically do not include usage sensitive prices for incoming calls) and the appropriate subscriber line charge rather than the corresponding per-minute interstate access charges.
38. Barbra Esbin, (1998), “Internet Over Cable: Defining the Future in Terms of the Past,” FCC, OPP Working Paper Series: No. 30, August, p. 68.
39. The 1996 Act requires incumbent local exchange carriers to provide interconnection to any requesting carrier at any technically feasible point. In its *Local Competition* decision, the FCC has concluded that prices should be based on Total Element Long Run Incremental Cost. Under this costing methodology, an

incumbent LEC must base prices of a specific network element on TELRIC plus a reasonable share of forward-looking joint and common costs.

40. The FCC has characterised the historic structure of telecommunications prices a “patchwork quilt of implicit and explicit subsidies.” See, for example, FCC CC Docket No. 96-45 [the Joint Federal-State Report to Congress on Universal Service].
41. There are a number of underlying factors that have contributed to the ability of incumbents to maintain higher intra-LATA prices. First, these markets were not divested from the incumbent local exchange carriers in the 1984 divestiture. Second, as noted above, state regulators have been slow to promote entry into these markets, and in instances where entry has been allowed, interconnection on equal quality terms has not been available. These two factors provide a significant incumbency advantage that has contributed to the maintenance of pre-divestiture market power in regard to intra-LATA services.
42. More inclusive and reliable data in Box 1 on revenue per minute reinforce this conclusion since it shows that interstate prices fell about 50 per cent over the 1984 to 1992 period, and fell about 17 per cent between 1992 and 1996.
43. Ingo Volgelsang and Bridger M. Mitchell (1997), *Telecommunications Competition: The Last Ten Miles*, AEI, Washington D.C. The conclusion that competition remains weak in intra-LATA can also be found in Marius Schwartz (1997), “Competitive Implications of Bell Operating Company Entry Into Long-Distance Telecommunications Services: Affidavit of Marius Schwartz,” *Mimeo.*, 14 May.
44. For full details on price cap regulation see FCC (1997), “In the matter of Price Cap Performance Review”, Fourth Report and Order in CC Docket No. 94-1, 7 May.
45. OFTEL (1996), *Telecoms Price Control: the Final Phase*, June, London.
46. For a detailed analysis, see OECD (1995), *Price Cap Regulation: Policies and Experiences*, Paris.
47. It has sometimes been argued that low local rates are a subsidy to promote high penetration of telephone service that is made necessary to correct for network externalities. As Farrell notes, however, there is little or no evidence to support the notion that that the universal service system or its goals are based on this See Joseph Farrell (1996), “Creating Local Competition,” *Federal Communications Law Journal*, vol. 49; 1, November. Furthermore, as Hausman shows, econometric evidence on demand elasticities does not indicate that low prices are necessary to maintain high penetration rates. For discussion see, Michael Riordan (1998), “Conundrums for Telecommunications Policy,” *Mimeo.*, 28 May.
48. As former FCC Chief Economist Michael Riordan commented: “The tension between universal service and competition is the great drama in the Telecom Act. These are like two horseshoe magnets, that, when held face-to-face, repel each other. Yet there is an abiding belief that, if one could just turn one of the magnets upside down, and look at it differently, everything would be all right”. Michael Riordan (1998), “Conundrums for Telecommunications Policy,” *Mimeo.*, May 28.
49. As Lawrence White put it, “cross-subsidies are the enemy of competition *because* competition is the enemy of cross-subsidies.” See Joseph Farrell (1996), “Creating Local Competition”, *Federal Communications Law Journal*, vol. 49; 1, November.
50. The FCC has adopted the following definition of universal service: voice grade access (500-4000 Hz); dual tone multifrequency signalling or digital equipment; single party service; access to 911, directory services, operator services and interexchange services In addition, call blocking service is supported for low income consumers.

51. Until the end of 1997, universal service programs were financed by per line monthly charges imposed on long distance carriers. Under the new rules which took effect in January 1998, the per-line charges previously paid by large long distance carriers have been discontinued. Instead, all providers of interstate telecommunications, including local exchange carriers, long-distance providers and wireless carriers, now contribute to the provision of universal service based on the amount of their telecommunications revenues.
52. Collecting funds through general tax revenues is generally less distortionary because it is collected from a broader base and thus there is less distortion of relative prices.
53. Local rates are likely below economic cost by the largest margin in rural and remote areas. Moreover, information reported by the FCC indicates that monthly charges in rural areas are about 20 per cent *lower* than in urban areas. FCC (1998), Industry Analysis Division, "Reference Book on Rates, Price Indices and Expenditures for Telephone Service," *Mimeo.*, July. The average rate reported in a survey of 89 cities by the Bureau of Labour Statistics indicates that the flat-rate local rate (not including subscriber line charge, 911 charges or taxes) was \$13.71 while the corresponding average rate reported by rural carriers was \$11.17 in 1996. The Rural Utilities Service of the US Department of Agriculture's National Information Infrastructure initiative provides nearly \$11 billion in approved loans to rural telephone companies.
54. With its entry into force on 5 February 1998, the agreement set telecommunications services on the path of progressive liberalisation and pro-competitive regulatory reform in 72 signatory countries, including the United States and most of the world's major trading nations. The United States made significant market-opening commitments in the agreement and joined 64 other WTO Members in subscribing to a Reference Paper on Pro-Competitive Regulatory Principles.
55. Moreover, foreign-affiliated carriers with Section 214 authorisations granted prior to 1 January 1998 are effectively exempted from the benchmark settlement rate condition insofar as the Order applies only to *new* market entrants. A later adjustment to the Order requiring US carriers to adopt the benchmark rates by a date certain has been extended indefinitely. Thus, depending on their particular circumstances, foreign-affiliated carriers seeking to launch new facilities-based services may find themselves at a competitive disadvantage vis-à-vis established foreign and domestic entities. As discussed above, however, all carriers from WTO countries are eligible for streamlined global authorisation to provide switched resale service.
56. This council is a federal authority committee created by the FCC. Its purpose is to advise the FCC and to make recommendations, reached through industry consensus, that foster efficient and impartial number administration.
57. Pursuant to the former, the Office of Management and Budget (the "OMB") approved all FCC information requirements on 1 April 1997 [*Notice of Office Management and Budget Action*, OMB No. 3060-0760].
58. Sections 401 and 402 of the 1996 Telecommunications Act provide procedures to forbear from regulation in response to specific petitions and to review its own regulations to check if they are no longer in the public interest. Importantly, these streamlining provisions do not include an explicit recognition of the costs imposed by continued regulation
59. Section 401(d) exempts sections 251(c), (*i.e.*, interconnection and unbundling requirements) and 271 (the in-region inter-LATA restraints on BOCs) from consideration under a forbearance petition.
60. The administrative and enforcement burden imposed by line-of-business restrictions has been an ongoing concern. The line-of-business restrictions in the divestiture decree created a complicated system of contested and uncontested "waivers" that essentially allowed RBOCs to offer new services or otherwise amend the restrictions (*e.g.*, update LATA boundaries to reflect network developments). It has been argued that the process has been slow, delaying new product innovations and impeding competition. [See, for example, the affidavit of Paul H. Rubin, June 14, 1994, submitted on behalf of Motion of Bell Atlantic Corporation, BellSouth Corporation, Nynex Corporation, and South-western Bell Corporation to Vacate the

Decree, *United States v. Western Electric Co.* No. 82-0192 (D.D.C. filed July 6, 1994). These concerns do not appear to have been eliminated by the transfer of authority to the FCC. In its scrutiny of FCC regulatory practices under the *Paperwork Reduction Act* the Office of Management and Budget made only one recommendation, that it should: “minimise the number of new filings that firms must create ... in order to demonstrate that they meet the *Telecommunications Act of 1996* requirements for provision of inter-LATA services within their operating regions.”

61. Thus there is a need to lower barriers to entry through the elimination of licensing requirements (or replacing them with notification procedures) and achieving other policy goals through direct subsidies. For more discussion see, for example, OECD (1998), “Regulation and Competition Issues in the Light of Convergence,” OECD Background Paper, October, Paris.
62. See Statement of Ambassador Charlene Barshefsky, WTO Agreement, Testimony before the House Commerce Committee -- Subcommittee on Telecommunications, Trade & Consumer Protection, 19 March, 1997.
63. The remaining revenue accrues to CAPs, CLECs as well as paging and other mobile carriers. Also, resellers of various services accounted for \$6.5 billion. FCC, *Telecommunications Industry Revenue: TRS Fund Worksheet Data*, Industry Analysis Division.
64. In August 1997, the FCC removed the interim separation conditions it had imposed on RBOCs and independent LECs as a condition for non-dominant treatment of their international telecommunications services originating from points outside their local exchange areas. This action is consistent with the policy recently adopted by the FCC governing the RBOCs’ and independent LECs’ provision of interstate, domestic interexchange services originating in out-of-region areas.
65. However, since 1991, the monthly rate has increased only slightly from \$18.66 to \$19.58 in 1996. These monthly charges include unlimited local calling. The minimum connection charge has increased from \$36.76 in 1983 to \$43.42 in 1996. As discussed earlier in Section 2.3, interstate switched access and trunking prices have remained close to the FCC prescribed price cap maximum suggesting that it is regulation (rather than competition) that has contained ILEC prices. For business customers, the average total monthly local telephone rates was \$36.76 in 1983 and \$43.33 in 1996 -- an increase of 18 per cent over the 13 year period. The average charge for a five-minute (same zone) daytime business call increased by about seven per cent between 1983 and 1996.
66. This means that detailed information on customer subscribership to schemes and usage profiles, are necessary to make a full assessment of the effects on the prices paid by subscribers. For a detailed discussion see P. Xavier (1998), ‘Price discount schemes and international price comparisons’, *Telecommunications Policy*, June.
67. Several innovative pricing schemes have emerged. With Complete Access, customers can obtain Qwest long distance for just seven cents a minute during evenings and weekends, while businesses can obtain long distance for 9.5 cents a minute all day.
68. Zolnierek, J and Rangos, K. (1998), *Long Distance Market Shares, Fourth Quarter 1997*, Industry Analysis Division, Common carrier Bureau, March.
69. MCI (1997), *True Competition in the Long-Distance Market*, January.
70. FCC (1998), *Trends in Telephone Service*, Industry Analysis Division, Common Carrier Bureau, February.
71. FCC (1997), *Rate of Return Report 1997*.