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Deregulation vs. Reregulation of Telecommunications: A Clash of Regulatory Paradigms

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Deregulation vs. Reregulation of Telecommunications:  
A Clash of Regulatory Paradigms

Christopher S. Yoo*

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I. INTRODUCTION

U.S. telecommunications policy has reached a crossroads. During the 1980s and 1990s, regulations focused primarily on mandating access to the portions of the local telephone network that still represented a natural monopoly, a policy epitomized by the two great landmarks of modern telecommunications policy: the breakup of AT&T¹ and the Telecommunications Act of 1996.² The basic policy approach was eventually extended to broadband networks as well³ and has been widely emulated by other

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³See infra notes 78–79 and accompanying text.
countries. At the prompting of the courts, the Federal Communications Commission (FCC) began to retreat from this policy during the 2000s in favor of a more deregulatory course. In response to the growing levels of competition, the FCC took steps toward eliminating mandatory access requirements on both telephone and broadband networks. Once the 2005 Brand X decision effectively signaled the Supreme Court’s accession to this deregulatory trend, the FCC eliminated all access requirements on telephone and broadband systems alike.

The inauguration of a new administration has caused policymakers to consider once again whether to begin mandating access to broadband networks, as evinced by the continuing controversy surrounding the policy initiative known as network neutrality.

This Article reviews the arguments on both sides of this debate. Part II examines the case for regulation, focusing on the rationales and critiques surrounding three separate regulatory approaches: mandating access to local telephone networks, local loop unbundling, and promoting the ladder of investment. Part III lays out the case for deregulation. Part IV sets out the tradeoffs implicit in the choice between these two regulatory strategies.

II. MANDATING ACCESS TO TELECOMMUNICATIONS

This Part traces the origins of the policy of mandating access to telecommunications networks. The move to regulation takes place in three distinct phases. The first is mandating access to local telephone networks, exemplified by the regime imposed in the aftermath of the breakup of AT&T. The second is local loop unbundling, epitomized by the unbundled network element provisions of the Telecommunications Act of 1996. The third is a theory developed in Europe known as “the ladder of investment.”


5. For the leading judicial decisions overturning unbundling with respect to telephony, see U.S. Telecom Ass’n v. FCC, 359 F.3d 554, 586–87 (D.C. Cir. 2004); GTE Serv. Corp. v. FCC, 205 F.3d 416, 422–24 (D.C. Cir. 2000). For judicial decisions overturning unbundling with respect to broadband, see U.S. Telecom Ass’n v. FCC, 290 F.3d 415, 428–29 (D.C. Cir. 2002).

6. See infra notes 80–82 and accompanying text.


8. See infra notes 116–21 and accompanying text.

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A. First Generation Access: Mandating Access to Local Telephone Systems and Vertical Structural Separation

Since at least the days of John Stuart Mill, one of the central problems usually seen as justifying rate regulation is natural monopoly. Natural monopoly occurs when a single firm can serve the entire market more cheaply than can two firms, a condition known as “subadditivity.” A sufficient condition for subadditivity is the existence of scale economies throughout the entire range of production, such as occurs when fixed costs are very high. These scale economies permit the firm with the largest volume to face the lowest costs, which in turn permits that firm to underprice all of its rivals. The resulting transfer of sales volume to the market-leading firm causes its cost and price advantage to widen still farther until it is the only firm remaining in the industry. Thus large scale economies can cause markets that begin with multiple producers to inevitably collapse into monopoly.

Throughout most of the history of the telephone industry, the fact that telephone service required large fixed costs led most observers to believe that the entire telephone system was a single, fully integrated, natural monopoly. During the 1960s, however, policymakers began to question this premise. For example, technological developments like telephone handsets, fax machines, and answering machines employed by end users, known as customer premises equipment (CPE), were nothing more than small appliances that could be manufactured efficiently at fairly low volumes. In addition, the advent of microwave transmission, pioneered by a company known as Microwave Communications, Inc., (later better known by its initials, MCI) allowed providers to offer long distance service without having to spend the large fixed costs needed to establish large networks of wires. Lastly, firms began to offer innovative new services that combined data processing with traditional transmission. These precursors to the modern Internet, called first “enhanced services” and later “information services,” also did not evolve the large fixed costs associated with natural monopoly.

As these other portions of the telephone network became potentially competitive,

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10. JOHN STUART MILL, PRINCIPLES OF POLITICAL ECONOMY 132–54 (John W. Parker ed. 1849).
13. See, e.g., GERALD R. FAULHABER, TELECOMMUNICATIONS IN TURMOIL 107 (1987) (“Indeed, until the late 1960s few questioned that the telephone industry was a natural monopoly.”); PETER W. HUBER ET AL., FEDERAL TELECOMMUNICATIONS LAW § 2.1.2, at 86 (2d ed. 1999) (“Is the telephone industry (or any part of it) a natural monopoly? Until the 1960s, the answer was generally presumed to be yes, from end to end.”); see also 3B PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 787c, at 366 (3d ed. 2008) (“Until the 1960s or 1970s long distance telephone connections between local exchanges in the United States were considered as much a natural monopoly as the local exchanges themselves . . . .”).
14. CPE contrasts with “telecommunications equipment,” which consists of the switches and wires located in the heart of the network that the telephone company uses to provide service. See Daniel F. Spulber & Christopher S. Yoo, Toward a Unified Theory of Access to Local Telephone Networks, 61 FED. COMM. L.J. 43, 44, 44 n.3 (2008).
15. SPULBER & YOO, supra note 12, at 235.
16. Id. at 236.
local telephone service remained characterized by the high fixed costs associated with natural monopoly.18 Policymakers became concerned that the continued existence of monopoly over local telephone service would allow the Bell System to prevent the emergence of competition in these other areas of the network.19 One concern was that local telephone companies could use supracompetitive returns earned in local telephone markets to cross subsidize their own proprietary CPE, long distance, and information services.20 Another was that local telephone companies would use exclusivity or tying arrangements to foreclose competitive providers of those complementary services.21 Yet another worry was that the Bell System could avoid rate regulation of local telephone services by bundling them with unregulated services and charging prices for those unregulated services that would allow it to earn the supracompetitive returns denied to them by rate regulation of local services.22

The historic solution was to segregate those portions of the telephone system that still exhibited natural monopoly characteristics (in this case, local telephone service) from those complementary services that are potentially competitive, and to require that the local telephone provider make its network available to all providers of complementary services on an equal basis.23 Most dramatically, the court order breaking up AT&T required that the Bell System spin off its local telephone and CPE manufacturing operations into independent companies, mandated that the newly created local telephone companies provide equal access to all providers of complementary services, and forbade these newly created local telephone companies from providing long distance, CPE, or information services.24 The decision was anticipated by both the FCC’s 1968 Carterfone decision, which eventually led to regulations requiring the Bell System to open its network to CPE manufactured by competitive providers,25 and the FCC’s Computer Inquiries, which required that large carriers who wished to offer enhanced services do so through a separate subsidiary while offering unaffiliated enhanced service providers nondiscriminatory access to their transmission facilities.26

18. See, e.g., 2 ALFRED E. KAHN, THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS 127 (1971) (“That the provision of local telephone service is a natural monopoly is generally conceded.”); STEPHEN Breyer, REGULATION AND ITS REFORM 291 (1982) (“Local telephone service seems to be generally accepted as a natural monopoly.”).
20. Id. at 130–31; Roger G. Noll & Bruce M. Owen, The Anticompetitive Uses of Regulation: United States v. AT&T, in THE ANTITRUST REVOLUTION 328, 338 (John E. Kwoka, Jr. & Lawrence J. White eds., 2d ed. 1994); Robinson, supra note 17, at 528.
21. Noll & Owen, supra note 20, at 339–42; Robinson, supra note 17, at 528; see also SUPLBER & YOO, supra note 12, at 236 (“Policymakers soon became concerned that the incumbent local telephone companies would be able to use their monopoly control over the local telephone network to favor their own proprietary enhanced and information service offerings.”).
22. SUPLBER & YOO, supra note 12, at 145.
23. Id. at 131–32; Gerald R. Faulhaber, Policy-Induced Competition: The Telecommunications Experiments, 15 INFO. ECON. & POL’Y 73, 82–84 (2003); Robinson, supra note 17, at 529.
Requiring potentially competitive and inherently monopolistic lines of business to be structurally separated into distinct corporate entities made it more difficult for enterprises to use profits from their monopoly businesses to cross subsidize business units that faced competition. Structural separation also made discrimination against unaffiliated providers of complementary services easier to police. Regulators could simply insist that local telephone companies offer to competitors the same terms of interconnection that it provided to its own affiliated complementary services. If properly implemented, this approach would allow consumers to enjoy the benefits of relying on competition instead of direct governmental intervention to discipline industry actors, while still protecting consumers against potential anticompetitive abuses in those portions of the industry that remained uncompetitive.

1. The Inevitability of Rate Regulation

This solution did come at a cost. Compelling access to a bottleneck facility to promote competition in complementary services is generally regarded as being based on what lower courts have called the “essential facility doctrine.” Indeed, the doctrine formed the explicit basis for the breakup of AT&T. Leading commentators have noted that the central concern of the essential facility doctrine is vertical integration, specifically that an enterprise that controls a monopoly input may be able to harm a vertically related market by refusing to share it. Indeed, courts and agencies ordering access to local telephone systems and commentators calling for access to last-mile broadband facilities acknowledge that their claims are fundamentally complaints about vertical integration.

The essential facility doctrine has been subject to extensive and trenchant critique. As an initial matter, the doctrine requires direct regulation of rates. Although some have suggested that these problems can be avoided simply by imposing a nondiscrimination mandate, such a mandate would not prevent a vertically integrated monopolist from simply charging both its own affiliate and competitors interconnection fees that are prohibitively expensive. Doing so would not affect the monopolist’s bottom line, since


27. SPULBER & YOO, supra note 12, at 130.
28. Id. at 131.
33. SPULBER & YOO, supra note 12, at 288–98.
any losses incurred by the complementary services division would be offset dollar-for-dollar by higher profits earned by its local telephone operations. It would, however, effectively lock out competitors. In the absence of some control of rates, compelling access simply requires that the monopolist share the essential facility with its competitors without providing any benefits to consumers.\textsuperscript{35} If rates are not regulated, one would expect the monopolist simply to share the facility with everyone willing to pay the monopoly price.

Compelling access to a monopoly facility thus requires rate regulation in order to be effective.\textsuperscript{36} Such access will engender incessant complaints about the rate being charged. As Professors Areeda and Hovenkamp have noted, once access is ordered,

\textit{[t]he plaintiff is likely to claim that the defendant’s price for access to an essential facility (1) is so high as to be the equivalent of a continued refusal to deal, or (2) is unreasonable, or (3) creates a “price squeeze” in that the defendant charges so much for access and so little for the product it sells in competition with the plaintiff that the latter cannot earn a reasonable profit.}\textsuperscript{37}

Policymakers have struggled to develop a principled basis for evaluating the reasonableness of rates.\textsuperscript{38} Rate regulation has long raised difficult questions of valuation and allocation of joint costs.\textsuperscript{39} The classic ratemaking methodology also provides insufficient incentive to reduce costs and encourages firms to use capital costs over operating costs even when doing so is inefficient.\textsuperscript{40} It raises difficult questions about the proper rate of return and whether returns should be based on assets’ historical cost or replacement cost.\textsuperscript{41} Lastly, it subjects economic pricing to the delays and biases inherent in the regulatory process.\textsuperscript{42} The Supreme Court has thus recognized that determining what constitutes a reasonable rate has proven to be an “embarrassing question”\textsuperscript{43} as well as a “laborious and baffling task.”\textsuperscript{44}

Moreover, disputes over the reasonableness of rates are especially difficult to resolve when the good subject to rate regulation varies in quality, as is the case with

\begin{thebibliography}{99}
\item \textsuperscript{35} 3B \textsc{Areeda} \& \textsc{Hovenkamp}, supra note 13, ¶ 771b, at 195; \textsc{Richard A. Posner}, \textsc{Antitrust Law: An Economic Perspective} 208 (1976).
\item \textsuperscript{36} \textsc{Christopher S. Yoo}, \textsc{Vertical Integration and Media Regulation in the New Economy}, 19 \textsc{Yale J. on Reg.} 171, 244–45 (2002).
\item \textsuperscript{37} 3B \textsc{Areeda} \& \textsc{Hovenkamp}, supra note 13, ¶ 774c, at 276.
\item \textsuperscript{38} See National Telecommunications and Information Administration, U.S. Dept. of Commerce, NTIA Regulatory Alternatives Report 13–31 (1987), \textit{available at} http://www.its.blrdoc.gov/pub/ntia-rpt/87-222/87-222.pdf (reviewing the problems associated with rate regulation). For other useful discussions, see, e.g., \textsc{James C. Bonbright, Principles of Public Utility Rates} 547–622 (2d ed. 1988); \textsc{Alfred E. Kahn}, \textsc{The Economics of Regulation: Principles and Institutions} 27–54 (1988); \textsc{Kahn, supra note 18}, at 47–94, 345–47; \textsc{W. Kip Viscusi et al., Economics of Regulation and Antitrust} 364–74 (3d ed. 2000); \textsc{George J. Stigler \& Claire Friedland, What Can Regulators Regulate?: The Case of Electricity}, 5 \textsc{J.L. \& Econ.} 1 (1962).
\item \textsuperscript{39} \textsc{Spulber \& Yoo}, supra note 12, at 66, 130–31.
\item \textsuperscript{40} \textit{id.} at 129.
\item \textsuperscript{41} \textit{id.} at 127–29.
\item \textsuperscript{42} \textsc{Christopher S. Yoo, Beyond Network Neutrality}, 17 \textsc{Harv. J.L. \& Tech.} 1, 65 (2005).
\item \textsuperscript{43} \textsc{Smyth v. Ames}, 169 U.S. 466, 546 (1898).
\item \textsuperscript{44} \textsc{Missouri ex rel. Sw. Bell Tel. Co. v. Pub. Serv. Comm’n}, 262 U.S. 276, 292 (1923) (Brandeis, J., concurring in the judgment).
\end{thebibliography}
broadband, in which quality of service varies along as many as four dimensions. When quality varies, the regulated firm can evade the effect of rate regulation simply by degrading quality. Indeed, this is just what occurred during prior attempts to subject the cable industry to rate regulation, where regulation failed to lower quality-adjusted cable rates.

2. The Inability to Realize Efficiencies of Vertical Integration

In addition, mandating structural separation and equal access necessarily limits firms’ ability to enjoy the benefits of vertical integration. Although the law and scholarly commentary were once quite hostile toward the practice, vertical integration is now widely recognized as giving rise to substantial efficiencies. Some efficiencies are technological. Consider caller ID and voice mail, which have become increasingly popular features in telephone systems. As it turned out, the most efficient way to provide these services was through the switch already used to route the call, which was essentially a small computer that already had the capability and the information to perform these functions.

Other efficiencies are more price theoretic. For example, economists have long recognized that two successive monopolists in a single chain of production may both try to charge the entire monopoly markup, which can lead to higher prices than if those two monopolists merged through vertical integration. Similarly, vertical integration can enhance economic welfare when a monopolist controls an input that can be combined with other inputs in variable proportions. Charging a supracompetitive price for the monopoly input causes producing firms to substitute other inputs. On the one hand, this input substitution benefits consumers by limiting the monopolist’s ability to capture supracompetitive returns. On the other hand, it simultaneously harms consumers by producing the goods using a mixture of inputs that is suboptimal. Whether this causes economic welfare to increase or decrease depends on which of these two effects dominates.

45. Broadband quality of service can vary in terms of bandwidth, delay, jitter, and reliability. See Andrew Tanenbaum, Computer Networks § 5.4 (4th ed. 2003).


50. Spulber & Yoo, supra note 12, at 236.

51. For the seminal statements, see Joseph J. Spengler, Vertical Integration and Antitrust Policy, 58 J. Pol. Econ. 347 (1950); and Fritz Machlup & Martha Taber, Bilateral Monopoly, Successive Monopoly, and Vertical Integration, 27 Economica 101 (1960).

52. For the seminal economic analyses, see L.W. McKenzie, Ideal Output and the Interdependence of
Finally, as Oliver Williamson recognized in the seminal work for which he was recently awarded the Nobel Prize, vertical integration can also benefit consumers by eliminating the transaction costs needed to guard against opportunistic behavior. For example, when firms must make relationship-specific investments, they become vulnerable to opportunistic behavior, such as being held up. If the transaction costs needed to negotiate a contract protecting the parties against this problem become sufficiently large, the firms find it preferable to use vertical integration to eliminate the incentive for one level of production to appropriate surplus at the expense of the other.

Although a literature has emerged identifying circumstances under which firms have substantial incentive to engage in vertical integration, the models on which these studies are based tend to be very stylized and depend on restrictive assumptions. This in turn causes the results to be rather fragile and to tend to collapse whenever any of the models’ assumptions are relaxed. Just as importantly, even when vertical integration is feasible and profitable, the welfare implications of these cases are typically ambiguous.

The theoretical models showing that vertical integration tends to be welfare enhancing are backed by a substantial empirical literature confirming that vertical integration tends to benefit consumers in the vast majority of cases. One leading study focuses on voice messaging services, such as voice mail, which were made impossible by the line of business restrictions imposed during the breakup of AT&T and by Computer II. By requiring that such services would be provided by third parties, the FCC delayed the introduction of such services for ten years with an annual reduction of consumer welfare of over $1 billion.

The broader empirical literature on vertical integration leads to similar conclusions. For example, Francine Lafontaine and Margaret Slade conducted a comprehensive review of the empirical literature on vertical integration. Although they did not have any particular conclusion in mind when they began their review of the evidence, they were somewhat surprised to find that aside from a few isolated studies, the weight of the evidence indicated that “under most circumstances, profit-maximizing vertical-integration decisions are efficient, not just from firms’ but also from the consumers’ points of view.” The survey concluded that “faced with a vertical arrangement, the burden of evidence should be placed on competition authorities to demonstrate that that

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53. See Oliver E. Williamson, Markets & Hierarchies (1975).
arrangement is harmful before the practice is attacked.”\(^59\) Moreover, the survey found “clear evidence that restrictions on vertical integration that are imposed . . . on owners of retail networks are usually detrimental to consumers.”\(^60\) They thus called on “government agencies to reconsider the validity of such restrictions.”\(^61\) A recent survey of the literature by leading vertical integration theorist and former FCC Chief Economist Michael Riordan similarly concludes, “A general presumption that vertical integration is pro-competitive is warranted by a substantial economics literature identifying efficiency benefits of vertical integration, including empirical studies demonstrating positive effects of vertical integration in various industries.”\(^62\)

Lafontaine and Slade’s separate review of the empirical literature on vertical contractual restraints drew similar conclusions. As a general matter, “privately imposed vertical restraints benefit consumers or at least do not harm them.”\(^63\) In contrast, government mandates or prohibitions of vertical restraints “systematically reduce consumer welfare or at least do not improve it.”\(^64\) The authors conclude that “the empirical evidence suggests that in fact a relaxed antitrust attitude towards [vertical] restraints may well be warranted.”\(^65\) Again, this conclusion came as something of a surprise: Lafontaine and Slade found the empirical evidence to be “quite striking,” “surprisingly consistent,” “consistent and convincing,” and even “compelling.”\(^66\)

A similar review of the empirical literature on vertical restraints conducted by four members of the Federal Trade Commission’s senior staff similarly found “a paucity of support for the proposition that vertical restraints/vertical integration are likely to harm consumers.”\(^67\) Only one study unambiguously found that vertical integration harmed consumers, and in that study the welfare losses were “miniscule.”\(^68\) On the other hand, “a far greater number of studies found that the use of vertical restraints in the particular context studied improved welfare unambiguously.”\(^69\) The survey thus concluded, “Most studies find evidence that vertical restraints/vertical integration are pro-competitive.”\(^70\) The weight of the evidence thus “suggests that vertical restraints are likely to be benign or welfare enhancing,”\(^71\) which in turn provides empirical support for placing the burden on those opposing the practice.\(^72\)

The theoretical and empirical literature on vertical integration thus both strongly suggest that regulatory regimes mandating structural separation and prohibiting vertical

\(^{59}\) Id.
\(^{60}\) Id.
\(^{61}\) Id.
\(^{64}\) Id.
\(^{65}\) Id.
\(^{66}\) Id. at 409.
\(^{67}\) Cooper, *supra* note 55, at 648.
\(^{68}\) Id.
\(^{69}\) Id.
\(^{70}\) Id. at 658.
\(^{71}\) Id. at 662.
\(^{72}\) Cooper, *supra* note 55, at 661–62.
integration imposes substantial consumer harm. The loss of these welfare benefits represents another way in which compelling access can harm consumers.

B. Second Generation Access: Local Loop Unbundling

The growing recognition that the bar to vertical integration implicit in structural separation was preventing the realization of important efficiencies led the FCC to explore ways that firms could provide both types of services on an integrated basis while still guarding against potentially anticompetitive activity.73 As a result, the FCC’s third Computer Inquiry amended the rules to allow major local telephone companies to provide information services on a vertically integrated basis so long as they gave other information service providers equal access to every element of their local telephone networks on an unbundled basis.74 The Telecommunications Act of 1996 similarly required all incumbent local telephone companies to provide unbundled access to all of their network elements at any technically feasible point.75 The unbundling requirement imposed by the 1996 Act did include one key limitation. It required the FCC to determine whether access to those elements was “necessary” and whether the failure to provide access to those elements would “impair” the requesting carrier’s ability to provide the services that it seeks to offer.76 The key network element was the wire connecting customers’ premises to the telephone company’s central office, known as the local loop.

The FCC initially applied unbundling to a wide range of elements associated with local telephone service.77 The FCC has also imposed a wide range of unbundling requirements on DSL networks, including local loops.78 Perhaps most importantly, the

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74. This regime is known as “open network architecture” (ONA). Id. at 1063–66 ¶¶ 210–17. While ONA plans were being developed, major local telephone companies were governed by an interim regime known as “comparably efficient interconnection” (CEI). Id. at 1018–65 ¶¶ 111–218. The regime created by the Third Computer Inquiry was eventually overturned on judicial review. See California v. FCC, 39 F.3d 919, 925–30 (9th Cir. 1994) (overturning the regime); California v. FCC, 905 F.2d 1217, 1230–39 (9th Cir. 1990) (same). The FCC rolled its reconsideration of both CEI and ONA into the broadband proceedings opened in 2002. Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, Notice of Proposed Rulemaking, 17 FCC Rcd. 3019, 3024 ¶ 8 (2002).
76. Id. § 251(d)(2)(A)–(B) (emphasis added).
78. When the FCC first confronted DSL, the Agency required that DSL services be governed by a tariff, which essentially subjected DSL to an access requirement. GTE Telephone Operating Cos., Memorandum Opinion and Order, 13 FCC Rcd. 22,466 (1998). The FCC had to address precisely which network elements should be subject to the 1996 Act’s UNE access requirements. Because the 1996 Act by its own terms applies only to elements used in telephone exchange service and exchange access, the initial order implementing the statute declined to subject packet switches to UNE access requirements. Local Competition Order, supra note 77, at 15,713 ¶ 427. The FCC also ruled that collocation did not extend to equipment used to provide only
FCC’s *Line Sharing Order* mandated unbundled access to the high frequency portion of the local loop used to carry DSL so that competitors could provide services over the same loop without having to offer conventional telephone service in the lower frequencies.\(^7\)

The FCC was considerably more tentative in its regulatory approach to cable modem service. It postponed addressing the proper regulatory classification for cable modem service for several years before finally ruling that it was an interstate “information service” exempt from both the common carriage regime established under Title II to govern telecommunications services, the regulatory regime established by Title VI to govern cable television services, and the tariffing and unbundling requirements created by the *Computer Inquiries*. In so ruling, the agency noted that it previously “has applied these obligations only to traditional wireline services and facilities, and has never applied them to information services provided over cable facilities.”\(^8\) In addition, the FCC declined to impose the tariffing and unbundling requirements created by the *Computer Inquiries* to cable modem service.\(^9\) The Supreme Court’s 2005 decision in *National Cable & Telecommunications Association v. Brand X Internet Services* subsequently upheld the FCC’s decision.\(^10\)

I. Administrative Difficulties

Local loop unbundling has been subjected to extensive criticism. As an initial matter, unbundling requires extensive rate regulation to prevent the local telephone company from rendering the regime a nullity simply by charging excessive prices.\(^11\)

Moreover, unbundling poses numerous administrative difficulties. Unlike the access to local telephone networks required following the breakup of AT&T, unbundling gives competitors access to portions of the local telephone companies’ networks rather than their entire networks. Unbundling thus requires networks to offer services at points in the middle of their networks where they have never before offered service. This in turn requires the local telephone company to create interfaces and put into place at those interfaces processes for provisioning, monitoring, and billing the services provided.\(^12\)

As a result, local loop unbundling is likely to be very difficult to administer. As

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\(^9\) *Id.* at 15,794–95 ¶¶ 580–81.

\(^10\) The order did mandate UNE access to all loops connecting central offices to end users, including the loops used to provide DSL. *Id.* at 15,691–92 ¶¶ 380–82. The order also obligated incumbent local telephone companies to fulfill any requests to condition existing loops to make them DSL compatible. *Id.* A subsequent order confirmed that collocation included multifunction equipment that could be used to provide both voice and data services. *See* *Deployment of Wireline Services Offering Advanced Telecommunications Capability, First Report and Order and Further Notice of Proposed Rulemaking*, 14 FCC Rcd. 4761, 4776–79 ¶¶ 27–31 (1999) (presenting the described order).


\(^12\) *Id.* at 4825 ¶ 43–44.
Justice Breyer warned in his separate opinion in *AT&T Corp. v. Iowa Utilities Board*, “[e]ven the simplest kind of compelled sharing . . . means that someone must oversee the terms and conditions of that sharing” which in turn can give rise to “significant administrative and social costs.”85 Indeed,

The more complex the facilities, the more central their relation to the firm’s managerial responsibilities, the more extensive the sharing demanded, the more likely these costs will become serious. . . . And the more serious they become, the more likely they will offset any economic or competitive gain that a sharing requirement might otherwise provide.86

Thus, “[r]ules that force firms to share every resource or element of a business would create not competition, but pervasive regulation, for the regulators, not the marketplace, would set the relevant terms.”87 Justice Breyer reiterated these concerns in *Verizon Communications Inc. v. FCC*, adding the observation that unbundling produces only a thin form of competition that instead of stimulating entry by competitors, focuses on “widespread sharing of entire incumbent systems under regulatory supervision—a result very different from the competitive market that the statute seeks to create.”88

A majority of the Supreme Court expanded on these concerns in its 2004 decision in *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, in which the Court noted, “[e]nforced sharing . . . requires antitrust courts to act as central planners, identifying the proper price, quantity, and other terms of dealing.”89 Furthermore, because unbundled access affects network elements “deep within the bowels” of a local telephone network, they can only be made available if “[n]ew systems [are] designed and implemented simply to make that access possible.”90 Additionally, requests for unbundled access “are difficult for antitrust courts to evaluate, not only because they are highly technical, but also because they are likely to be extremely numerous, given the incessant, complex, and constantly changing interaction of competitive and incumbent LECs implementing the sharing and interconnection obligations.”91

As a result, the essential facility doctrine necessarily requires the government to oversee the entire business relationship.92 The difficulties the FCC confronted when attempting to implement other access regimes, such as long-distance interconnection93 and leased access to cable television systems94 provide further demonstration of these

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86. Id. at 429 (citation omitted).
87. Id.
88. See supra notes 33–37, infra note 92, and accompanying text.
90. Id. at 410.
91. Id. at 414.
92. Id. at 414.
problems. It is particularly telling that two distinguished scholars of network industries who are not particularly noted for deregulatory views have suggested that access regimes have proven so unworkable that they should be abandoned.  

2. The Impact on Investment Incentives

Perhaps the most controversial aspect of local loop unbundling is the manner in which it reduces incentives to invest in alternative network capacity that would compete with the monopoly facility. One reason is that, as the well known “tragedy of the commons” demonstrates, people tend to overuse and underinvest in resources that are shared. Even more importantly, as Areeda and Hovenkamp note, “the right to share a monopoly discourages firms from developing their own alternative inputs.” Justice Breyer expressed the same concern in his separate opinion in *Iowa Utilities Board*:

[A] sharing requirement may diminish the original owner’s incentive to keep up or to improve the property by depriving the owner of the fruits of value-creating investment, research, or labor . . . . Nor can one guarantee that firms will undertake the investment necessary to produce complex technological innovations knowing that any competitive advantage deriving from those innovations will be dissipated by the sharing requirement.

In *Trinko*, a majority of the Supreme Court agreed, noting that “[c]ompelling such firms to share the source of their advantage . . . may lessen the incentive for the monopolist, the rival, or both to invest in those economically beneficial facilities.” In other words, without access, those firms would have to invest in alternative sources of supply. By rescuing those firms from having to undertake those investments, compelling access threatens to entrench the monopolist. Indeed, the imposition of rate regulation eliminates the supracompetitive returns that spur competitive investment in the first place.

This underscores the extent to which mandating access to a bottleneck facility represents surrender to the bottleneck. Compelling firms to share their networks might be appropriate if entry by a competitor to the bottleneck were infeasible. In that event, any dampening of incentives to invest in alternative network capacity would be beside the point, because such entry would not be forthcoming. Indeed, that was the case with the breakup of AT&T, where local telephone service was still regarded as an intractable
natural monopoly. As a result, there seemed little point in trying to promote entry by new local telephone facilities competing directly with the incumbent, and it was appropriate for policymakers to focus their attention on the secondary goal of promoting competition in complementary services.

The situation is quite different, however, when competitive entry is feasible. When that is the case, competition policy should focus on stimulating the investments needed to dissipate the monopoly. The problem is that continued imposition in unbundling requirements will deter investment in alternative network capacity. Indeed, a growing body of empirical work has failed to confirm that unbundling has promoted investments in competitive local telephone services. Indeed, many studies indicate that access actively discouraged such investments. Even more importantly, studies have drawn similar conclusions about the impact that mandating access has had no significant effect or a negative effect on investments in last-mile broadband access services. At the same


104. For articles finding a statistically significant relationship between access to broadband networks and investment, see Immaculada Cava-Ferreruela & Antonio Albau-Muñoz, Broadband Policy Assessment: A
empirical studies generally indicate that competition from new, facilities-based entrants is a more effective driver of broadband deployment and adoption.¹⁰⁵


A handful of studies find a positive relationship between unbundling and investment. See Martha Garcia-Murillo, International Broadband Deployment: The Impacts of Unbundling, 57 COMM. & STRATEGIES 83, 96, 102 (2005); Sangwon Lee & Justin S. Brown, Examining Broadband Adoption Factors: An Empirical Analysis Between Countries, 10 INFO: J. POL’Y, REG. & STRATEGY FOR TELECOMM., INFO. & MEDIA 25, 34–35 (2008); Grosso, supra, at 21. These studies have been critiqued for anomalies in their specifications (both in terms of anomalous results and important variables omitted) and for assuming that unbundling policies are exogenous instead of entertaining the possibility that regulators impose unbundling requirements in response to investments by incumbents. See Declaration of Robert W. Crandall, Evert M. Ehrlich and Jeffrey A. Eisenach Regarding the Berkman Center Study (NBP Public Notice 13), at 28-31, available at http://www.naviganteconomics.com/docs/Crandall%20Ehrlich%20Eisenach%20Declaration%20FINAL.pdf; International Comparison and Consumer Survey Requirements in the Broadband Data Improvement Act, 25 FCC Rcd. 11,963 (2010) (GN Docket No. 09-47). In addition, many of these studies focus on adoption rather than investment and fail to take into account the natural diffusion of technology over time. See Cambini & Jiang, supra note 102, at 569, 571; Crandall et al., supra, at 30; Lee & Brown, supra, at 34. Notably, one study applied bivariate correlations to find that competition and unbundling are positively correlated with broadband diffusion, but found that statistical significance disappeared in two of three multivariate regression specifications. See Garcia-Murillo, supra, at 102.

¹⁰⁵ See Debra J. Aron & David E. Burnstein, Broadband Adoption in the United States: An Empirical Analysis, in DOWN TO THE WIRE: STUDIES IN THE DIFFUSION AND REGULATION OF TELECOMMUNICATIONS TECHNOLOGIES (Allan L. Shampine ed., 2003); Bouckaert et al., supra note 104, at 669; Denni & Gruber, supra note 104, at 155; Distaso et al., supra note 104, at 102–03; Garcia-Murillo, supra note 104, at 101, 102; Howell,
C. Third Generation Access: The Ladder of Investment

Later commentators, particularly those based in Europe, have developed a third justification for mandating access known as “the ladder of investment.” Unlike previous theories, the ladder of investment does not provide access to elements which regulators regard as natural monopolies and are thus inherently incapable of being rendered competitive. Instead, the ladder of investment theory provides access to those network elements that can be feasibly replicated. The hope is that by providing access to these elements, new entrants can enter more easily. Initially, they enter by reselling the incumbent’s services. Over time, they begin offering additional services until eventually they become a full-blown facilities-based competitor.

Under this approach, the role of the government is not to oversee access to portions of the network that are inherently uncompetitive. Instead, this approach calls for regulators to manage access to portions of the network that can feasibly be competitively provided, but that would be too burdensome for new entrants to provide completely for themselves.

There is, however, an internal contradiction in this argument. As the Supreme Court has noted, “[t]he indispensable requirement for invoking the [essential facility] doctrine is the unavailability of access to the ‘essential facilities.’” It is for this reason that courts applying this doctrine insist that the facility cannot be obtained from other sources or self-provisioned independently or when the party can compete effectively without access to the facility. The logic of the essential facility doctrine fails when the facility is otherwise available. As the Seventh Circuit noted when rejecting a similar request by MCI for access to portions of AT&T’s long distance network while MCI had not yet extended its own network to some parts of the country, “[t]here was no sufficient explanation as to why MCI, on the one hand, was building its own network, and, on the other, was entitled to access in the interim to AT&T’s facilities.” Moreover, because mandating access discourages rivals from investing in new networks, unless carefully managed, such a regulatory regime could well have the perverse effect of forestalling competition from emerging at all.

Any regulator attempting to manage competition in the manner called for by the ladder of investment must calibrate its intervention very carefully. Setting prices too high...

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110. See, e.g., Alaska Airlines, Inc. v. United Airlines, Inc., 948 F.2d 536, 544 (9th Cir. 1991); MCI Commc’ns Corp. v. AT&T, 708 F.2d 1081, 1132 (7th Cir. 1982).

111. MCI, 708 F.2d at 1147.
causes access to be uneconomical, in which case the regulatory intervention will serve no purpose. Setting prices too low destroys incentives for competitors to invest in substitute resources. Not only must regulators set prices correctly; they must also credibly commit to eliminating this access over time. Otherwise competitors can be expected to rely on the regulatory regime indefinitely rather than building alternative network capacity of their own.\(^{112}\)

These considerations make ladder-of-investment regulation very difficult to implement. A substantial theoretical literature has arisen identifying the substantial problems with implementing this approach.\(^{113}\) Although some reports offered some preliminary observations suggesting the viability of the ladder-of-investment theory,\(^{114}\) formal empirical analyses failed to corroborate these findings.\(^ {115}\)

### III. The Deregulatory Alternative

As Europe was developing new theories to justify continuing to mandate access to telecommunications networks, the United States embarked on a more deregulatory path. For example, in 2002, the D.C. Circuit struck down the FCC’s decision requiring line sharing.\(^{116}\) The FCC’s landmark 2003 Triennial Review Order eliminated unbundling requirements on most DSL-related network elements,\(^{117}\) and its attempt to retain unbundling requirements on local telephone service was overturned by the courts and subsequently eliminated.\(^{118}\) As noted earlier, the Supreme Court’s 2005 Brand X decision upheld the FCC’s 2002 decision exempting cable modem service from access regulation.\(^{119}\) Shortly thereafter, the FCC eliminated any remaining access requirements on DSL.\(^{120}\) The FCC has also issued rulings declaring that broadband over power line

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112. Cave, supra note 106, at 235.


114. Okamoto, supra note 106, at 33.


and wireless broadband constitute information services.\textsuperscript{121}

\textbf{A. The Emergence of Competition}

This deregulatory transformation in U.S. telecommunications policy was driven in no small part by the emergence of competition. With respect to telephony, incumbent local telephone companies face fierce competition from VoIP and wireless telephone providers.\textsuperscript{122} The number of wireline telephones has declined sharply, dropping from a high of 193 million in December 2000\textsuperscript{123} to a low of 122 million as of June 2010.\textsuperscript{124}

With respect to broadband, courts have held that the level of competition that already exists between DSL and cable modem systems is sufficient to undercut the justification for requiring last-mile providers to provide unbundled access to their competitors.\textsuperscript{125} The feasibility of competitive entry is further underscored by recent investments in fiber to the home (such as Verizon’s FiOS network) and 4G wireless technologies (such as WiMax and LTE).\textsuperscript{126} Although the scale economies inherent in telecommunications will necessarily prevent markets from being fully competitive, any regulatory regime must bear in mind that regulation is not costless. As a former FCC Chief Economist has pointed out, while unregulated \textit{oligopoly} performs sufficiently poorly to tip the balance in favor of incurring the costs of regulatory intervention, the fact that unregulated \textit{monopoly} performs substantially better tips the balance in favor of deregulation.\textsuperscript{127}

The emergence of competition effectively undercuts the case for continuing to mandate access to the existing network. In many cases, anyone who is denied service by


\textsuperscript{124} \textit{FCC June 2010 Report}, supra note 122, at 1.

\textsuperscript{125} See United States Telecom Ass’n v. FCC, 290 F.3d 415, 428–29 (D.C. Cir. 2002) (holding such competition level is sufficient).

\textsuperscript{126} \textsc{Christopher S. Yoo}, \textit{The Dynamic Internet: How Technology, Users, and Businesses Are Transforming the Network} (forthcoming 2011).

one provider should have sufficient options to obtain service from another provider.

B. Impact on Investment Incentives

The shift to deregulation may still be justified even if the market has not yet become sufficiently competitive. This is because granting access would make it far less likely that the competing network will ever be built. In short, the existence of an access requirement would rescue anyone needing access to the facility from having to undertake the risks of building a competing network. Denying access would provide the strongest incentives for creating the alternative network capacity. Although denying access would cause static efficiency losses in the short run, stimulating entry by a competitor would promote dynamic efficiency gains in the long run.

For this reason, policymakers should refuse to impose an access regime whenever entry is feasible. The fact that competitive entry may take a long time and be quite expensive does not justify imposing access, because in short, late is better than never. Approaches that dislodge bottlenecks by stimulating competitive entry rather than simply requiring that they be shared have the further advantage of having built-in exit strategies embedded within them. In contrast, by curtailing investment incentives, mandated sharing of a bottleneck facility implicitly presumes that the monopoly facility (and the regulatory regime overseeing how it will be shared) will persist indefinitely. Rather than committing to using behavioral regulation to engage in ongoing oversight indefinitely, deregulation promotes a structural solution that is less intrusive and requires much less ongoing supervision.

The inevitable lag in adjusting regulation also raises the risk that regulations, such as access, that protect incumbents from new entry will continue to exist long after the justifications for enacting the regulation have long disappeared. At best, the inevitable lag in enacting new regulations will cause economic losses. At worst, by destroying incentives to build new technologies, regulation might cement the market concentration that represents the central focus of broadband policy into place.

IV. Deciding Between Regulation and Deregulation

How, then, should policymakers determine the choice between deregulation and reregulation? The foregoing analysis suggests the following considerations. As an initial matter, policymakers should calibrate regulation to ensure that it applies only if competitive options do not exist in the market. If sufficient competitive alternatives exist, consumers are unlikely to be harmed by the refusal of any one provider to offer service.

If sufficient competitive alternatives are not available, policymakers should ask whether competitive entry is feasible. If so, they should assess the likely short-run static efficiency losses incurred while waiting for entry to occur against the long-run dynamic efficiency gains. Although some scholars have categorically asserted that because the dynamic efficiency gains will be compounded over time, they will invariably dominate

128. 3B Areeda & Hovenkamp, supra note 13, ¶ 774c, at 266.
130. Yoo, supra note 42, at 65.
the short-run static efficiency losses, whether the dynamic efficiency gains will dominate the static efficiency losses depends on the magnitude of the gains and losses, the speed of entry, and the appropriate discount rate, among other considerations. Determining the welfare implications of network diversity requires a multifaceted inquiry that is not susceptible to a simple policy inference.

Finally, policymakers must take institutional considerations into account. The fact that the deregulation focuses on structural rather than behavioral relief increases its implementability. In addition, deregulation decentralizes decision making and minimizes the potential adverse impact of regulatory delay. In addition, any access regime must take into account the fact that regulatory agencies reflect public preferences only imperfectly and that agency decision making is frequently influenced by political goals and public interest pressures that are not always consistent with good policy. Policymakers may be susceptible to undervaluing the future benefits associated with the entry of alternative network capacity, which will no doubt seem uncertain and contingent, in favor of the immediate and concrete benefits of providing consumers with more choices in the here and now. Administrative agencies are also often thought to exhibit a tendency to enlarge their jurisdiction even when the proper response would be to contract it. Consider, for example, the emergence of a technological alternative to a network that had previously been a natural monopoly. The proper policy response would be deregulation of the previously regulated industry, since the emergence of competition would vitiate the justification for regulation in the first place. An agency, however, has the incentive to do precisely the opposite. Rather than deregulate the old industry, all too often agencies respond by asserting jurisdiction over the new industry and extending the same restrictive legacy regulations applied to the old industry to the new industry. This is exactly what happened in the Interstate Commerce Commission (ICC) when the emergence of the trucking industry eliminated whatever natural monopoly power was enjoyed by the railroad. Rather than deregulating railroads, the ICC extended the regulatory regime governing railroads to the new competitor. A similar pattern emerged when cable television circumvented the supposed scarcity of the electromagnetic spectrum that justified intrusive regulation of broadcasting.

The reaction is understandable. Agency personnel have every reason to be reluctant to eliminate the justification for their continued employment. In addition, they no doubt grow to identify with the regulatory regimes that they administer and are likely to resent and try to control anything that disrupts them. But the emergence of competition in a previously uncompetitive industry is precisely the type of disruption that should be embraced. Giving regulatory authorities gatekeeper authority over network architecture

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132. Yoo, supra note 130, at 67–68.

133. See Bruce M. Owen & Ron Braeutigam, The Regulation Game (1978); 2 Kahn, supra note 18, at 325–26.


136. See Christopher S. Yoo, Rethinking the Commitment to Free, Local Television, 52 Emory L.J. 1579, 1688–90 (2003).
necessarily puts network policy in the crosshairs of this tension.

If entry is impossible, policymakers should abandon the goal of trying to promote entry by new local telecommunications networks and instead focus on the secondary goal of promoting competition in complementary services through access regulation. In so doing, policymakers should include some mechanism for eliminating access mandates as soon as competition becomes feasible to make sure that regulation does not itself become the reason for the suppression of competition.

V. CONCLUSION

The decision whether to mandate access to telecommunications networks thus presents policymakers with a choice between two regulatory paradigms, one that focuses on breaking down the monopoly by stimulating competitive entry and another that surrenders to the monopoly and simply seeks to allocate the monopoly loop. The theoretical and empirical literature both suggest that whenever competition is feasible, policymakers should generally follow the first course by refusing to mandate access. When competition is feasible but not yet present, policymakers should mandate access only if the short-run static efficiency losses dominate the long-run dynamic efficiency gains. Only if competition is infeasible can a simple policy inference in favor of access regulation be sustained. Given the overall level of competition that already exists in these markets and the current pattern of entry by new technologies, it is likely that the scope of this justification is already small and will only become smaller in the years to come.