

POLICY-INDUCED COMPETITION: THE TELECOMMUNICATIONS EXPERIMENTS

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Introduction: Telephony has been the great “natural monopoly” of mid-century America. Early in the twentieth century, the policy of regulated monopoly for telephone was established; state and Federal regulation were based on this paradigm. By the late 1950s, there was some evidence that technology could be undermining the basis of this policy, and the Federal Communications Commission (FCC) began very cautious initiatives to introduce competition into telecommunications. From 1970s onward, we have been involved in a great public policy experiment, to move this monopoly monolith toward the American competitive ideal. First, regulatory actions to introduce competition in customer premises equipment and long distance in the 1970s; second, the Bell System divestiture of 1984 to institutionalize long distance competition. Third, the Telecommunications Act of 1996, which established competition as the model for local competition, brushing aside state and local restrictions to competition in telephone and cable, and putting into place a framework for permitting competitors of the incumbent telephone companies to share their bottleneck facilities: local loop unbundling.

Local loop unbundling was viewed as a mechanism to encourage entrants into the local market who might then build their own facilities rather than rely permanently on the existing telephone company plant. This would then lead to facilities-based competition and the erosion of the incumbent’s local loop monopoly. In fact, the development of local competition since the 1996 Act has been rather slow, at least relative to the expectations of many, leading to claims that the Act “failed” to engender a competitive local service market. The recent implosion of CLEC stock valuations has underscored this concern, even while CLEC access lines in service appears to be growing strongly. Some have attributed this failure to the FCC for not sufficiently encouraging (via prices) competitors; other attribute the failure to unrealistic business models for the CLECs.

In this paper, I review the experiences of previous regulatory openings to competition in the telecommunications market, attempting to determine what worked, what didn’t, and why. On the basis of this evidence, I forecast the likelihood and the direction of local competition using the unbundling model. I also consider other sources of competition and focus on deregulatory actions (in the spirit of the Telecommunications Act) that could unblock alternative technologies that would bring competition to this market.

The Natural Monopoly For most of the twentieth century, the public policy consensus in telecommunications was that regulated monopoly in the form of the Bell System was an appropriate, even optimal, market structure. Local rates were tightly regulated, universal service was assured, and the Bell System had an enviable record of cost reducing technologies that flowed from Bell Laboratories. The Bell System monopolized virtually every aspect of telephony. For example, in the 1950s the company sued to prohibit the Hush-A-Phone Company from marketing a small plastic mouthpiece that fit over the telephone handset to ensure a quiet conversation, on the premise that this plastic fitting violated regulations forbidding “foreign attachments.”

This monopoly was not simply a result of market forces leading to one efficient supplier; it was put in place by state and Federal law granting monopoly franchises for telephone service while imposing price-quality-

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investment regulation on the telephone franchise holder. The “natural monopoly” thesis that led to this somewhat aggressive policy was never actually put to a market test; entry was forbidden. This was true both at the Federal level, at which interstate telephone service was regulated by the Federal Communications Commission, and at the state level as well, at which local and intrastate service was regulated.

In the earlier era, the expiration of the Bell patents in 1893 led to a spate of competitive entry into local telephony, particularly in the rural areas of the US. By the early twentieth century, almost half the US population had the choice of two or more local telephone companies. However, this market structure did not survive the introduction of the Bell System’s proprietary long distance service, which gave the company a competitive advantage over rivals, whom it did not permit to interconnect with its long distance network. The ensuing consolidation of the industry around the Bell System and eventual regulation of the industry led to the regulated monopoly model. Even in areas served by non-Bell System (“independent”) companies, policymakers adopted the regulated monopoly model in every jurisdiction in the US.

Traditionally, the justifications for regulated monopoly were:

1. Telecommunications is a “natural monopoly,” in that average costs decline with increasing volume/lines. A market would lead to monopoly anyway.
2. Regulated entry restrictions permits pricing and investments by the monopolist aimed at achieving social objectives such as universal service without fear that cream-skimming entrants would undo non-cost-based pricing, i.e., regulatory subsidies.
3. It is vital that a single entity control the entire network to ensure that technical standards are met and all parts of the network interoperate.

During this period, the job of regulators was relatively simple, at least by today’s standards. First, regulators had to protect the monopoly by keeping out entrants. Since the monopoly Bell System was willing to police its markets and inform regulators of even the smallest encroachment, this was an easy task. Second, the regulators had to ensure that the monopoly made sufficient economic returns to justify new investment but not monopoly returns. The institution of rate base rate of return regulation arose to meet this need; regulatory proceedings focused on determination of the appropriate rate of return as well as what was to be included in the rate base. Third, regulators had to ensure that the monopolist invested sufficient capital into its physical infrastructure to guarantee a high quality of service. In brief, the regulator protected the monopoly from competitive incursions and protected the consumer from both price and quality abuse by the monopoly.

In the 1950s and early 1960s, this conventional wisdom was questioned by a group of populist economists who viewed the Telephone Company with great distrust and called for more vigorous oversight of their operations. In their view, the justifications of regulated monopoly were solid, but the actual regulations were neither strict enough nor enforced with sufficient vigor. By the late 1960s and early 1970s, this group had been replaced by a new breed of economists who questioned the basic justifications of the regulated monopoly model. In particular, they noted that regulation often stunted technical innovation, and that opening the industry to competition would result in brand new services and lower costs to customers. In this critique, regulated subsidies were bad, not good, and at least should be made much more explicit. Network interoperation concerns were brushed aside, and the basics of natural monopoly were seriously questioned.

Ultimately, the policy consensus, at least at the Federal level, was that this industry could use a healthy dose of competition in those markets where competition could be sustained, and regulation should be limited to the fairly narrow markets of the local loop, viewed then as the bottleneck facility. This consensus found the justifications for regulated monopoly to be faulty:

1. There was substantial evidence that while parts of the industry may exhibit natural monopoly characteristics, most did not and competition in those markets should be encouraged. Customer equipment (such as the telephone instrument itself) and long distance were

potentially competitive, even if the local loop was still a natural monopoly. Therefore, regulation should be focused on the local loop.

2. While economists argued that subsidies within the telephone system were likely to be inefficient, the political need for continued subsidies trumped the efficiency argument. However, it was quickly discovered that subsidies could be maintained via explicit inter-company payments (such as carrier access charges) and did not require a single firm to internalize the subsidies. Therefore, monopoly was not essential to maintaining a subsidy system.
3. Technical interoperability appeared to demand a single control point, at least to many engineers. However, having multiple interconnecting network operators did not lead to chaos, since each operator had an incentive to maintain interoperability with all others in order to maximize the value of its service offerings. Therefore, monopoly was not essential to maintaining technical integrity and network interoperability.

The FCC and competition During the 1970s, the FCC adopted a number of policies designed to introduce competition into those sectors of the telecommunications industry where it appeared feasible: Customer Premises Equipment (CPE, including the standard residential handset as well as business-oriented key systems, PBXs for large businesses, even national and global private networks) and long distance. These policies were designed to permit and even encourage new entrants to enter previously monopolized sectors. In fact, these sectors were not even markets, but simply fully integrated services of the Bell monopoly. To achieve competition in CPE, a new market had to be defined along with its relationship with the rest of the telecommunications world. In short, the FCC policies to encourage CPE competition had to vertically dis-integrate the Bell System between CPE and the network, creating a market where none existed. Similarly, policies to encourage long distance competition had to vertically dis-integrate the Bell System between local and long distance.

The magnitude of the change sought by the FCC can best be viewed using a transaction cost theory of the firm. In this view, transactions characterized as follows are best done *within* the firm:

- Involve transaction-specific long term assets
- Are rich in information requirements
- Long term relationships greatly improve the transaction
- Involve close and ongoing coordination between transactors

For such transactions, simple markets will fail to reflect the full economic value of the transaction and are likely to fail. Therefore, such transactions are brought within the firm so that this value can be fully internalized.

Conversely, transactions characterized as follows are best done *between* firms:

- Assets are not dedicated to a single transactor
- Have relatively simple information requirements, such as a simple price and product description
- Long term relationships are irrelevant
- Transactions are individually self-contained and do not require ongoing coordination

These transactions are best mediated through a market, in which competition and external innovation ensure that firms are getting the best deal possible without fear of market failure.

To vastly oversimplify a rich theory, transaction costs thus help define the optimal boundary of the firm: all complex transactions take place *inside* the boundary and only simple transactions take place *across* that boundary. In some cases, it could well be optimal for a firm to employ both strategies in a particular sector; for example, it could produce a complementary good as well as permit customers to use their own. For example, a property developer could offer to build a house for a land buyer, or let the land buyer build his or her own house.

The tool of transaction costs helps us analyze the task of establishing competitive markets that the FCC faced in the 1970s with the Bell System. Essentially, FCC policy was attempting to move the boundary of the firm so that CPE was at least partially outside that boundary. Customers were no longer required (but were still permitted) to use Bell CPE to access the network. How successful this would be was determined by the transaction costs associated with CPE interoperating with the telephone network. Success would be *unlikely* if:

- interoperation was complex and uncertain;
- the telephone company were required to make special arrangements for each interconnected CPE;
- CPE had to be specially tailored to each application, then success was unlikely.

As it turned out, interoperation was a relatively simple matter. The FCC mandated that all CPE sold in the US meet certain simple standards, and the FCC itself type-certified equipment. The Bell System was required to provide a standard simple interface that also met technical standards that comported with the CPE standards. This relatively low-cost standards process assured that customers themselves could simply plug any phone into any phone jack and expect it to work. Low transactions costs led to an easy transition to a new boundary within the Bell System.

Deregulation of CPE began in 1976, with the FCC establishing technical standards for devices to be connected to the Bell network. The policy was a huge success, engendering massive entry into the CPE market and the transformation of the telephone from a Bell monopoly rental product to a mass consumer electronics market. Predictions of mass customer confusion and poor quality proved unfounded.

Why A Success? The success of CPE deregulation via an FCC administrative fiat was not to be repeated. What might the cause of this success be? How was the FCC able to partition a segment of the Bell System monopoly and easily open it up to competition? Transactions cost analysis provides an answer. Technical integration of CPE and the network, clearly necessary to ensure the success of this policy, turned on using clean, simple, and easily understood standards.^{1,2} In addition, commercial distribution channels for CPE outside of the telephone industry were already in place, in the form of a robust consumer electronics industry. Thus, a simple technical specification could enable an existing industry to sell CPE to customers and seamlessly plug into the existing telephone industry, all at very low transactions cost. In other words, the CPE/network interface is a “natural” market boundary, in which transactions cost are very low. The FCC deregulation of CPE thus transformed a somewhat unnatural integration of CPE and the network into the more natural market disintegration at very low cost.

The FCC and Long Distance Attempts by the FCC to open up long distance to competition proved more difficult. After strong opposition from the Bell System, MCI was permitted to offer a limited form of long distance service in 1968. In 1975, it offered switched long distance service, a move challenged by the FCC but upheld in court. However, the customer appeal of such upstarts would be limited if they could only serve customers on their own physical networks. For example, if MCI was limited to carrying calls only on its own facilities, then it would have to build a nationwide network in order to be a national competitor to the Bell System. To alleviate this problem, the FCC mandated that the Bell System permit competitive carriers such as MCI and Sprint to lease private lines from AT&T and resell services to retail customers. Although this proceeding took ten years to complete, its effect was profound: Bell System competitors could offer long distance service with their own facilities in their core markets, while using leased private lines from Bell to reach all other markets, thereby giving their customers ubiquity of calling. Eventually,

¹ The story is a bit more complicated. AT&T and Bell Laboratories participated in the NAS panel considering standards for interconnection, and after the FCC proposed a simple interconnection standard, AT&T then produced a more extensive standard that the FCC adopted. My thanks to Joseph Weber for this intelligence.

² The Bell System raised a number of objections to requiring interconnection, claiming technical incompatibilities and problems. The FCC worked patiently with a National Academy of Science panel and the companies to specify that interface and establish a certification process to ensure specifications were met. The entire process, from initial entry attempts to FCC approval, took a number of years.

these competitors would build out their own facilities to these markets, but private line resale was an important transition mechanism for them. Resale of switched services was also required to provide a national service.

The ability of competitors to profitably resell private lines implies private line prices were deeply discounted, and such was the case. The primary market for private line service was and is large corporate customers with substantial focused traffic who can fully utilize (rather than share) their own lines. Bell priced private lines quite aggressively beginning in 1960 in order to respond to the competitive threat that large customers could build their own facilities (made possible by the FCC's *Above 890 MC* decision in 1959). Thus, private lines were priced low to ensure that Bell kept its large customer market; but this provided a deep discount that provided competitors the margins necessary to profitably resell shared private lines to retail customers. Under conditions of the private line tariff, Bell was enjoined from price discrimination, so they were forced to offer the same discounted price to both competitors and large customers. It was this tension that permitted the deployment of competitive networks in the late 1970s and early 1980s.

However, the Bell System still controlled the access line, or local loop, perceived as a bottleneck facility through which all long distance traffic must flow. Competitors in long distance, putatively a competitive market, had little choice but to use Bell access lines to reach their customers at either end of the call. Originally, competitors simply signed up with Bell for business lines, taking calls from customers then completing the long distance portion. This required customers to dial 16 or more digits, something of a competitive disadvantage. Even so, Bell soon refused to provide lines for long distance access, arguing that local loops were subsidized by long distance service and competitors should be required to pay the same subsidy. The FCC attempted to equalize these payments (which MCI referred to as "tribute") to enable "fair" competition; competitors continued to complain that these payments were too high, that Bell's provisioning of their access lines was too slow, and their customer still had too many digits to dial. The result was that even though the FCC mandated open competition in long distance, Bell was still able to use its market power over the local loop to handicap competitors.

Not a Success Despite efforts to introduce competition into long distance far greater than the FCC expended in CPE market, the long distance market remained largely a Bell System domain. Large corporate users were able to take advantage of competition, but medium-sized businesses to residential customers had difficulty availing themselves of cheaper rates, due to difficulties competitors encountered in obtaining access via the Bell local access network. A transactions cost view clarifies the difficulty. The integration within the Bell System between local switching and access markets and long distance markets was very tight and very deep. It had been designed from the beginning to be a tightly integrated interface based on monopoly supply of both markets. In many cases, local and tandem switches performed toll switching functions, and local switches were designed from the ground up to be integrated with a single long distance facility. Prizing open a market boundary between local and long distance telephony may have made sense economically but the existing network architecture ensured that creating a boundary at this point where competitors could interconnect involved a technically rich context with at least temporarily high transactions costs. The richness of this desired market boundary permitted a thousand ways in which a reluctant Bell System local access provider could hamper and restrict potential long distance competitors. Bell claimed that customers of competitors would have to dial extra digits and have longer switching delays than its own customers. Competitors would have to wait in order to have sufficient lines installed, since the network had not been designed with competitor accommodation in mind. Bell did not offer billing services or resale, forcing competitors to be a full-service competitor from the very beginning.

Most important, the Bell System continued to compete in the long distance market, so Bell was both a competitor to these interexchange firms and a supplier (of access) to them. It is not a surprise that Bell took advantage of its access monopoly in order to advantage its long distance operations. It was able to do so because the boundary between long distance and local is information-rich and therefore has high transactions costs, enabling opportunities for undetectable anticompetitive behavior. In contrast, the success of CPE stems from the fact that the market boundary is simple with low transactions costs and few opportunities for undetectable anticompetitive behavior.

In order to control potential anticompetitive uses of the local access monopoly in the long distance market, the FCC was forced to consider a new set of regulations, in addition to the standard price and quality regulations required under monopoly. These new regulations were designed to ensure that Bell could not use its monopoly power in local access to unduly advantage its long distance business. Since the desired market boundary was so rich, there were many opportunities for such behavior, which meant that the regulations to control that behavior had to be correspondingly rich. So rich that the FCC was not able to put in place a regulatory scheme to control all possible or even most anticompetitive practices. Paradoxically, the desire for more competition necessarily led to more regulation. Competition in part of the market (long distance) required restrictions on other parts of the market (local access) to ensure that Bell's market power could not be leveraged from one market to another. Competition it may have been, but it substantially increased the number and intrusiveness of regulation.

Antitrust and Long Distance Meanwhile, the antitrust case begun by the Department of Justice against the Bell System in 1974 was drawing to a close. The government had moved the focus of the case from concerns regarding Western Electric (the manufacturing arm of the Bell System) pricing to access and long distance issues. Bell settled the case in 1982 with a consent decree, the Modified Final Judgment (MFJ), in which Bell agreed to be broken into a long distance, manufacturing, and CPE company (still called AT&T) and seven Regional Bell Operating Companies (RBOCs). AT&T would focus on competitive markets while the RBOCs would focus on the provision of local access. The theory of the case is that divestiture would remove any incentive of the RBOCs to discriminate in favor of any long distance competitor. In fact, the RBOCs were required to undertake major investments to equip their switches to offer identical access to any long distance competitor that requested it, a project that took several years and billions of dollars to complete.

The AT&T divestiture and the subsequent monitoring of it by the Court (under Judge Harold Green) was possibly the largest policy experiment in US corporate history, eclipsing even the Standard Oil breakup of 1911. Among other things, the judgment established Judge Green's court as a shadow FCC, regulating what businesses the RBOCs could enter and under what circumstances, a story that's been told elsewhere. It suffices here to note that the process was far more intrusive and far more regulatory than had ever been envisioned by the parties or the court at the time of the MFJ. However, there is no controversy regarding the central purpose of the MFJ: it did bring very healthy competition to the long distance market. Coupled with FCC resale and non-discrimination mandates, the provision of equal access by the RBOCs to long distance competitors changed the long distance market forever. The long distance market share of AT&T remained high prior to divestiture, but with the advent of dialing parity, AT&T market share showed a sharp, steady decline to below 50%. Not only are there multiple long distance service providers, but many firms are building fiber infrastructure for lease to carriers and large firms, in both domestic and international markets.

A Success The MFJ has two types of provisions: equal access provisions and line-of-business restrictions. The first spell out exactly what access the technical and operational requirements the RBOCs had to meet to provide non-discriminatory access to all IXCs. The second limit the scope of activities the RBOCs could engage in. The equal access provisions were relatively clear, although the process of meeting them was expensive and took some time. The line-of-business restrictions created a tremendous amount of litigation, as each RBOC invented a new business it thought it ought to be in and came up with clever arguments in District Court as to why it should be granted an MFJ waiver.

In retrospect, it is clear that the telephone network could have been designed *ab initio* either for competitive access or for monopoly access, and each would have been a relatively simple market boundary. But once monopoly access was chosen, then providing competitive access involved substantial short-term transactions costs. The MFJ actually required an architectural change in the network to accommodate competitive supply; this transition was itself both costly and lengthy. Once this transition was complete, however, the market boundary, *as defined by the MFJ*, was relatively simple and with low transactions costs.

However, the most striking part of the MFJ was the divestiture of the Bell System into a long distance (and CPE) company and seven local access companies. The aim was clearly to change the incentives of the

local access companies so that they no longer favored a particular vendor of long distance. That is, not only must equal IXC access be achieved technically, the incentives must be in place for the RBOCs to *find it profitable to provide true equal access*. This was achieved by the somewhat draconian measure of splitting up the old Bell System. And the line-of-business restrictions were designed to make sure that these incentives were not blunted by expansion of an RBOC into some form of competition with other players (such as IXCs) that also required RBOC access facilities to complete their service.

There is little doubt that this strategy worked, where the FCC's attempts to introduce competition into long distance were only modestly successful. The critical differences, I conjecture, are twofold: (i) the equal access provisions required a substantial investment to create a new (low transactions cost) market boundary between local access and long distance; and (ii) the local access provider was barred from participating in the long distance market, thus ensuring each RBOC had strong incentives to provide true equal access.

From a transactions cost perspective, the MFJ required a change in network architecture in order to make the local-long distance boundary a "natural" (i.e., low transactions cost) market boundary. The MFJ also aligned incentives for the RBOCs to maintain this new natural boundary to maximize its own profits. The success of the MFJ in creating a competitive market in long distance rested on aligning incentives and creating a new low transactions cost market boundary. Neither of these options was open to the FCC prior to the court-ordered divestiture; hence its relative inability to create a competitive long distance market.

In one area, however, the MFJ only made the transactions cost problem worse, and that was in the line-of-business restrictions. The policy design of the MFJ depended critically on keeping the RBOCs out of the long distance business in order to yield the appropriate incentives for equal access. But the line-of-business restrictions became a new level of regulation. Just as the FCC had to increase the amount of regulation in its attempt to bring competition to long distance, so the Court found it had to increase regulation on permitted RBOC activities to safeguard long distance competition. Again, the desire for competition led to greater regulation in the form of line-of-business restrictions.

Why MFJ Success? After the FCC struggled for a number of years to achieve competition in long distance with little success, the MFJ court-imposed solution appeared to do the trick. What was it about the MFJ that led to its success after years of little success in the regulatory arena? I argue above that two factors were (i) the court-mandated construction of a low-transactions-cost market boundary between local and long distance; and (ii) keeping the local access provider out of the long distance market, to ensure the local access provider would have incentive to provide true equal access. This second factor was the most salient feature of the MFJ, involving the divestiture of the RBOCs from AT&T, possibly the largest court-mandated restructuring in American history. Was the vertical dis-integration of the Bell System essential to reach the policy goal? Was the simplicity of the new market boundary essential to reach the policy goal? If so, then this could provide guidance as to likely outcomes of present and future regulatory attempts to further competitive policy by creating markets.

The Telecommunications Act of 1996 This Act established a generally pro-competitive public policy position toward the telecommunications industry. Shelanski (1999) points out two crucial but underappreciated aspects of the law: all state and local barriers to competition were swept away, and intercarrier interconnection, by which every carrier is required to complete calls handed to it by any other carrier, was mandated. Both sections of the Act revolutionized the basis of competition in the industry. Far more visible were the sections of the Act that required ILECs to open up their "bottleneck" local exchange facilities for resale, so that new entrants could challenge incumbent phone companies using the ILECs own facilities. The Act directed the FCC to establish what had to be available for resale (Unbundled Network Elements, UNEs) and at what price (forward-looking TELRIC costs). As an incentive for RBOCs to open up their networks, the Act provided a "carrot" in the form of permitted entry into the long distance market, forbidden since divestiture, for RBOCs that opened their network up to competition sufficiently. Again, the FCC was directed to determine what "sufficiently open" meant. To the FCC's credit, they did not fall back on market share criteria, but rather developed a 14-point checklist to indicate the degree of openness, which became the standard against which RBOC applications for long distance entry were to be measured.

Note that RBOCs were permitted to offer retail local exchange services along with their new potential competitors. No divestiture was mandated, such as occurred with the AT&T divestiture of 1984, which could have turned the RBOCs into wholesalers of access. Rather, the RBOCs continued their retail presence but were now required to offer a wholesale market as well.

The definition of which local exchange elements would be UNEs available for resale became a complex and divisive issue before the FCC, with potential competitors arguing for almost infinite divisibility of telephone company plant and equipment, while the RBOCs argued for fairly high-level resale. Even more divisive was the issue of price, with potential competitors clamoring for low prices and (quite naturally) the RBOCs calling for higher prices. The RBOCs were successful in court challenges to the FCC's orders in moving the jurisdiction for rate setting to the states. The states became the ultimate arbiters of UNE prices in their jurisdictions, with TELRIC "guidance" from the FCC.

Although UNE rates are now available in virtually all states, the court battles continue. RBOCs challenge the cost basis of the UNE rates; the competitive carriers (CLECs) challenge their treatment at the hands of the ILECs. To respond to these challenges, the FCC and the states have had to develop an ever-growing body of regulations concerning the details of facility collocation (can CLEC installers use ILEC washrooms?), CLEC access to ILEC Operating Support Systems (OSS), judging whether or not the ILECs favor their own customers, etc.

Has it worked? Five years after the Act, CLECs currently serve 8½% of the local loops.³ Their market is predominantly businesses; few CLECs target the residential market, resulting in a residential market share around 2%. Typically, state regulatory commissions have used high business rates for local exchange as a means of subsidizing low residential local exchange rates, so the business market is likely to be more profitable for new entrants. Entry statistics bear this out. Of these 8½% local loops, about 2/3 are provided using RBOC facilities, either resale or UNEs, and 1/3 are provided using the Cloche's own facilities. Up until early 2001, CLECs generally had very easy access to capital markets, so expansion occurred significantly faster than might otherwise be expected. In fact, total CLEC investment was not far behind total ILEC investment during the late 1990s, even though the ILEC segment is 10-20 times the size of the CLEC segment. Recent capital market developments suggest that CLECs are likely to experience much more constrained access to capital for business expansion in the near future.

One might speculate that after five years of implementing the Act, 8½% penetration is relatively small, especially as most of that penetration occurred during a period of unusual capital market enthusiasm for the new entrants. On the other hand, 8% of local loops is a great deal of telephone service in the world's largest telephone market, and penetration has been growing. However, changes in the capital markets suggest that this growth is unlikely to continue, at least in the near term. On balance, it would not appear that the Act has been a great success in bringing competition to the local exchange market via local loop unbundling.^{4,5}

In brief, Congress and the FCC acted to insert a market boundary deep within the RBOC local exchange networks, at the heart of their operations. This market boundary involved extremely rich information flows across it, resulting in very high transaction costs. In order to ensure equality of treatment of CLECs, a highly detailed regulatory scheme has flourished, complete with extensive reporting and monitoring requirements. As with all regulatory schemes, this also facilitates extensive complaint procedures and appeals as market participants tested the FCC and the courts' willingness to enforce the new regulations. It is the complexity of the market boundary which forces a complex regulatory regime to manage that market, and uncertainty and vagueness that encourages the legal and political gaming that results in very high political transactions cost. Thus, I hypothesize that the lack of a clean, simple market boundary that leads

³ *Local Telephone Competition: Status as of December 31, 2000*, Industry Analysis Division, Common Carrier Bureau, FCC, May 2001, at http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/lcom0501.pdf.

⁴ More optimistic analysts suggest that early growth was slow because of legal and regulatory uncertainty, much of which is now resolved; subsequent growth should be more vigorous.

⁵ Below we compare the speed of deployment of equal access after divestiture with the speed of deployment of local competition after the Act.

to a robust wholesale market is a significant factor in the relative lack of success of this attempt to introduce competition into local exchange.

Additionally, the Act permitted the RBOCs to continue to operate in the retail local exchange market, so they compete with CLECs in the retail market, which CLECs are their customers in the wholesale market for UNEs. As a general rule, a retail sale lost to a CLEC is not made up by the margins on UNE sales to that CLEC and in the traditional local exchange market, the RBOCs have little reason to cater to the needs of the CLECs.⁶ Thus, I hypothesize that the failure to keep the RBOCs out of retail local exchange markets is also a significant factor in the relative lack of success of this attempt to introduce competition into local exchange.

A Natural Experiment: when is long distance not long distance? Of the three hypotheses of this paper, the most controversial is that the introduction of competition is unlikely to be successful if the residual monopolist is permitted to operate in the competitive market.⁷ Is there any evidence that the presence or absence of the residual monopolist makes a difference in the success or failure of competition?

As it turns out, the market for *intrastate* long distance service after divestiture constitutes an unappreciated natural experiment of precisely this hypothesis. Recall that the divestiture required the separation of the old Bell System into AT&T, the long distance carrier and CPE provider, operating in potentially competitive markets, and the seven Regional Bell Operating Companies (RBOCs) that were restricted to telephone operations within Local Access and Transport Areas (LATA) boundaries, defined by the MFJ. All interLATA telephone calls were to be carried by interexchange carriers (IXCs), such as AT&T, MCI and Sprint. IntraLATA traffic, local and toll, could be carried by the RBOCs. All traffic between LATAs (interLATA traffic) had to be handed off to an IXC.

The FCC opened the interstate market (the only portion over which it had jurisdiction) to competition prior to divestiture, and the provision of equal access and dialing parity under the MFJ eventually ensured that this interstate market was indeed competitive. The RBOCs began converting their switches to provide equal access in 1985; most lines (including those of independent telephone companies) were converted to equal access by 1990. In this context, “equal access” means that each customer presubscribes to an IXC; when that customer dials 1+ a telephone number, the ILEC hands the phone call off to the presubscribed IXC. This was not the only possible method of allowing customer choice: during the pre-divestiture period in which the FCC was encouraging competition, customers of competitors had to either dial a separate telephone number to reach their IXC or they had to dial 10XX (or later 10-10-XXX) to reach their IXC, known as “dial-around.”⁸ There was general agreement among regulators, the Department of Justice (which brought the antitrust suit that broke up the Bell System) and the court which supervised the MFJ that presubscription 1+ competition was the only form that imposed the minimum transactions cost on the customer, and was thus the desired form of competition.

The full rollout of equal access by the ILECs took over five years. This might seem somewhat long, but the size and scope of the US telephone network is quite extensive and the job to be done similarly extensive. However, once a Central Office switch was converted to equal access for interLATA traffic, it then had the capability to provide equal access for *all* long distance traffic. Not just interstate interLATA traffic, but intrastate interLATA traffic (such as a call from Philadelphia to Pittsburgh, which were located in different LATAs but the same state) and intrastate intraLATA traffic (such as a call from Philadelphia to Allentown, PA, both located in the Philadelphia LATA): the traffic seemingly reserved for the RBOCs by

⁶ There are a number of interesting instances in which CLECs offer services that are far richer than either RBOCs or other CLECs offer, serving a lucrative market niche relatively untouched by traditional providers. Some RBOCs have recognized this opportunity and have encouraged such entrants. While encouraging from a competitive standpoint, these instances appear to be the exception and not the rule.

⁷ Recall that only in the case of CPE deregulation was this successful, and then only, it is hypothesized, because the market boundary was particularly simple with low transactions cost.

⁸ This method is still in use today, with discount long distance companies aggressively marketing dial-around services for the price-sensitive.

the MFJ. From an operational and technical perspective, the capability of providing equal access dialing parity applied to *all* long distance traffic, regardless of jurisdiction.⁹

InterLATA intrastate long distance was under the jurisdiction of state regulators, who could choose whether or not to permit entry into this market.¹⁰ Of course, it was not a market in which the RBOCs were permitted to compete, but at least initially some states maintained the AT&T monopoly on interLATA intrastate long distance. Additionally, the intrastate intraLATA long distance market was also under the jurisdiction of state regulators. In this market, the MFJ permitted RBOCs to carry long distance traffic.

In fact, many states regulators forbade entry by IXC into intraLATA intrastate toll, presumably so that this service could continue to provide internal subsidies for local exchange service. Of course, subsidies from toll to local were continued after divestiture through the use of carrier access charges, which the FCC mandated for interstate traffic and states mandated for intrastate interLATA traffic. Carrier access charges are fees that IXCs pay to ILECs for carrying the local portion of their long distance call. It is generally agreed that at least initially, these access charges included subsidies designed to keep local rates low. However, RBOCs clearly preferred to keep the high-margin intraLATA toll business to itself, rather than attempt to capture these rents through regulated access charges.¹¹

Operationally, how were these rather arcane jurisdictional issues handled by the RBOCs? When a customer dialed 1+ a telephone number, the RBOC switch determined the destination. If it were interstate, then the RBOC was *required* by the MFJ as implemented to hand the call off to the customer's presubscribed IXC. If the call destination were intrastate, then the RBOC *in theory* should hand the call off to the IXC that had the legal monopoly on intrastate interLATA long distance. For example, if the customer in Pennsylvania presubscribed to MCI but AT&T held the legal monopoly on such traffic, then the RBOC should have handed the call to AT&T, not MCI. Of course, it mattered little to the RBOC who completed the call; in practice, these calls were handed off to the customer's presubscribed IXC. The state regulators were in a position to insist that the RBOCs honor the franchise long distance monopoly; or they could simply permit competition in their intrastate interLATA market.

A different story ensued for customers that dialed 1+ a telephone number that was within the LATA; the RBOCs then "stripped" the call from the IXC and completed the call itself, charging the customer for it. The justification was that the RBOC had the legal monopoly to handle intrastate intraLATA calls, so it was within its rights to carry the call and realize the rewards, rather than hand the call off to the customer's IXC. Of course, this rationale would suggest that the RBOCs should have handed all intrastate interLATA calls off to the state-franchised monopoly IXC, but the RBOCs had no direct interest in doing so.

The difference? In the intrastate interLATA long distance market, the RBOCs couldn't operate under the terms of the MFJ. In the intrastate intraLATA long distance market, the RBOCs were permitted to operate. My hypothesis would suggest that they would accept competition easily in the first market and fight it vigorously in the second market. How would the RBOCs fight competition? As in all regulated industries, the fight is before the regulatory commission. My hypothesis suggests that a determined RBOC would use

⁹ Was the provision of 1+ access more difficult for intraLATA traffic than for interLATA?

In a personal communication (August 16, 2001) Joseph Weber, author of the technical section of the original MFJ during his tenure at AT&T, stated "... of course intraLATA presubscription could have been implemented concurrently with interLATA, or any time thereafter. In fact, the technical development of presubscription started in 1982, and the implementation took as long as it did because electromechanical switches needed to be replaced. Once that happened, implementation was a piece of cake for any presubscription."

¹⁰ The divestiture itself required only that the RBOCs not carry interLATA traffic. It did not require that interLATA traffic be open to competition; this was a decision left to the relevant regulatory authority: the FCC for interstate traffic (already open to competition) and state regulators for intrastate traffic.

¹¹ Recall that the Bell System did not volunteer to break itself up, even though it was aware that profit flows from long distance to local via regulated access flows would continue. It clearly preferred that these profit flows be internal and not subject to intense regulatory scrutiny. It did, though, voluntarily accept the breakup as a condition of settlement of the antitrust case; it was not forced upon it by Judge Greene.

whatever influence it had to block intraLATA competition at the state level, while it would acquiesce easily to interLATA competition at the state level.

The empirical implication of my hypothesis (assuming that RBOCs are at least moderately effective in arguing their cases before regulatory commissions) is that intrastate interLATA presubscription 1+ competition would be permitted by states simultaneously with equal access or very shortly thereafter. But that intrastate intraLATA presubscription 1+ competition lag considerably, as RBOCs fought against it.

To test this hypothesis, I examined (i) the proportion of lines converted to equal access, 1985-1996;¹² (ii) the proportion of lines in states which had mandated interstate interLATA presubscription competition, 1985-1996; and (iii) the proportion of lines in states which had mandated intrastate intraLATA presubscription competition, 1985-1996.¹³ This last date corresponds to the passage of the Telecommunications Act, which expressly forbade state and local barriers to competition, forcing the RBOCs to accept competition in the intraLATA market (with a lag).

Virtually every state regulatory commission reports that presubscription 1+ competition was either simultaneous with equal access or followed very shortly. In some cases, the issue was apparently not even acted upon; the commission accepted that the ILEC would simply hand off 1+ interLATA calls to the customer's IXC. This is consistent with our hypothesis.

State implementation of intraLATA competition with presubscription 1+ is quite a different story. Figure 1 shows the fraction of total lines for which equal access was available, and the fraction of total lines for which intraLATA presubscription competition was available, 1985-1996.¹⁴

¹² "Distribution of Equal Access Lines and Presubscribed Lines," James Eisner and Katie Rangos, Industry Analysis Division, Common Carrier Bureau, Federal Communications Commission, November, 1997.

¹³ NARUC Annual Report on Utility and Carrier Regulation (1983-1990) and NARUC Compilation of Utility Regulatory Policy (1992-1996). See also *Second Report and Order*, FCC 96-333, fn. 31, and *Order FCC 99-54*, para. 6 and fns 20 and 21. The NARUC data is inconsistently reported, and I supplemented it with telephone calls to particular state commissions; I thank the analysts at these commissions for their cooperation.

¹⁴ As indicated in footnote 13, the data on dates at which state regulators approved intraLATA presubscription competition is somewhat unreliable. I have erred on the side of including more lines available for intraLATA competition in questionable cases.

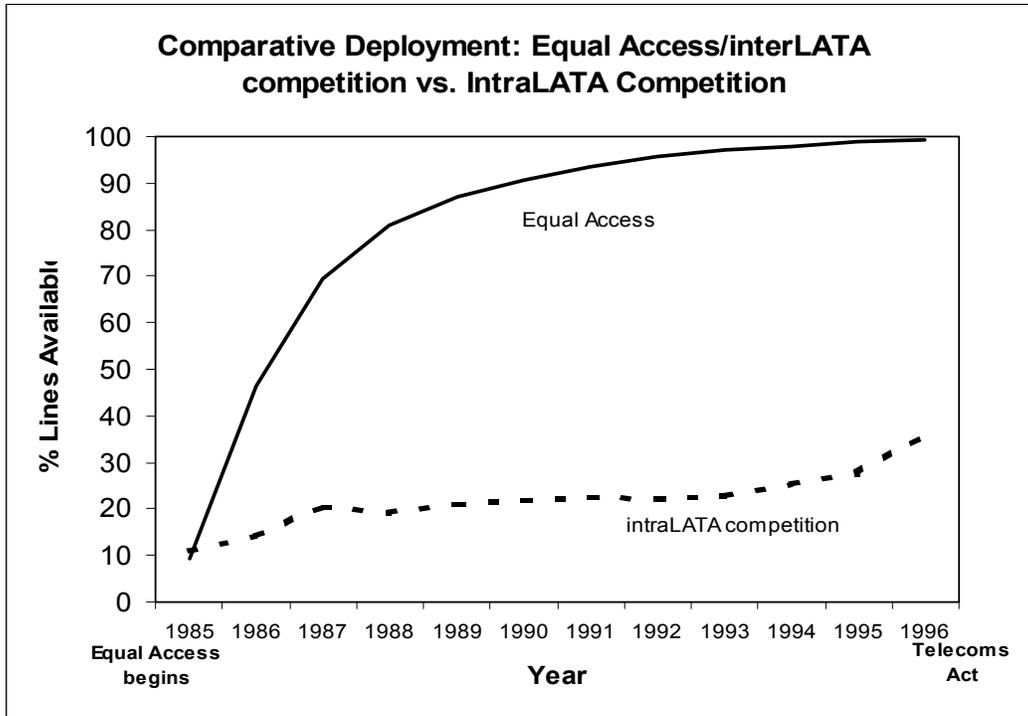


Figure 1

By 1990, over 90% of lines were equipped for equal access, including not only RBOC lines but independent telephone company lines as well. By 1996, this number was over 99%. In contrast, intraLATA competition was available over about 32% of the nation's lines by 1996, when the Telecommunications Act was passed, forbidding all state and local barriers to entry. Even though this was the law of the land, there were still eleven states that had not implemented presubscription competition by February 8, 1999.¹⁵

Could operational or technical differences explain the immediate uptake of interLATA competition and the long delays in intraLATA competition? Recall that once equal access was in place, all long distance calls, interLATA and intraLATA, looked identical to the switches and presubscription competition for one type of traffic is operationally identical to any other type of traffic. Operational differences in handling traffic of different jurisdictions cannot be an explanation for the differences in implementation of competition (see footnote 9).

Could the lack of a clear mandate from the court or from local regulatory commissions to implement intraLATA 1+ presubscription caused this quite sluggish response? In fact, some states did mandate competition; the RBOCs initially sought to comply with these mandates via 10XX "dial-around" access, much as the old Bell System had sought compliance with the FCC's mandate for interstate competition via 10XX "dial-around". In other states, the RBOCs were successful in convincing their state regulators that their continued monopoly in intraLATA markets was a good thing, and competition should not be mandated. But the clearest mandate of all was the Telecommunications Act of 1996 that prohibited restrictions on competition; yet as noted above, even with this unequivocal mandate, eleven states were still not in compliance three years after the Act.

The data thus support the hypothesis. In the intraLATA markets, in which RBOCs were permitted to compete, they were extremely effective at delaying the entry of competitors, even after the

¹⁵ Order FCC 99-54, fn. 21.

Telecommunications Act made such restrictions illegal. In the interLATA markets, in which RBOCs were not permitted to compete, competition was implemented almost as soon as equal access became available.

Lessons for Local Loop Unbundling Under the provisions of the Telecommunications Act of 1996, RBOCs were required to make their local loops available for resale by potential competitors (CLECs, or Competitive Local Exchange Carriers). Originally, the FCC was to determine the terms and conditions under which pieces of the local loop and various complementary goods would be made available to CLECs. This responsibility was relegated to state regulators, who act with FCC guidance. The RBOCs were permitted to offer local exchange services in competition with the CLECs; the new market boundary was within the local loop.

The analysis of this paper suggests that this approach will not be successful. The extensive regulatory proceedings and court challenges of the outcomes has demonstrated that the market boundary Congress sought to define in the Telecommunications Act is anything but simple, involving such complex transactions cost as to be virtually unregulable. Worse, the RBOCs are permitted to operate both on the monopoly and the competitive sides of the market, ensuring their incentives are to sabotage competition.

This is not to say that competition using local loop unbundling is hopeless. After all, CLECs have captured 8.5% of the local loop market as of December 2000.¹⁶ But the CLECs in aggregate were focused on the business market, long viewed as a source of high-margin business the ILECs and regulators used to subsidize residential service. It is therefore no surprise that 59% of CLEC lines were for large business, compared to 21% of ILEC lines for large business.¹⁷ CLEC penetration is highest in states such as New York with a high concentration of large business line. It appears that the continuing subsidy from business to residence demanded by regulators presents arbitrage opportunities of which CLECs are taking full advantage. Whether this market will continue to exist as rates are rebalanced toward cost is uncertain.

The provisions for resale and local loop unbundling in the Telecommunications Act were intended to perform the same role for local competition as private line resale did for long distance competition in the late 1970s and early 1980s. Resale and unbundling were to enable new entrants to get a start in the market, followed by a buildout of their own facilities. Resale was a stepping stone to full-blown facilities-based competition. Has this happened in the local exchange market? About a third of CLEC lines are directly provided by the CLEC,¹⁸ not surprising in light of the amount of capital available through mid-2000 to CLECs. But even with easy capital available, two-thirds of CLEC lines were leased from ILECs in one form or another. It is unclear whether CLECs can continue this conversion to their own facilities in the current capital market climate. However, it would appear that modest progress has been made in converting to facilities-based competition.

At the time of the MFJ, AT&T's market share was over 96%, a number which roughly indicates the relative failure of the FCC's prior efforts to introduce competition into long distance. Five years after equal access was mandated, the market share of AT&T had dropped to 51%. Five years after the Telecommunications Act, the RBOCs collective share of the local loop market still stands at 91.5%. Of course, market share data is only suggestive of the state of competition in markets, but share data does suggest that the experiment with local loop unbundling as a mechanism to jump-start local competition has not been a great success. And the hypothesis of this paper suggests why: introducing a complex market interface in which the residual monopolist is permitted to operate in the competitive market has had an unbroken record of failure in telecommunications, and present trends suggest this phase of the experiment will keep that record unbroken.

Is There Hope, Doctor? Faced with sluggish growth in CLEC competition, some state regulatory commissions have considered (or are considering) a solution along the lines suggested above: splitting

¹⁶ Table 1, *Local Telephone Competition: Status as of December, 2000* Industry Analysis Division, Common Carrier Bureau, Federal Communications Commission, May 2001 at http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/lcom0501.pdf.

¹⁷ *Ibid*, Table 2.

¹⁸ *Ibid*, Table 3.

RBOCs into one entity that owns and maintains the local loops, but sells no services to end customers (the “Loopco”), and the rest of the firm, which would lease lines from Loopco and sell retail services such as local and long distance access. In the more aggressive version, an actual divestiture would occur, just as in the 1984 breakup of the old Bell System. The Loopco would have no incentive to discriminate in favor of either the incumbent or a competitive local exchange carrier; it would make its money by wholesaling loops. This would eliminate the incentives for bias in local exchange service, just as the original divestiture successfully removed incentives for bias in long distance service.¹⁹ A less aggressive version involves maintaining RBOC ownership of the Loopco, but as a separate subsidiary with arm’s length dealings with all parties including its owner, a plan recently adopted, for example, in Pennsylvania.^{20,21} It is not clear that a separate subsidiary requirement creates a strong enough disincentive for bias as divestiture; experience with separate subsidiaries in telecommunications has not demonstrated their efficacy for this purpose.

Even with a full divestiture, the hope that competition would arrive in the local loop market on the wings of unbundling seems optimistic in the extreme. This is a highly mature market and a highly mature technology, in which entrant’s costs are unlikely to differ much from incumbents, at least in the short run. If there are scale economies in the production of local access services, then in fact entrants would be disadvantaged relative to incumbents. Opportunities for arbitraging non-cost-based rate structures are present; we can expect to, and do, see CLEC entry where rates are kept high. There are, to be sure, CLECs that have developed new business models, but in the mature voice market there is little left to invent. There is little market interest in new firms providing exactly what the old firm provides for perhaps a few cents less. Perhaps if a full divestiture of the Loopco had occurred in 1984 with the original breakup, or even in 1996 as part of the Telecommunications Act, local competition may well have developed more fully. But it is unlikely in my view that a stand-alone local exchange voice business will attract strong and vibrant entrants, as customers look forward to various broadband and content-rich alternatives becoming available.

If Not CLECs, Then Who? In the broader economy, successful entry in such mature markets usually occurs with a new business model and often a new technology. Such “category killers” break the mold of incumbents, bringing new features and functions to customers, perhaps from related markets. Fortunately, there are several likely candidates for “category killers” in telephony. None of these technologies is currently challenging wireline voice telephony very seriously, but each could so challenge, provided certain barriers are cleared away.

Wireless telephony The growth of cellular telephone service in the US has been quite strong, though not quite as strong as in other countries. Nevertheless, wireless has achieved a 39% penetration²² and appears to be growing quite quickly. Cellular telephones are very obvious substitutes for wireline telephones, although currently, about 3% of wireless users do not have a wireline phone, apparently using their wireless phone as their main communication device.

Cable telephony Cable TV reaches about 70% of US households and passes more than 92% of households. Recent upgrades of cable systems to digital have paved the way for two-way systems such as cable modem services and cable telephony. Currently, relatively few cable systems are committed to providing telephony now; however, it is generally conceded that the cost of adding on telephony to an existing cable system are quite low compared to wireline telephony.

¹⁹ In fact, some have suggested that the original divestiture should have created “Loopcos” rather than the present RBOCs, thereby eliminating the need for this section of the Telecommunications Act.

²⁰ See “Pa. Rejects Verizon Breakup Plan; In Bid to Boost Local Phone Rivalry, Panel Requires Firm to Set Up Unit,” *Washington Post*, March 23, 2001, p. E03.

²¹ This is also the thrust of legislation introduced in the Senate during the 107th Congress: S.1364 *Telecommunications Fair Competition Enforcement Act of 2001*., requiring RBOCs to maintain a separate retail subsidiary. See full text (as of August 3, 2001) at <http://thomas.loc.gov/cgi-bin/query/C?c107:./temp/~c107cHtBNQ>

²² *Sixth Annual Report on the state of competition in the wireless industry*, Wireless Telecommunications Bureau, Federal Communications Commission, adopted June 21, 2001.

Voice over IP This service (VoIP) is not an infrastructure itself (such as wireless and cable), but rather a form of voice carriage using packet switching. The term covers the use of packet switching in traditional telephone plant all the way to voice over the Internet. All forms share two salient features: (i) the use of IP cuts costs substantially over traditional circuit-switched telephony; and (ii) IP telephony is classified by the FCC as an “enhanced data service”, and so is free of the Title II regulation of traditional telephony. VoIP is currently implemented in various forms with limited use; it has yet to roll out as a mass-market product ready for the average telephone consumer. Note that while wireless and cable both involve an infrastructure that is competitive with traditional telephony, VoIP is an application, which could ride on any of several infrastructures, including telephone lines, cable, or various forms of wireless.

Wireless is positioned in the market as a premium product that delivers mobility as well as connectivity, and is still somewhat more expensive for customers than wireline. However, customers’ monthly bills for wireless and wireline are reportedly converging, so their substitutability may increase substantially in the medium term, especially as this market appears to be competitive. However, before a mass migration from wireline to wireless can occur, substantially more bandwidth must be made available for wireless use, or else there will not be sufficient capacity to handle the call volumes associated with the usage we see today from wireline phones. In addition, more bandwidth may be needed to bring the quality of wireless calls up to that of wireline calls. According to the CTIA, the cellular industry’s trade association, wireless minutes of use in 1999 was about 8% of total wireline minutes of use. Even allowing for substantial excess spectrum capacity in many US markets, this suggests that the wireless industry is likely to need five to ten times the amount of spectrum currently available to it, in order to be a viable competitor to wireline.

Action Item for Policymakers: to ensure that wireless can serve as a competitive substitute for wireline, increase the amount of spectrum available to wireless by at least an order of magnitude. It is unlikely that the current method of administrative allocation of spectrum by the FCC will be able to deliver 5-10 times the currently available spectrum in a timely fashion. This suggests a more fundamental change in the way spectrum is allocated, using a property rights-market based approach to ensure that spectrum moves quickly to its highest valued use.²³

The cable industry is enjoying great success at this time. Most systems have completed their costly transition to digital and are rapidly deploying high speed Internet access using cable modems, in a market in which they enjoy a very comfortable lead over their only competitor, DSL. They have many possibilities open to them, including video on demand as well as cable telephony. In fact, it is this very abundance of opportunities that militate against a rapid rollout of cable telephony: there are too many things to do that are closer to cable’s core business. However, cable telephony has two attractive features for cable companies: (i) the incremental cost of cable telephony is reported to be significantly less than current telephone rates; and (ii) should telephone companies make significant inroads in the broadband market with DSL, cable telephony could be an important strategic competitive move for cable firms.

On the other hand, there are two rather unattractive features: (i) cable firms are now very lightly regulated, and may fear that introducing telephony may subject them to the full brunt of Title II regulation; (ii) cable firms are almost all *de facto* local monopolies. Although the Telecommunications Act of 1996 removed state and local restrictions to entry into telecommunications markets, this has had little effect in practice. Local authorities still erect substantial barriers to entry to “overbuilders,” entrants that promise to lay competing cable.²⁴ This lack of competition is likely to keep cable telephony on the back burner until monopoly cable firms feel they are ready to offer it, rather than when the market pushes them to offer it.

²³ The idea that spectrum should be allocated by markets (like just about everything else in the US economy) rather than government fiat is an old one, at least among economists. See Ronald Coase, “The Federal Communications Commission,” *2 J. L. & ECON.* (1959), 1. The fact that even a small portion of the spectrum is now allocated via auction (wireless) was a large victory for economic thinking; however, this “allocation” does not involve a transfer of property rights, nor can this spectrum be bought and sold.

²⁴ See, for example, “Saidel slams shunning of RCN by Philadelphia,” *Philadelphia Business Journal*, February 16, 2001, at <<http://philadelphia.bcentral.com/philadelphia/stories/2001/02/19/tidbits.html>> describing the two year delays of RCN’s application for a license to build a fiber optic network at the hands

Action Items for Policymakers The FCC needs to clarify its position on the regulation (or lack thereof) of cable telephony, to remove any uncertainty of cable providers that introducing this service will increase regulatory oversight of this industry. Additionally, Congress needs to clarify the Telecommunications Act stipulations barring state and local barriers to entry; they do not appear to be working effectively when localities can “hold up” new cable entrants and stifle competition.

Voice over IP does not require a new infrastructure; it can be implemented in many ways, including Internet connections both fast and slow. As the product improves and bandwidth to customers’ homes increases, the product is likely to become a viable option to wireline telephone.²⁵ This service currently escapes regulation as the FCC considers it as an “enhanced service,” or “information service”. However, should VoIP become a serious competitor to wireline telephony, VoIP’s status as unregulated would certainly be challenged by wireline providers. If both services were highly substitutable, wireline firms are likely to demand a “level playing field,” in which the same rules apply to both traditional wireline service and VoIP.

Action Item for Policymakers Clarify the regulatory status of VoIP now, before the issue becomes politically salient.

Can we expect more competition in telephony? Yes, but it is unlikely to come from entrants seeking to replicate existing service offerings, either through local loop unbundling or building out their own voice facilities. Competition is much more likely to come through new technology that offers features and functions not currently available through wireline systems, at a price designed to move product. Can policymakers do anything to help? Yes; reduce uncertainty for new entrants by clarifying regulatory rules regarding these new technologies, and clear out the regulatory underbrush that could stifle competition, such as limited wireless bandwidth and restrictive local practices for cable competition approvals.

of the Philadelphia City Council, alleged to be motivated by a desire to protect Comcast, the local cable provider

²⁵ Currently, AOL offers voice over IP via its Instant Messenger product, AIM 4.3, available at <<http://www.aol.com/aim/aim40.html>>.