Changes in Industry Structure and Technological Convergence: Implications for Competition Policy and Regulation in Telecommunications

by

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Abstract

The year 2005 began with the announcements that the two leading long-distance carriers—AT&T and MCI—were being acquired by two of the four major incumbent local exchange carriers—SBC and Verizon—and ended with regulatory approval virtually completed. Shortly thereafter, the new AT&T (SBC and the old AT&T) announced its intention to acquire BellSouth. At the same time, the industry, business, and popular press contained numerous accounts of the increasing potential of alternatives to traditional voice communications, e.g., the major push of cable television providers and the activities of internet-based services such as Vonage and Skype. These developments indicate that the focus of competition is shifting from a single voice market to the "triple play" of voice, video, and high-speed data (Internet access).

These competitive developments imply a very different model of competition and industry structure than that envisioned in the 1996 Telecommunications Act and in the Federal Communications Commission's implementation of the Telecommunications Act. Rather than competition being among "dominant firms" supplying essential inputs to new entrants for traditional voice service, the industry has evolved to one in which firms with different "intermodal" networks and technologies often vie for the patronage of customers purchasing packages of services.

This paper discusses recent regulatory responses to these developments as well as possible implications for future *ex ante* and/or *ex post* regulation. In particular, a growing number of state governments have enacted legislative or regulatory changes that typically limit retail price regulation to services such as the basic residential telephone line. Similarly, the FCC has received requests for regulatory forbearance for wholesale services under Section 10 of the Telecommunications Act for incumbent operations in Omaha, Nebraska and Anchorage, Alaska. The Canadian telecommunications regulator and Cabinet ministry have also recently considered similar issues of retail regulation/deregulation.

The paper also discusses approaches for assessing market power and other competitive issues, e.g., vertical integration, that account for the specific characteristics of the emerging (converging) industry. It concludes by describing the implications of the emerging nature of telecommunications competition for market power assessment, continued regulation, and antitrust analyses.

1. Introduction

The last two to three years have seen a fundamental change in the nature of telecommunications competition and regulatory measures to facilitate efficient market outcomes. Up until then, a common framework for competition and regulation was on in which certain components of the networks of the incumbent local exchange carriers (ILECs)—who had only recently gained regulatory approval to offer long-haul (interLATA) long-distance in competition with firms such as AT&T, MCI, and Sprint—were considered necessary inputs for newer entrants into markets for local services. Primary regulatory concerns for both the Federal Communications Commission (FCC) and state regulators were (1) which components of ILECs' networks need to be provided to competitors at regulated rates and (2) how should regulators determine those rates. For example, the FCC issued new rules to determine whether particular elements must continue to be unbundled[1] and opened up an investigation of its rules for determining the prices of those elements that continue to be subject to mandatory unbundling.[2]

Shortly thereafter in early 2004, the DC Circuit Court invalidated the FCC's new unbundling rules,[3] particularly the rule concerning the availability of the unbundled network element platform (UNE-P), which allowed entrants to resell the ILECs' retail services at generally attractive wholesale prices. The FCC chose not to challenge the court ruling and

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[1] Federal Communications Commission, *In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers* (CC Docket No. 01-338), *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996* (CC Docket No. 96-98), *Deployment of Wireline Services Offering Advanced Telecommunications* Capability, (CC Docket No. 98-147), Report and Order on Remand and Further Notice of Proposed Rulemaking, released August 21, 2003 (*"Triennial Review Order").*

[2] Federal Communications Commission, *In the Matter of Review of the Commission's Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers* (WC Docket No. 03-173), Noticed of Proposed Rulemaking, released September 15, 2003. Even though the US Supreme Court had upheld the FCC's pricing rule (the September 2002 issue of the *Review of Network Economics*, which is available online, contains several articles discussing the issues surrounding the Supreme Court's determination), the FCC nonetheless raised the possibility that the pricing rule might be modified to approximate more realistically the prices that would prevail under competition. As of this writing, although the FCC received opening and reply comments in December 2003 and January 2004, it has released no decision in this proceeding.

[3] *United States Telecom Ass'n. v. FCC*, 359 F.3d (D.C. Cir. 2004) ("*USTA II*").

subsequently issued new rules that phased out UNE-P.[4] In middle to late 2004, two of the three major long-distance carriers AT&T and MCI, which had made extensive use of UNE-P to provide local exchange services, announced their intention to phase out their consumer (small user) operations. As it turned out, not only did these carriers reduce particular lines of business for which they depended on UNE-P, they ultimately chose to end their existences as independent companies. By the end of 2005, antitrust and regulatory authorities had substantially completed their review of the mergers of AT&T into SBC and MCI into Verizon.[5]

From a pre-2003 perspective, the discontinuation as independent entities of two major entrants into local exchange markets could be viewed as a major setback in attainment of the bedrock goal of the 1996 Telecommunication Act: full competition in all telecommunications markets.[6] Fortunately, contemporaneous developments appear to have spawned different types of competition. For example, Voice over Internet Protocol (VoIP) has enabled the recent surge of telephone offerings by (1) cable television providers and (2) other companies such as Vonage and Skype that offer service over customer-secured broadband Internet connections. Not only are these newer forms of competition making inroads into services traditionally supplied by ILECs, the nature of competition (and the economic markets in which it plays out) are shifting as well. In particular, formerly separate voice, data, video, and wireless markets are converging as firms invest in technologies that can deliver the "triple play" (or "quadruple play") of voice, video, data, and even wireless services.

This paper reviews these recent developments, with particular emphasis on suggesting a framework for analyzing the competitive consequences of the changes in technology and market structure. The remainder of the paper is organized as follows. First, an overview of recent

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[4] Federal Communications Commission, *In the Matter of Unbundled Access to Network Elements* (WC Docket No. 04-313) *and Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers* (CC Docket No. 01-338), Order on Remand ("*Triennial Review Remand Order*"), released February 4, 2005.

[5] Federal Communications Commission, *In the Matter of SBC Communications Inc. and AT&T Corp. Applications for Approval of Transfer of Control* (WC Docket No. 05-65), Memorandum Opinion and Order, released November 17, 2005. and Federal Communications Commission, *In the Matter of Verizon Communications Inc. and MCI Inc. Applications for Approval of Transfer of Control* (WC Docket No. 05-75), Memorandum Opinion and Order, released November 17, 2005

[6] Telecommunications Act of 1996 Preamble:

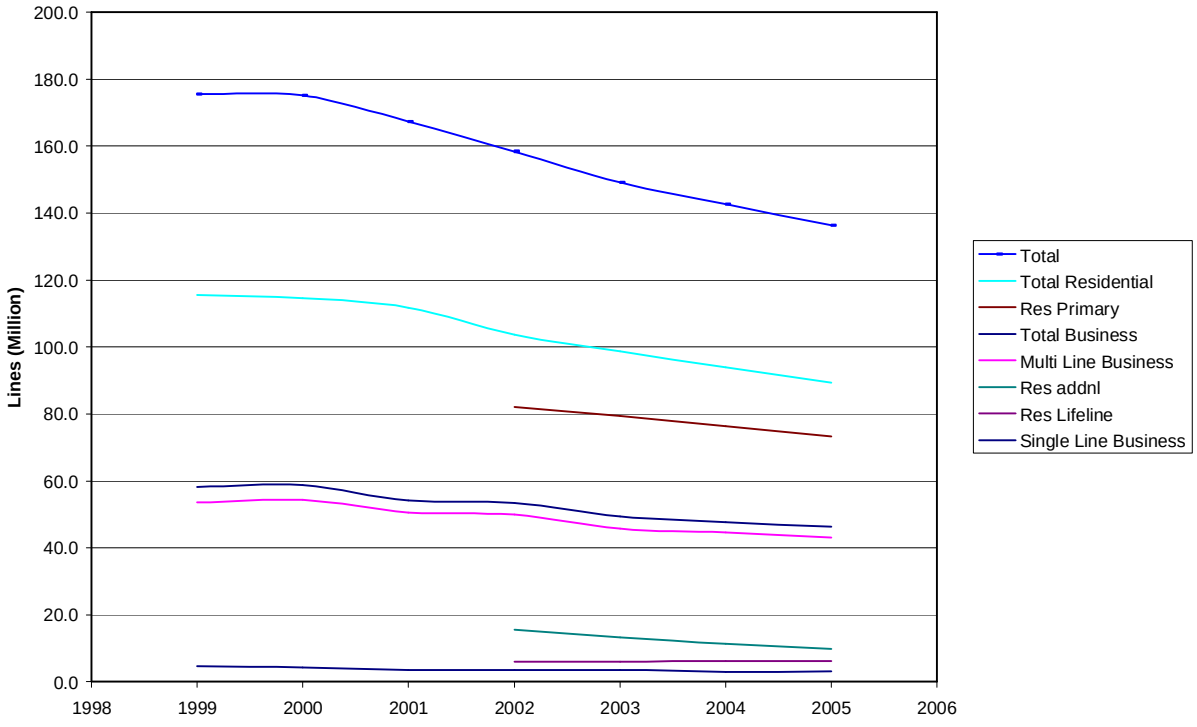
> To promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies

trends in competition for telecommunications services is provided. Second, I discuss how regulatory authorities have adapted to these changes, with particular emphasis on decisions from the 2005 mergers and similar proceedings that considered changes in regulation for ILECs' retail services. The following section outlines the implications of these competitive and regulatory developments on (1) analyses of market power and (2) the extent to which regulators should employ before-the-fact or after-the-fact rules to services that continue to be subject of regulation. The final section concludes the paper.

2. Recent Competitive Trends

Competition for local exchange services during the first half of the 2000 decade has seen a steady decline in ILEC lines and a change in the composition of competitors' lines. Figure 1 displays the trends in various types of ILEC lines from 1999-2005 as reported in the FCC's ARMIS data base.

Figure 1: Trends in ILEC Access Lines



The compound annual rate of decline since 1999 has been 4 percent per year, with little difference in the rates for total business and residential lines. These rates were somewhat higher

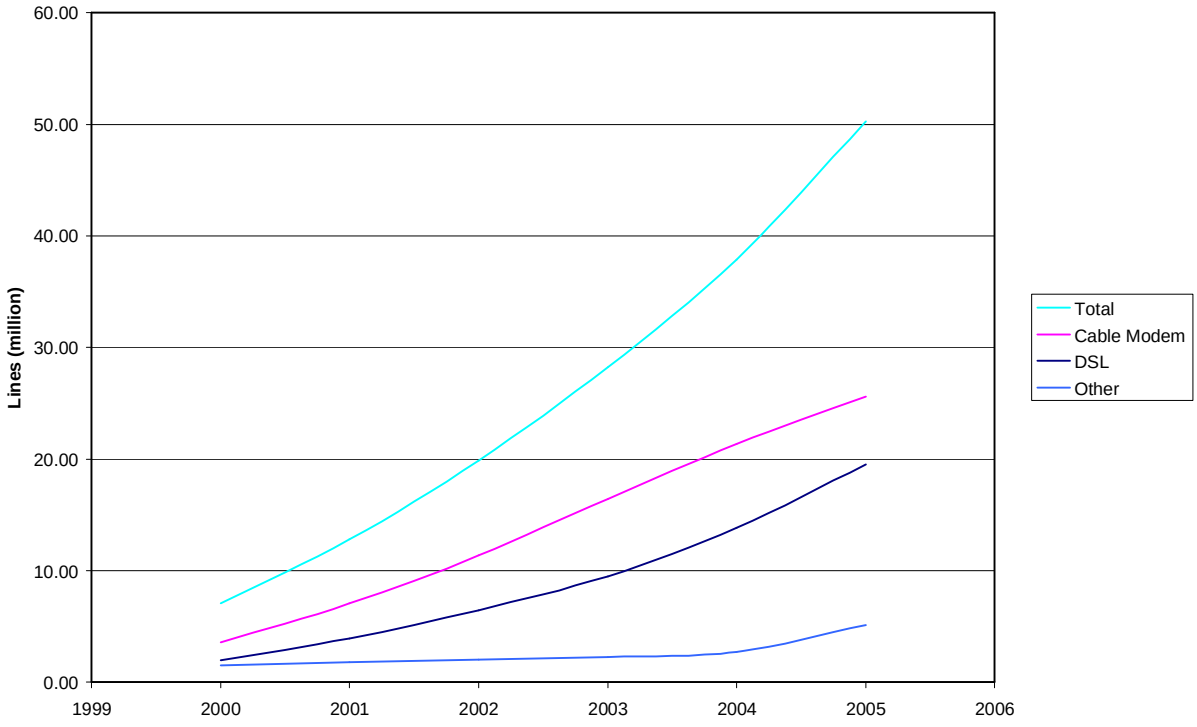
since 2002, approaching five percent for both business and residential lines. The decline has been especially steep for residential additional lines, which have decreased at an annual rate of over 14 percent since 2002.[7] Much of the loss is probably explained by substitution of second lines for high speed Internet access services such as digital subscriber lines (DSL) or cable modems.

Figure 2 displays the growth of ILEC DSL lines, cable modems, and other high-speed lines, which not only have displaced ILEC second lines, but as described in more detail below, have facilitated additional competition in the form of VoIP offerings from companies such as Vonage and Skype.[8]

[7] ARMIS data began reporting subcategories of residential lines in 2002. For the years before, alternative FCC data, which reports more additional lines in 2002 (because it includes lines from smaller ILECs and CLECs, which are not included in ARMIS data), show additional residential lines of 23.6 million, 26.2 million, 26.3 million, and 18.4 million from 1999 through 2002. Thus, the steep decline in additional lines began after the peak level was reached in 2001. Federal Communications Commission, Industry Analysis and Technology Division, Wireless Competition Bureau, *Trends in Telephone Service*, 2005, Table 7.4

[8] Federal Communications Commission, Industry Analysis and Technology Division, Wireless Competition Bureau, *High-Speed Services for Internet Access: Status as of December31, 2005*, July 2006, Table 1. The FCC defines "high-speed" as an information transfer rate of over 200 kilobits per second in at least one direction.

Figure 2: Trends in High Speed Lines



Before presenting the entry patterns of competitors that deploy some type of wired facilities, the growth in wireless demand is also informative.[9] Figure 3 compares the recent growth in wireless subscribership with the contemporaneous decline in overall wireline demand and the proportion of that demand served by ILECs. Indeed, the number of wireless subscribers has surpassed the number of wired lines. Wireless usage is growing even more rapidly than wireless subscribership. In its most recent semi-annual wireless survey, the Cellular Telecommunications and Internet Association (CTIA) reported that wireless minutes of use are growing at annual rate of 35.8 percent and exceeded 1.4 trillion minutes in 2005.[10] CTIA also reported an average call duration of three minutes, which would imply that wireless subscribers originated about 233 billion calls in 2005.[11] According to ARMIS data (Report 43-08), ILECs

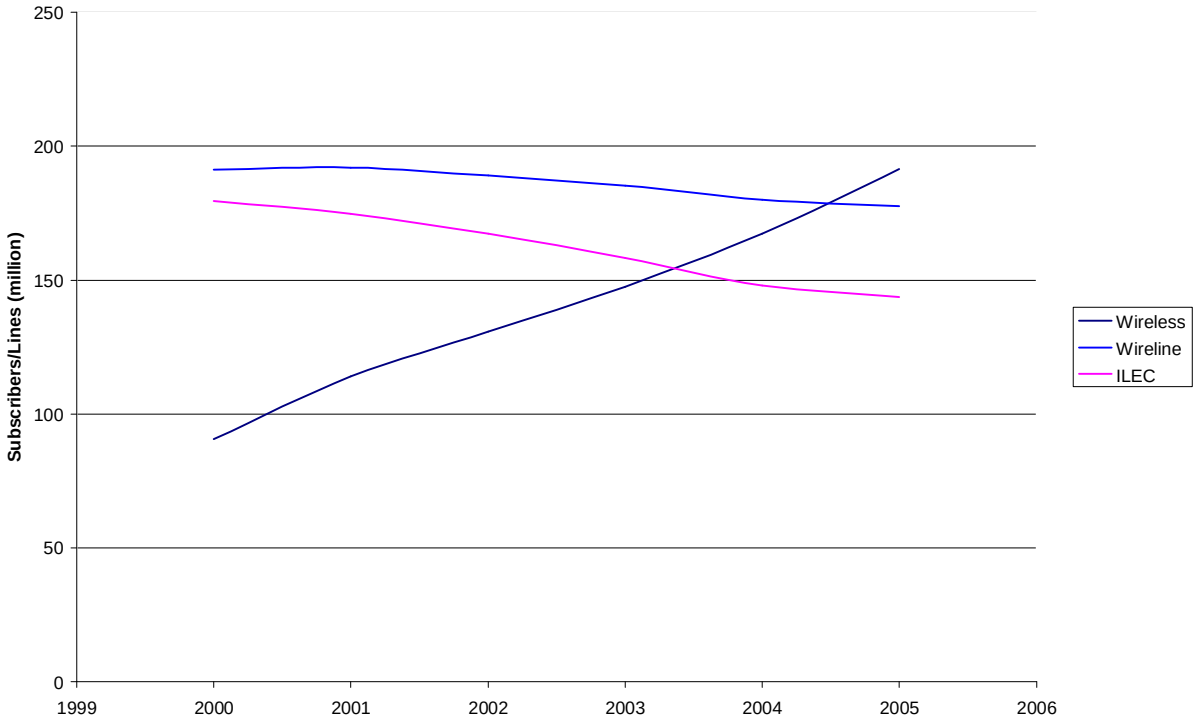
[9] The data represented in the figures that follow in this section are from Federal Communications Commission, Industry Analysis and Technology Division, Wireless Competition Bureau, *Local Telephone Competition: Status as of December 31, 2005*, July 2006 ("*Local Competition Report*"]

[10] Cellular Telecommunications and Internet Association (CTIA), "Background on CTIA's Semi-annual Wireless Industry Survey," 2006. Available at http://files.ctia.org/pdf/CTIAEndYear2005Survey.pdf.

[11] This derivation assumes that minutes of use are recorded on both ends of a wireless call.

originated about 415 billion calls in 2005 and those calls have been decreasing at an annual rate of 8.5 percent. If the respective growth rates for wireless and ILEC calling continue in the future, wireless calls will exceed ILEC calls before the end of 2007 and will be quadruple the ILEC number by 2010. These levels and trends in subscribership and usage strongly suggest that wireless is displacing a growing amount of calling that had previously been made on wireline phones. Indeed, as will be discussed in greater detail below, this growing substitution has resulted in increasing numbers of subscribers "cutting the cord" by completely substituting wireless for wireline service—a trend that has important implications for the competitiveness and proper regulatory treatment of incumbent wireline providers.

Figure 3: Trends in Wireless and Wireline Volumes

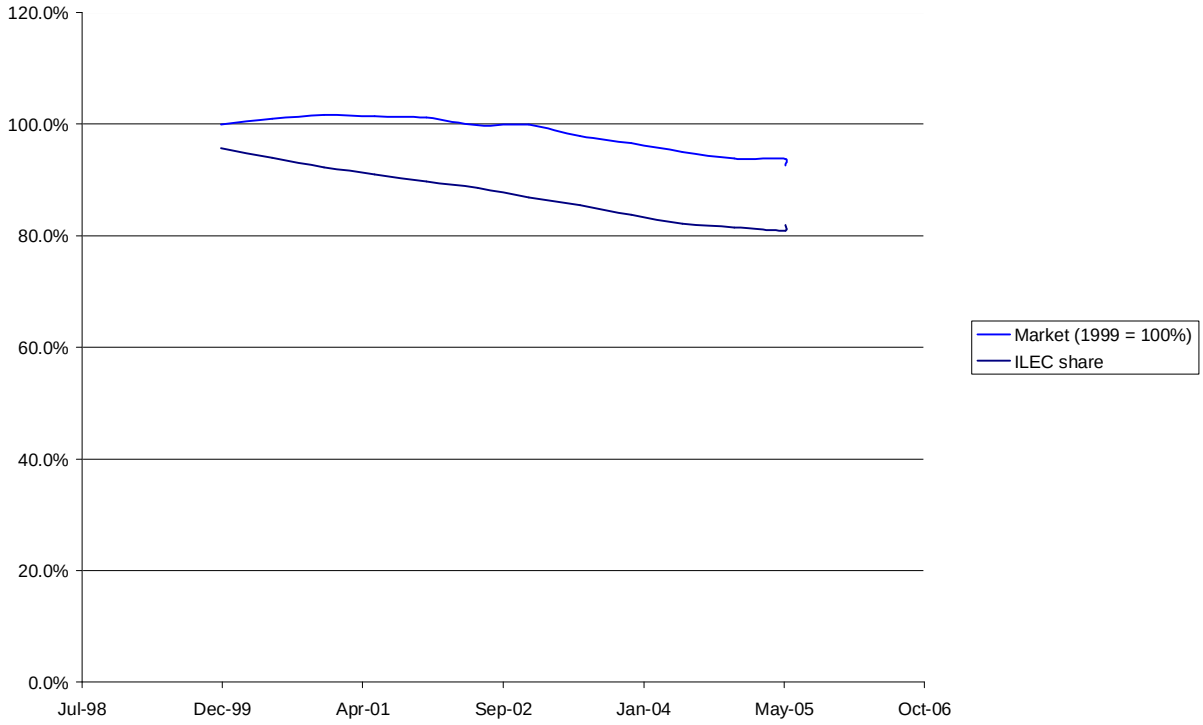


Turning to competitive local exchange carrier (CLEC) entry, while the FCC reports that overall CLEC market shares climbed steadily (and ILEC shares fell) since 1999,[12] the type of

[12] This trend continued until the most recent reporting period (December 2005) in which the CLEC share of 18.0 percent declined from 19.1 percent six months earlier. This decline was most likely explained in large part by the fact that the lines supplied by the former AT&T in the former SBC service territories were reclassified from CLEC to ILEC lines upon completion of the merger.

entry has changed in the most recent years. Figure 4 shows the trend in shares, as well as in the overall number of subscriber lines (ILEC plus CLEC), which have declined in recent years.

Figure 4: Trends in Total Number of Switched Wirelines and ILEC Share of Total Lines



The 1996 Telecom Act identified three ways to enter local telephone service provision: (1) resale, a wholesale version of the incumbents' retail service, offered at an avoided cost discount; (2) unbundled elements, under which an entrant could lease some components and self-supply the rest; and (3) full facilities based. In addition, as a result of extensive litigation, a fourth type--UNE-P--became available.[13] Subsequent to the Supreme Court's 1999 ruling, which for the time resolved the legal disputes over the provision of UNE-P, a number of states further lowered its price, thus making its deployment even more attractive for CLECs. The other crucial event is that upon mandate by the DC Circuit Court,[14] the FCC was directed to reconsider its decision that made UNE-P possible. In early 2003, the FCC announced new rules

[13] In 1999, The Supreme Court upheld the FCC's determination that incumbents must offer on a packaged basis the collection of elements that were formerly offered as a package at retail. Thus, when an entrant was able to win a retail customer away from the incumbent, they were in effect using the same inputs as if they were using the resale option, but often at a better price. *AT&T v. Iowa Utils. Bd.*, 119 S. Ct. 734-36 (1999)

(the text of which were released in August 2003[15] that removed the availability of UNE-P for larger customers and raised the possibility it could be removed in certain geographies for smaller customers as well, pending the results of an investigation by state regulators that entrants are no longer "impaired" without UNE-P.[16] The DC Circuit ruled that the new unbundling rules were unlawful and in compliance with the Court's mandate,[17] the FCC phased out the obligation to provide UNE-P at regulated rates.[18] The effect of this order is that entrants that were formerly using UNE-P and still choose not to invest in their own network facilities must either use the resale option that has always been available, or negotiate commercial rates for the functional equivalent of the old UNE-P offering.

Data from the FCC demonstrate how CLEC entry patterns apparently responded to these developments.[19] Figure 5 reports entrants' volumes (measured in 1,000s of lines) for each of the four modes of entry provided by the implementation of the Telecom. Act through June 2005.[20] The figure suggests that the very favorable conditions (for entrants) in the early period resulted in UNE-P rapidly overtaking other modes and ultimately becoming the dominant mode of entry, until its not unexpected decline in the most recent reporting periods.[21] However, more recently, growth in both intermodal and intramodal fully facilities-based CLEC lines has been strong.[22] In the case of intramodal competition (defined in the figure as the number of lines provided by non-cable companies that do not rely on ILEC inputs and labeled "IntraModal – Fully Facilities-Based"), the recent growth (starting in the second half of 2003—a time that

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[14] *United States Telecom Ass'n. v. FCC,* 299 F.3d 415, 422 (D.C. Cir. 2002), *cert. denied*, 123 S. Ct. 1571 (2003).

[15] FCC, Triennial Review Order, *op. cit.*

[16] The FCC's unbundling rules consider a requesting carrier impaired "when lack of access to an incumbent LEC network element poses a barrier or barriers to entry, including operational and economic barriers, that are likely to make entry into a market uneconomic." The FCC's most recent order clarifies that the standard is interpreted with respect to a reasonably efficient carrier. FCC, Triennial Review Remand Order, ¶ 21-22

[17] USTA II, *op. cit.*

[18] FCC, Triennial Review Remand Order, *op. cit.*

[19] FCC, Local Competition Report, *op. cit*, Tables 3, 4, and 5.

[20] For the fully facilities-based entry mode, we report total volumes as well as the individual volumes for "intermodal" and "intramodal". "Intermodal" refers to telephone provided over coaxial cable and "intramodal" denotes traditional telephone technologies.

[21] At its peak, UNE-P accounted for one-half of entrants' volumes.

[22] The FCC defines these as lines provided over CLEC-owned "last-mile facilities."

coincides with the FCC's Triennial Review Order, which for the first time raised the possibility that UNE-P would no longer be mandated in all cases) is a reversal of the steady decline in previous periods. The pattern for non-cable CLECs that deploy their own switches—labeled "IntraModal – Switched-Based" in the chart—is similar.[23]

Figure 5: Trends in CLEC Line Types

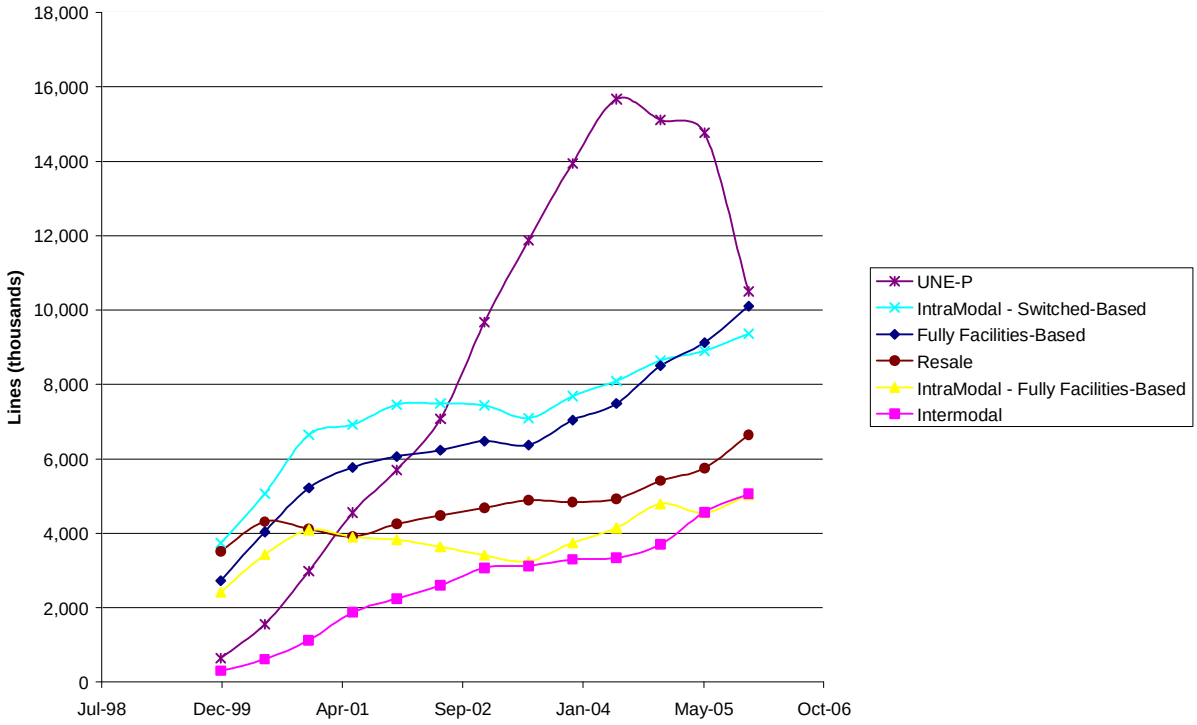

Table 1 compares the volumes represented in Figure 5 for two reporting periods: June 2003—immediately before the release of the Triennial Review Order and December 2005—the most recent period. While total lines grew by 17 percent, the rates for full facilities-based (both intra- and intermodal) and resale were substantially higher. Unbundled loops (UNE-L) grew at a somewhat slower rate than did total lines, while UNE-P lines fell by 11.5 percent. Overall, lines that required some use of CLEC facilities (intermodal plus UNE-L (with CLEC switching)) grew by over 40 percent, while the modes of entry that require no CLEC network facilities (UNE-P plus resale) grew by only two percent.

[23] The volumes for these CLECs are the "intramodal" volumes plus the number of CLEC lines that use UNE-L as an input.

Our results are broadly similar to those reported by Hazlett and Bazelon.[24] In addition to reporting the FCC volumes we described in the figure, they also report that the investment levels[25] of both incumbents and entrants have declined coincident with the upsurge in UNE-P volumes, both in absolute terms and relative to investment trends in similar sectors—wireless and cable television.[26]

In the most recent periods, the most rapid growth has been in intermodal alternatives. Because the most recent FCC data are more than six months old, the full extent of that growth is not reflected in Figure 5. Accordingly, I have assembled data on recent growth in VoIP service subscribers, which are summarized in Table 2.[27] The table is organized into three blocks: second quarter 2006, fourth quarter 2005, and second quarter 2005. The first two columns of each block show the number of subscribers for each of the major US VoIP providers and the corresponding share of total subscribers. For the first two blocks, there are three additional columns: (1) net additions (the difference in subscribers between consecutive periods), (2) each provider's share of net additions for that period, and (3) the six-month growth rate for each provider.

Table 2 shows that all carriers have added subscribers at double or triple digit *semiannual* growth rates. While all but one of the named providers is a cable television provider that offers telephone service over its own last-mile facilities, the single largest provider is Vonage,[28] which offers its service to customers who subscribe to high-speed Internet access

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[24] Thomas Hazlett and Coleman Bazelon, "Regulated Unbundling of Telecommunications Networks: A Stepping Stone to Facilities-Based Competition?" Presented at the Telecommunications Policy Research Conference, Arlington, Virginia, September 24, 2005.

[25] Measured as the average net unit value of capital stock.

[26] Hazlett and Bazelon also note that another FCC determination—that incumbents no longer need to provide access to the high-frequency part of local loops, thus allowing the incumbent and entrant to share the physical facility to provide voice (the incumbent) and high-speed Internet access (the entrant) preceded an acceleration in the growth digital subscriber lines and an increase in the share of these lines relative to the "intermodal" cable modem alternative.

[27] These data are from quarterly surveys conducted by Telegeography, as summarized by several articles in the trade press.

[28] The price range for Voyage's stock in an initial public offering valued the company at about $2.6 billion. ("Vonage Seeks $2.6 Billion Valuation in IPO Filing," *Reuters*, April 28, 2006). Subsequently, the market value of Vonage has fallen—to about $1.25 billion as of August 30, 2006. Similarly, in September 2005, Skype—a VoIP provider that like Vonage offers service (on a world-wide basis) to customers with Internet connections--was acquired by eBay for $2.6 billion ("eBay to Acquire Skpe," Skype Press Release, September 12, 2005).

lines, which are typically provided by ILECs or cable television companies (see Figure 2). Overall, VoIP providers added 1.8 million subscribers during the last half of 2005 (representing an increase of 67 percent of the subscribers at the beginning of the period) and an additional 2.4 million subscribers during the first half of 2006 (53 percent growth rate). Indeed, *The New York Times* reported, "During the first quarter of this year, the number of traditional telephone lines dropped by 150,000 a week, according to TeleGeography. At the same time, the number of subscribers to Internet telephone services has increased by 100,000 a week."[29] TeleGeography projects the number of VoIP subscribers will increase to about 9.6 million by year's end, and reach 23.7 million by 2010.[30]

3. Recent Regulatory Developments

In recent years, state and federal regulators in the US have relaxed certain regulations, contemporaneously with the competitive trends discussed in the previous section. In this section I summarize a number of these recent decisions.

A. Approval of the SBC/AT&T and Verizon/MCI mergers

The processes that led to the approvals of the two major telecommunications mergers in 2005 were noteworthy in a number of respects. First, although the Department of Justice is the lead agency for evaluating the competitive impacts of the merger, its decisions approving the merger provided very little information on how competition would be affected in particular product and geographic markets. Instead, it focused on the "divestiture" of high capacity facilities connecting fiber rings in metropolitan areas to a list of specific buildings across the service territories of the two ILECs.[31]

In contrast, the FCC, whose responsibility in merger proceedings is to transfer licenses to operate if the transaction is deemed to be in the public interest, provided extensive commentary

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[29] Matt Richtel and Ken Belson, "Online Calling Heralds an Era of Lower Costs**"** *The New York Times*, Late Edition July 3, 2006. The VoIP totals reported in the article appear to include cable VoIP services as well as those of Vonage, Skype, *ET. al*. The *Times* article also points out that the low cost of VoIP is generating lower prices for telephone services and that some of the losses by the LECs are offset by DSL gains.

[30] "VoIP Providers' Gains Are RBOCs' Losses," June 14, 2006, available at http://blog.tmcnet.com/beyond-voip/voip/voip-providers-gains-are-rbocs-losses.asp

[31] The "divestiture" required that capacity be made available to other competitors in the form of indefeasible rights of use (IRUs), a form of long-term lease, rather than outright sale of that capacity.

on the potential competitive impacts, using a framework similar to the one used by the antitrust agencies in their evaluation of mergers.[32] In particular, the FCC defined product and geographic markets and then used conventional tools such as HHIs[33] to assess competitive conditions before and after the proposed mergers. While the FCC generally found concentration levels to be high by conventional standard[34] prior to the merger, it also generally concluded that the merger would not harm competition because (1) in some of the markets it identified, there was sufficient competition from other suppliers and/or (2) because AT&T (or MCI) had already planned to withdraw from certain markets, the proposed merger would not *change* the level of competition in those markets. Specific highlights from the FCC's analysis are the following.[35]

1. Enterprise Customers (Large Businesses)

- Local voice, long-distance, and data are separate product markets (¶ 58). Although there may be separate markets for different customer classes (e.g., large versus small), there is no consensus on how to define such classes (¶ 61).

- Although in theory the geographic market is each customer location (¶ 62), in practice, the competitive analysis was performed at the state (or higher) level (¶ 63).

- Although the merger is likely to increase concentration for large and medium customers, there is already plenty of competition. With respect to smaller enterprise customers, AT&T was already exiting, so there would be no unilateral competitive effects (¶ 65).

- The FCC calculated HHIs (¶ 69) and found high concentration for large and mid-size customers (¶ 70), but observed that these measures do not capture the competitive impacts of VoIP and wireless (¶ 73). Because there are five competitors in California that compete for these customers, the FCC found that there was sufficient competition (¶ 73). The FCC also noted that because enterprise customers are sophisticated purchasers, competition is enhanced (¶ 75) and the prospect of coordinated effects among competitors would not be increased as a result of the merger (¶ 78).

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[32] Department of Justice and Federal Trade Commission *Horizontal Merger Guidelines*, April 2, 1992 ("*Horizontal Merger Guidelines"*)..

[33] The Herfindahl-Hirschman Index ("HHI") is a commonly used measure of market concentration in antitrust analysis. It is computed by squaring the percentage market *shares* of individual firms and adding them up. Thus, if there are three firms in the market with market share 50%, 30%, and 20%, respectively, then the HHI in that market would be (50×50) + (30×30) + (20×20) = 3,800.

[34] For example, the *Horizontal Merger Guidelines* define industries with an HHI of 1,800 or greater to be "highly concentrated;" therefore, proposed mergers in such industries are subject to more detailed investigations.

[35] Specific paragraph references are to the SBC/AT&T merger. Although specific facts differed, the FCC's evaluation of the competitive impacts of the Verizon/MCI merger was very similar.

2. Mass-Market Customers (Residential and Small Business)

- The FCC determined that local, long-distance and bundles are distinct product markets (¶ 82).

- The competition in the local product market includes facilities-based VoIP and wireless in certain situations, e.g., for those likely to "cut the cord" (¶¶ 85 and 89).

- With respect to non facilities-based VoIP[36] (which the FCC calls "over the top" VoIP), the FCC stated that there is insufficient information to determine whether it is a close enough substitute (¶ 86) and excluding these providers from the competitive analysis is conservative (¶ 88).

- With regard to facilities-based VoIP, the FCC made the following important observation (¶ 87, emphasis added, footnote omitted):

    - While we recognize that facilities-based VoIP services may not be available ubiquitously in SBC's territory, our product market analysis does not require that all mass market consumers would be willing or able to substitute VoIP service for wireline local service, or even that it is widely available for it to be included in the relevant product market. Rather, *our product market definition analysis only requires evidence of sufficient demand substitutability in those geographic markets where facilities-based VoIP service is available.*

- With regard to wireless, the FCC similarly noted that "Even if most segments of the mass market are unlikely to rely upon mobile wireless services in lieu of wireline local services today, as discussed above, our product market analysis only requires that there be evidence of sufficient substitution for significant segments of the mass market to consider it in our analysis" (¶ 90).

- The FCC observed that the stand-alone long-distance market "is becoming a fringe market" (¶ 91) and that wireless is a substitute for wireline usage (¶ 92).

- The FCC noted that "consumers predominantly purchase local and long-distance services from a single provider today; this trend is likely to continue and the stand-alone wireline long-distance market is steadily declining in size relative to the bundled service market." (¶ 95). The implication of this trend is that while the FCC may have talked about three product markets in the abstract, as a practical matter, bundles are of paramount importance with respect to competitive analysis.

[36] E.g., service provided by companies such as Vonage.

- The FCC notes the existence of intermodal (facilities-based VoIP and wireless) competition for bundled offerings (¶ 96) and that this competition is growing rapidly (¶ 101).

- On practical grounds (including the fact that advertising tends to be on a statewide basis), the FCC effectively treats each state as the geographic market (¶ 99).

- The FCC calculated market shares for each of their three product markets, which on the surface suggest high levels of concentration (¶ 102).

- The FCC concluded that the apparently high post-merger concentration levels overstate the competitive aspects of the merger, primarily because AT&T was already withdrawing from the market (¶ 103).

B. Forbearance from Certain Unbundling Obligations

Based on the extensive presence of Cox Communications in Omaha, Nebraska, the FCC recently relieved Qwest of some its obligations to provide wholesale inputs to competitions in parts of the Omaha metropolitan statistical area.[37] This determination was based on a competitive analysis that considered (1) market share, (2) demand elasticities (the readiness of customers to change providers), (3) supply elasticity (the ease with which competitors can expand output to accommodate increased demand that would result from price increases from rival firms, and (4) whether barrier to entry were present. Some of the highlights from the analysis are the following.

- **Rationale for forbearance (¶ 59)** [W]e find that the substantial intermodal competition for telecommunications services provided over Cox's own extensive facilities is sufficient to grant Qwest forbearance from the application of its section

[37] Federal Communications Commission, *In the Matter of Petition of Qwest Corporation for Forbearance Pursuant to 47 U.S.C. § 160(c) in the Omaha Metropolitan Statistical Area*, WC Docket No. 04-223, *Memorandum Opinion and Order*, December 2, 2005. The FCC is currently considering a petition for forbearance in the Anchorage, Alaska area. GCI, which provides competitive local service, as well as cable television, broadband, and long-distance services in Alaska, has capture about one-half of the subscriber lines in Anchorage, predominantly with unbundled loops and its own switching. However, it is migrating its telephone subscribers from unbundled loops to digital phone service provided over its cable facilities. By the end of 2005, it served approximately 20 percent of its Alaska subscribers with digital phone and anticipates approximately doubling that number by the end of 2006. Petition of ACS of Anchorage, Inc. for Forbearance from Sections 251(c)(3) and 252(d)(1), Federal Communications Commission, *In the Matter of Petition of ACS Anchorage, Inc., Pursuant to Section 10 of the Communications Act of 1934, as amended, for Forbearance from Sections 251(c)(3) and 252(d)(1) in the Anchorage LEC Study Area*, WC Docket No. 05-281, September 30, 2005 and "GCI Reports 2005 Financial Results," Press Release, March 1, 2006, available at http://www.gci.com/about/gci2005.pdf.

251(c)(3) obligations with respect to loops and transport, in light of the continued application in the Omaha MSA of other statutory and regulatory provisions designed to promote the development of competitive markets for telecommunications services and the actual competition these regulations have facilitated. Over two years ago, in the Triennial Review Order, the Commission determined that intermodal competition from cable had not "blossomed into a full substitute for wireline telephony." Today, as a result of Cox's investment in network infrastructure in the Omaha MSA, Cox, like Qwest, is providing telecommunications services over its own extensive last-mile facilities. On the basis of this competition, combined with other statutory and regulatory safeguards that facilitate additional competition, we find that the criteria of section 10(a) are satisfied with respect to Qwest's section 251(c)(3) obligation to unbundle loop and transport elements in 9 of Qwest's 24 wire centers in the Omaha MSA where competitive deployment is greatest. Therefore, we forbear from the application of section 251(c)(3) to Qwest to the extent it requires Qwest to provide access to loops in and transport to those 9 wire centers.

- **Demand Elasticity (¶ 33)** [W]e find the demand elasticity in the mass market interstate exchange access market to be high. The Commission has repeatedly found that residential customers are highly demand-elastic, and willing to switch to or from their provider to obtain price reductions and desired features. Nothing in this record indicates otherwise for residential or other mass market customers, and the growth in Cox's residential access line base and corresponding decline in Qwest's base, as described above, fully supports our forbearance determination here.

- **Supply Elasticity (¶ 36)** The record of competition compiled in this proceeding and, significantly, the other market-opening regulations that we leave in place today, support our finding that supply elasticity in this market is high for all mass market services. Cox's extensive facilities build-out in the Omaha MSA, and growing success in luring Qwest's mass market customers, indicates that the first factor is easily satisfied for both switched access and broadband Internet access services. Moreover, with regard to switched voice services, the number of resold lines and QPP lines are also not insignificant.[38]

- **Barriers to Entry (¶ 37)** [W]e find that the barriers to entry in the Omaha MSA for switched access services are low. We are mindful that this determination relies heavily on the availability of section 251(c) and other pro-competitive regulations that we leave undisturbed in this Order. In particular, our rejection of Qwest's request for forbearance from its section 251(c) duty to provide interconnection and collocation at cost-based rates, as well its obligation to proved [sic] resale at avoided cost rates, helps to ensure that existing and new competitors can enter the exchange access market. (¶ 37)

C. Relaxed Regulation/Deregulation of Intrastate Retail Services

[38] QPP is Qwest's Platform Plus—the commercially negotiated UNE-P replacement.

In our 2003 article, my colleague Bill Taylor and I observed the following:[39]

> While we are not aware of any regulator that has fully deregulated retail services (consistent with the economic arguments previously described), a number of states have used scheduled reassessments of price cap plans to take steps in that direction. In particular, (1) the services to which any form of price regulation is applied have been narrowed primarily to access services for smaller customers, (2) the remaining services have been removed from price regulation, and (3) earnings sharing has either been eliminated or was not in effect in the previous plan.
>
> This pattern is broadly consistent with good economic policy: regulation appears to be adapting—albeit slowly—to the degree of competition in the markets for individual services. A sticking point is basic access to the network. Regulators appear loath to relax control of basic exchange prices for residential and small business customers, despite the emergence of actual competition for these customers and the ease of entry due to resale and cost-based unbundled network elements.

We illustrated our results with five examples (New Jersey, Massachusetts, New York, Rhode Island, and Kansas) in which regulators had substantially reduced the amount of retail price regulation.[40] These states had generally replaced "second generation" price cap plans, which, in turn had widely replaced traditional rate of return regulation by the mid-1990s.[41] While such second generation plans provided superior efficiency incentives and safeguards against anticompetitive behavior than the regime they replaced, and thus were aligned with the competition that in many cases was only in its infancy, the sweeping across-the-board application of formulaic annual price adjustments and modest price flexibility for the bulk of ILECs' services, no longer fits the technological and competitive conditions facing the industry today.

Indeed, commensurate with these developments, the list of states that have permitted wide scale price flexibility and/or deregulated large groups of services is growing at a rapid pace. Most recently, the California Public Utilities Commission concluded the larger ILECs no

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[39] Timothy J. Tardiff and William E. Taylor, "Aligning Price Regulation with Telecommunications Competition," *Review of Network Economics*, Volume 2, Issue 4, December 2003, pp. 338-354.

[40] In the roughly the same time frame, the Maine Public Utilities Commission granted full pricing flexibility for services other than basic exchange and at the same time allowed an increase in rates for these services.

[41] See, for example, Timothy J. Tardiff and William E. Taylor, Revising Price Caps: The Next Generation of Incentive Regulation Plans," in M.A. Crew, ed., *Pricing and Regulatory Innovations Under Increasing Competition*, Norwell, MA: Kluwer, 1996, pp. 21 - 38.

longer have market power sufficient to justify price regulation and as a result effectively deregulated all services except for basic residential service.[42] And in those states, if price regulation is used at all, (1) it is only applied to a limited number of services, e.g., residential basic exchange, small businesses, etc. and (2) explicit "I – X" formulas have been abandoned.

Further, in a growing number of states, regulatory reform has been accomplished through legislation (as opposed to regulatory initiative) that substantially changes how the retail prices of ILECs are to be regulated (if at all). To date, at least 12 states have passed legislation of this sort—all but one of them during 2005 or 2006. For example, Utah legislation deregulated rates for Qwest's retail services other than basic residential exchange services. While particular plans differ in details such as which particular services are exempt from price regulation and the amount of flexibility afforded services still subject to price regulation, the basic pattern is clear: price flexibility has been granted for large numbers of services and whatever price protection remains has abandoned the mechanisms (e.g.,. "I – X" formulas and earnings sharing) that were typical of second generating plans. Table 3, which summarizes some of the salient features of recent telecommunications regulatory reform, shows that a total of 19 states have enacted these reforms through regulatory action and 12 states through legislation.[43]

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[42] In particular, the Commission observed:

> Review of the extensive record in this proceeding shows that Verizon, AT&T, SureWest, and Frontier lack the ability to limit the supply of telecommunications services in the voice communications market, and therefore lack the market power needed to sustain prices above the levels that a competitive market would produce.
>
> This lack of market power pertains throughout the service territories of Verizon, AT&T, SureWest, and Frontier, and holds for both business and residential services based on the ubiquity of the UNE-L unbundling scheme throughout the service territories of each of the four ILECs in this proceeding and on the cross-platform competition present throughout California.

California Public Utilities Commission, Proposed Decision of Commissioner Chong, Order Instituting Rulemaking on the Commission's Own Motion to Assess and Revise the Regulation of Telecommunications Utilities, Rulemaking 05-04-005, Mailed July 25, 2006, Findings of Fact 50 and 51. The Press Release describing the decision is available at http://www.cpuc.ca.gov/PUBLISHED/NEWS_RELEASE/59166.htm and a copy of the proposed decisions that was approved by unanimous vote is available at http://www.cpuc.ca.gov/word_pdf/AGENDA_DECISION/59132.doc

Because of the need to address low income and high-cost funding issues, residential rates will be frozen until January 1, 2009. After this time, there will be no cap on residential rates, except perhaps in those areas receiving high-cost support.

[43] The table reflects NERA research as of May 2006. Since that time, two additional states have passed legislation (Indiana and Kentucky) and regulators in two other states (Arizona and Vermont) have approved new retail regulation plans for large ILECs (in addition to California, which was described above). Lilia

D. Forbearance in Canada

The Canadian Radio-television and Telecommunications Commission (CRTC) recently modified its processes for determining when it will forbear from certain aspects of regulating basic exchange services.[44] Such determinations will be made for geographic markets that for the most part are defined as the Census Metropolitan Areas. The relevant product market includes VoIP (both facilities-based and "over the top"), but not wireless. Forbearance is granted when (1) incumbents have experienced a 25 percent market share loss, (2) they have demonstrated that rivalrous behavior exists in the market, and (3) they have satisfied other conditions dealing with quality of service and the provision of wholesale services to competitors.[45]

4. Economic Basis for Retail Price Deregulation

While the growth of competitive alternatives to traditional ILEC services can be viewed as strong circumstantial evidence that whatever market power ILEC may have possessed historically has eroded to the point that before-the-fact retail price regulation is no longer economically sensible (and should be replaced generally by after-the-fact enforcement, e.g., competition and antitrust rules), we are nonetheless left with the intriguing confluence of (1) the recent exit (as independent entities) of two of the most prominent local service providers (AT&T and MCI) and (2) the accelerating approval of relaxed regulation, in spite of the fact that market shares and market concentrations appear to remain high by conventional standards. Part of the explanation why such high concentration levels have not precluded the actions we reviewed in the previous section lies in standard practice: when conditions are changing rapidly,

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Perez-Chavolla, "Update of Changes in State Retail Regulation of LECs October 2005 – July 15, 2006," National Regulatory Research Institute, Report to the Committee on Telecommunications, NARUC Summer Committee Meeting, San Francisco, California, August 2, 2006. Taking these states into account brings the counts to 22 states implementing reform through regulatory action and 14 through legislation. Thirty-one states have implemented reform through either regulatory action or legislation. This total is less than the sum of the individual counts for regulatory and legislative action because in some states, earlier regulatory decisions were followed by later legislative action.

[44] CRTC, "Forbearance from the Regulation of Retail Local Exchange Services," Telecom Decision CRTC 2006-15, April 6, 2006.

[45] Canadian ILECs have requested reconsideration of the decision. In addition, one may question the extent to which the CRTC's forbearance decision complies with the deregulatory direction the Telecommunications Policy Review Panel has recommended to the Minister of Industry. For example, the Panel's first recommendation with respect to economic regulation is: "The regulatory framework for Canada's telecommunications sector should rely on competition and market forces rather than economic regulation, to the maximum extent feasible." Telecommunications Policy Review Panel, Final Report, 2006, p. 3-6.

e.g., the incumbents' volumes are declining in the face of growing competitive inroads and product and geographic market boundaries are shifting and blurring, static measures of market share and market concentration can become very imperfect indicators of whether or not particular firms possess market power.[46] And in such circumstances, the fundamental characteristics of the industry in question become paramount in any assessment of whether market power is present and how to respond if its is.

The diminution of the extent of regulation identified in the previous section is justified by the fact that the changes in technology and competition described earlier as well as the policies of the Telecom Act that facilitate entry have greatly diminished whatever market power over retail services incumbents may have historically possessed. Such market power has dissipated in two fundamental ways. First, the characteristics of wireline technology that gave rise to natural monopoly conditions in the first instance—relatively high costs that are sunk and/or fixed—actually work to severely limit market power when facilities-based entry (either intra- or intermodal) is feasible. Indeed, price competition under these conditions can be unusually vigorous. While such competition can clearly be difficult for individual firms, prices for consumers tend to be low, rather than too high.

The fundamental issue addressed by economic regulation is whether, in the absence of regulation, certain firms would be able to sustain supra-competitive prices (prices above competitive levels) for a significant period of time. In light of this fact, it is useful to analyze how inroads by facilities-based (in many cases intermodal) competitors quickly bite into the ILEC's profit potential, and therefore, rapidly erode any ability it might have to sustain supra-competitive prices. In textbook perfect competition (or industries that reasonably approximate it), prices equal marginal costs because there are numerous firms and any firm that attempted to set prices higher than marginal cost would lose all of its business. In contrast, prices in industries whose cost structure include large proportions of fixed and/or sunk costs are necessarily well above marginal cost. The reason is simple—prices at marginal cost would fail to compensate the firm for its total costs. When industry output is sufficient to support only one such firm (natural monopoly), regulation can serve to limit the necessary mark-ups so that

[46] See, for example, W.M. Landes and R.A. Posner, "Market Power in Antitrust Cases," *Harvard Law Review*, 94, 1981.

profits are not excessive. However, when entry can occur, the potential for excessive prices may be of minimal concern—in fact, when total capacity of competing firms exceeds demand, competition can drive prices toward marginal cost to the point that the financial health of firms in the industry can be jeopardized.[47]

Professor Jerry Hausman provides an insightful exposition of how the incipient loss of volume to competitors strongly limits the ability of firms with high fixed/sunk costs to sustain supra-competitive price increases. While his approach is somewhat mathematical, the basic idea is rather straightforward. Firms with high fixed and/or sunk costs must charge prices that are well in excess of their marginal costs in order to earn normal profits (i.e., attract and maintain investors). Therefore, when such a firm loses customers to competition, its revenues erode much more than the costs that it can avoid. If the firm attempted to increase prices, the lost profits (revenue minus avoided cost) from even a small decrease in customers can easily exceed the extra revenue obtained from the price increases on customers that remain.

Starting with a hypothetical small but significant and nontransitory price increase (e.g., five percent) that economists routinely assume in assessing market power, Hausman poses the following question: What fraction of volume must the firm lose to make such a price increase unprofitable? The following equation provides the answer.[48]

$$\text{Critical fraction} = \frac{0.05}{\left(1.05 - \frac{mc}{p}\right)}$$

In this equation, p is the current price and mc denotes marginal cost. Professor Hausman then suggests that for wireline companies, marginal cost is about 20 percent of price (with the remainder accounting for the mark-up required to recover fixed/sunk costs). In this example,

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[47] Professor Kahn's seminal text identifies the resulting destructive competition as the historical rationale for regulation of transportations industries such as airlines and trucking. This form of regulation, which was much more a form of protecting competitors rather than consumers, was widely abandoned in the U.S. over 25 years ago during Professor Kahn's service in the Carter administration. Alfred E. Kahn, *The Economics of Regulation*, Cambridge: The MIT Press, 1988, Vol. II, Chapter 5.

[48] Hausman, Jerry A., "Regulated Costs and Prices in Telecommunications," in Gary Madden (ed.), *International Handbook of Telecommunications Economics*, Volume 2: Emerging Telecommunications Networks, 2003, p. 226 and Hausman, Jerry, "From 2-G to 3-G: Wireless Competition for Internet-Related Services," in Robert W. Crandall and James H. Alleman, eds., *Broadband: Should We Regulate High-Speed Internet Access*, Washington D.C.: AEI-Brookings Joint Center for Regulatory Studies, 2002, pp. 126-127.

the critical fraction produced by the equation is about 6 percent.[49] In other words, under the conditions considered by Professor Hausman, if a wireline provider were to raise price and lose six percent or more of its volumes to facilities-based alternatives such as wireless and VoIP over cable modems, even a very modest five percent price increase would be unprofitable.[50]

The implications of recognizing that wireline telecommunications departs widely from the textbook model of perfect competition are profound. When fixed and sunk costs are low, a competing product or service has to be a very close substitute to discipline the incumbent's prices: *i.e.*, a small price increase has to produce a disproportionately large loss in volume to be unprofitable, because when such a firm loses volume, the revenue loss is almost completely offset by cost savings. In contrast, firms such as facilities-based wireline carriers cannot sustain large volume losses, because the lost revenue greatly exceeds the costs savings. That is, competing telecommunications products do not necessarily need to be very close substitutes for wireline services in order for attempts at supra-competitive pricing to be thwarted. Put another way, firms with large proportions of fixed or sunk costs need to retain large volumes of output in order to spread their fixed costs. Seen in this light, volume losses such those represented by the 5-6 percent of households that have completely "cut the cord"[51] (and the prospect of this number growing as wireless plans become more attractive and populations with high wireless propensities, *e.g.*, young adults, grow)[52] are far from trivial.[53]

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[49] For example, if current volume were 100, price $1, and marginal cost $0.20, and a 5 percent price increase produced a 6 percent loss in volume, the change in profits would be the increased revenue from the remaining 94 units ($0.05 x 94 = $4.62) plus the savings in costs from not having to serve the six lost units ($0.20 x 6 = $1.20), offset by the revenue associated with the loss volume ($1 x 6 =$6). Because the lost revenue exceeds the other two components, the price increase is unprofitable.

[50] While the precise ratio of marginal cost to price is an empirical issue, Professor Hausman's basic point does not depend on that ratio being exactly 20 percent. For example, if the ratio of marginal cost to price were 50 percent, the critical share becomes nine percent. And the ratio is likely to be well below 50 percent for two fundamental reasons. First, even for loop plant, certain facilities are basically insensitive to volume (and therefore not included in marginal cost). For example, the amount of investment in poles, conduit, and trenching along particular routes does not increase proportionately as the number of subscriber lines increases. Second, because network facilities generally last for a number of years, a decrease in volume could merely produce an increase in spare capacity, rather than a cost reduction.

[51] Federal Communications Commission, *In the Matter of Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, Ninth Report, September 28, 2004, fn. 575. Indeed, other sources report that over 14 percent of customers use their wireless phones as their primary phones. C. Wheelock, In-Stat/MDR, *Cutting the Cord: Consumer Profiles and Carrier Strategies for Wireless Substitution* at 1 (Feb. 2004) ("14.4% of US consumers currently use a wireless phone as their primary phone")

[52] *Ibid*, ¶ 211.

It is important to realize that the ability of substitute products to constrain a price increase need not be symmetrical. For example, in interconnection pricing proceedings, some wireless carriers have reported that their costs are almost completely volume-sensitive, which in the present context implies that prices need to recover relatively small proportions of fixed costs.[54] Under these circumstances, it is possible for wireline services to be insufficiently close substitutes for wireless in order to restrain the latter's prices, while at the same time, the presence of wireless alternatives would be more than sufficient to constrain wireline prices. For example, if the marginal cost for wireless service were 90 percent of costs, Professor Hausman's formula produces a critical share of over 33 percent. That is, while a loss of six percent of wireline volume to wireline competitors would render a price increase unprofitable under Professor Hausman's assumptions, a wireless firm would have to lose five times the share to wireline providers to make its price increase unprofitable.

The fact that competition is increasingly for packages of services, e.g., the triple play of voice, data, and video further erodes residual market power. Packages offered by cable companies, wireless providers and stand-alone VoIP providers such as Vonage typically include features such as call waiting, caller ID, and voice mail places additional pressure on ordinary wireline prices. An increase in wireline prices could produce losses not only in the number of lines, but also in the sale of features to customers using these lines. And because the features often generate high incremental profits, the potential loss of such profits can quickly make unprofitable attempts to charge supracompetitive wireline prices.[55]

Second, even without the inroads from facilities-based competitors, implementation of the provisions of Sections 251 and 252 of the Telecom Act (which are reinforced when an ILEC

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[53] The debilitating impact of rather modest losses in volumes has implications for the development of viable wholesale markets as well. As a result of intermodal competition, the incumbents are losing both customers and minutes from their networks. While an incumbent would prefer to keep the end user as its customer and collect the resulting retail revenues, it clearly would rather have the wholesale traffic on its network than forfeit this revenue entirely because that traffic ends up on alternative facilities of an intermodal competitor. As a result, incumbents and CLECs alike would have a market-based incentive to create rational, voluntary wholesale arrangements at compensatory rates.

[54] See, for example, Letter from Jonathan M. Chambers, Vice President, Regulatory Affairs, Sprint PCS to Magalie Roman Salas, Secretary, Federal Communications Commission, *Ex Parte* Presentation, CC Docket Nos. 95-185, 96-98, and 97-207, April 7, 2000.

[55] Dennis L. Weisman. "When Can Regulation Defer to Competition for Constraining Market Power?: Complements and Critical Elasticities." *Journal of Competition Law & Economics*, March 2006, pp. 1-12.

has met the requirements for entry into long-distance under Section 271) have created the conditions for effective competition for retail services and a strong potential for expansion of that competition. Indeed, as we previously observed,[56] shortly after the implementation of the entry facilitating provisions of the Telecom Act, some economists had concluded that retail prices should be deregulated on the basis that with the availability of wholesale inputs at regulated cost-based prices, retail markets had become contestable.[57]

5. Conclusion

Recent developments in the telecommunications industry, e.g., the consolidation among traditional ILEC and long-distance providers, the growing prominence of "intermodal" competitors that use alternative platforms such as cable telephony and VoIP, and the convergence of formerly separate markets into the "triple play" of voice, video, and data, have resulted in a very different form of competition from that generally envisioned by the initial implementation of the 1996 Telecom Act. While some competitors still rely on the wholesale inputs ILECs provide pursuant to the implementation of the Act, others are competing with a full set of facilities of their own. The amount of that competition and the characteristics of the industry that it produces—relatively high fixed and sunk costs and relatively low variable costs—are conducive to permitting ILECs greater retail price flexibility, as a growing number of states have done through regulatory reform that has increasingly been the result of legislation. In short, telecommunications has evolved to a point where the rebuttable presumption should be deregulation (or forbearance), with concomitant after-the-fact antitrust enforcement, rather than continuation of before-the-fact regulatory restrictions on retail pricing flexibility.

[56] Tardiff and Taylor, *op. cit.*

[57] While it does not necessarily endorse the proposition that the widespread availability of wholesale inputs has made telecommunications markets contestable, the FCC's Omaha decision did observe such availability as a factor in concluding that barriers to entry are low.

Table 1: Change in CLEC Lines (1000s): June 2003 to December 2005

	June-03	December-05	% change
Intermodal	3,123	5,060	62.0%
Intramodal Facilities-Based	3,247	5,040	55.2%
UNE-L	3,851	4,329	12.4%
UNE-P	11,877	10,507	-11.5%
Resale	4,887	6,648	36.0%
UNE-P/Resale	16,764	17,155	2.3%
Other	10,221	14,429	41.2%
Total	26,985	31,584	17.0%
% UNE-P/Resale	62.1%	54.3%	

Table 2: VoIP Service Provider Subscribers: Second Quarter 2005 through Second Quarters, 2006

Provider	2nd Quarter 2006	Share	Net Adds	Share	Growth rate (6 month)	4th Quarter 2005	Share	Net Adds	Share	Growth rate (6 month)	2nd Quarter 2005	Share
Vonage	1,800,000	26%	600,000	25%	50%	1,200,000	27%	450,000	25%	60%	750,000	28%
Time Warner	1,600,000	23%	498,000	21%	45%	1,102,000	24%	488,000	27%	79%	614,000	23%
Cablevision	987,542	14%	256,542	11%	35%	731,000	16%	252,643	14%	53%	478,357	18%
Comcast	721,000	10%	519,000	22%	257%	202,000	4%	165,000	9%	446%	37,000	1%
Other	1,791,458	26%	526,458	22%	42%	1,265,000	28%	444,357	25%	54%	820,643	30%
Total Subscribers	6,900,000	100%	2,400,000	100%	53%	4,500,000	100%	1,800,000	100%	67%	2,700,000	100%

Table 3: Summary of Price Regulation Reform in US States

State(s)	Services granted Price Flexibility/Deregulation	Regulatory or Legislation
Maine[58]	All retail services other than basic exchange	Regulatory
New Jersey[59] [60]	All retail services other than residential and single-line business	Regulatory
Massachusetts,[61] [62] Washington,[63]	All business services	Regulatory
Rhode Island[64] [65]	All business services; flexibility for residential services to change rates in response to market conditions	Regulatory
Wisconsin[66] [67]	All business services; residential in many exchanges	Regulatory
South Dakota[68], Oklahoma[69]	All retail services	Regulatory
Michigan[70]	Business services in high-density areas	Regulatory

[58] Maine Public Utilities Commission, Investigation into Verizon Maine's Alternative Form of Regulation, Docket 99-851, Order (Part 2), June 25, 2001.

[59] New Jersey Board Of Public Utilities, Board Meeting in Docket No. T001020095 – In the Matter of the Application of Verizon-New Jersey, Inc. for Approval (i) of a New Plan for an Alternative Form of Regulation and (ii) to Reclassify Multi-Line Rate Regulated Business Services as Competitive Services, and Compliance Filing, June 19, 2002.

[60] In the Matter of the Application of Verizon New Jersey Inc. For Approval (i) of a New Plan for an Alternative Form of Regulation and (ii) to Reclassify Multi-line Rate Regulated Business Service as Competitive Services, and Compliance Filing BPU Docket No. TO01020095, Board Meeting Transcript, March 24, 2005.

[61] First Massachusetts Order, *op. cit*.

[62] Massachusetts Department of Telecommunications and Energy , DTE 01-31-Phase II, Investigation by the Department of Telecommunications and Energy on its own Motion into the Appropriate Regulatory Plan to succeed Price Cap Regulation for Verizon New England, Inc. d/b/a Verizon Massachusetts' intrastate retail telecommunications services in the Commonwealth of Massachusetts, April 11, 2003.

[63] Washington State Utilities and Transportation Commission, Docket No. UT-030614, *Order Granting Competitive Classification*, December 22, 2003.

[64] In Re: Verizon Rhode Island's Alternative Regulation Plan, Docket No. 3445, Order No. 17417, March 31, 2003. Further information regarding current ARP from RRA Focus' regulatory review of Rhode Island PUC, available at http://www.rra-focus.com/regfocus/index.asp

[65] *Telecommunications Reports*, January 15, 2006.

[66] Public Service Commission of Wisconsin. Case 6720-TI-173. *Final Decision*. June 3, 2004.

[67] *Telecommunications Reports*, November 15, 2005.

[68] The Public Utilities Commission of the State of South Dakota, Notice of Entry TC03-057, *Order Reclassifying Qwest's Local Exchange Services as Fully Competitive; Order Approving Settlement Agreement*, August 12, 2003.

[69] State Corporation Commission of Oklahoma, Order No. 508813, Cause No. PUD 200500042, July 28,2005.

[70] Michigan Public Service Commission. Case Nos. U-14323 and U-14324, *Opinion and Order*, January 6, 2005.

Iowa,[71] Utah[72]	All retail services in specific geographic areas	Regulatory
Virginia, [73] North Carolina[74]	Greater price flexibility for more services; eliminate "I – X" mechanism	Regulatory
Colorado[75]	All business services for businesses with over 5 lines; bundles	Regulatory
Missouri[76]	All retail services in many exchanges	Regulatory
Georgia [77]	All retail services except basic local exchange	Regulatory
Kansas[78]	IntraLATA toll; multiline business and bundles in specific geographic areas	Regulatory
Ohio[79]	Greater pricing flexibility for basis local services (upward and downward) if certain market tests are satisfied.	Regulatory
New York[80]	All nonbasic services, but no geographic deaveraging; basic service prices allowed to be gradually adjusted to cost.	Regulatory
Idaho[81]	All retail services, with transition period	Legislation
Iowa[82] [83]	All retail services, except single-line basic exchange; some single-line basic exchanges are deregulated	Legislation and Regulatory
North Dakota[84]	All retail services, except primary residential flat	Legislation

[71] Iowa Utilities Board, Docket No. INU-04-1, *Final Decision and Order*, December 23, 2004.

[72] Public Service Commission of Utah, Docket Nos. 03-049-49 and 03-049-50, *Report and Order*, October 31, 2003.

[73] State Corporation Commission Commonwealth of Virginia, Case No. PUC-2004-00092, *Final Order*, January 5, 2005.

[74] State of North Carolina Utilities Commission, Docket No. P-55, SUB 1013, Order Approving Modified Price Regulation Plan, 4/29/2005 (BellSouth) and Docket No. P-19, SUB 277 5/9/2005 (Verizon).

[75] In the matter of the combined application of Qwest Corp. for deregulation and reclassification of certain Part 2 products and services and deregulation and reclassification of certain Part 3 products and services. CPUC Docket No. 04A-411T, June 28, 2005. Summary available from RRA Focus at http://www.rra-focus.com/regfocus/index.asp

[76] Public Service Commission, SBC request for competitive classification, Case No. TO-2006-0102, Report and Order, October 29, 2005.

[77] Public Service Commission, in re: Bellsouth Telecommunications, Inc.'s Tariff Filing Request to Detariff Various Retail Services, Docket No. 20729-U, October 12, 2005.

[78] State of Kansas Corporation Commission, Docket No. 05-SWBT-907-PDR, 6/27/2005 (SBC).

[79] *Telecommunications Reports*, April 1, 2006.

[80] *Telecommunications Reports*, April 15, 2006.

[81] State of Idaho, Bill HB 224, Enacted March 29, 2005.

[82] State of Iowa, Bill HF 277, Enacted March 15, 2005.

[83] Iowa Utilities Board, Deregulation of Single Line Flat-Rate Local Exchange Services, Final Decision and Order, December 5, 2005.

	rate	
Utah[85]	All retail services, except residential basic service	Legislation
Alabama[86]	All retail services, except basic service.	Legislation
Tennessee[87]	Bundles	Legislation
Pennsylvania[88]	"Retail unprotected services."	Legislation
Missouri[89]	Residential and business packages; business retail services in competitive exchanges	Legislation
Texas[90]	All retail services, unless the Commission determines services should be regulated in certain exchanges	Legislation
Michigan[91]	Bundles; multiparty business lines; second residential lines	Legislation
Mississippi[92]	All retail services except single line flat rate local service	Legislation
Kansas[93]	Bundles. Deregulation of basic services permitted when certain triggers are met.	Legislation

[84] State of North Dakota, Bill SB 2216, Enacted April 6, 2005.

[85] State of Utah, Bill SB 108, Enacted February 15, 2005.

[86] State of Alabama, Bill SB 114. Enacted May 2005.

[87] State of Tennessee, Bill SB 182, Enacted May 27, 2005.

[88] The General Assembly of Pennsylvania, Act 183 of 2004, HB 30, Enacted November 30, 2004.

[89] State of Missouri, Bill SB 237, Enacted July 14, 2005

[90] State of Texas, SB 5, Enacted September 7, 2005.

[91] State of Michigan, SB 5237, Enacted December 15, 2005.

[92] State of Mississippi, HB 1252, Enacted February 2006.

[93] State of Kansas, SB 350, Enacted April 2006.