The Twisted Pair

Regulation and Competition in Telecommunications

Roger G. Noll

FOR 20 YEARS the federal government has been rewriting the laws and regulations governing the telecommunications industry, acting largely in response to an explosion of new technologies for managing information. The regulatory regime that prevailed until the 1960s rested on the premise that telecommunications was a natural monopoly: one, and only one, twisted pair of wires and one national interconnection network could supply service to each household and business phone. Federal agencies, Congress, and the courts have gradually replaced that regime with policies that encourage the development of a competitive, unregulated industry. Initially the plan was to separate telecommunications markets into two categories, regulated monopoly and unregulated competition, relying on technology to define the boundaries. But the line-drawing exercise proved futile. By 1980 the forces of regulation were in full retreat across the spectrum of activities under federal jurisdiction. Even in local service, where state-regulated monopoly still thrives, procompetitive federal policies have steadily expanded the domain of activities exposed to competition.

The future of this grand experiment with competition remains uncertain, but two events in 1987 helped solidify the progress to date. One was a proposal by the Federal Communications Commission (FCC) to replace rate-of-return regulation of AT&T with "price-cap" regulation. The other was a decision by Federal District Court Judge Harold Greene (issued on September 10, 1987) to reaffirm the 1982 settlement of *U.S.* v. *AT&T* (the Modification of Final Judgment, or MFJ), which had led to the divestiture of AT&T in 1984. In Judge Greene's words:

> An understanding is beginning to emerge that these temporary dislocations (owing to divestiture) are a necessary price for what the newly competitive marketplace can achieve.

The legacy of the parallel revolutions in telecommunications policy and technology is yet to unfold. The industry could regress toward reintegration and reregulation, with relatively little left unregulated and competitive. Alternatively, regulated local service monopolies could coexist with unregulated competition in most everything else. Or unregulated competition could expand to embrace all aspects of telecommunications. The ultimate structure and performance of the telecommunications industry will depend on developments in both technology and regulation over the coming decade.

The institutional regime created by the FCC and Judge Greene immediately after divestiture seems to favor the coexistence option. Two residual pockets of perceived market power

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continue to be regulated: long-distance service from AT&T, and basic exchange service from local operating companies. Entry is largely unregulated for everything except basic exchange service. The major disagreement between Judge Greene and the FCC is over whether local telephone monopolies should be granted the right to compete in unregulated markets. This disagreement reveals a fundamental weakness of coexistence as a strategy.

The attraction of coexistence for federal officials is that it enables them to avoid conflict with state regulators. Although some states have permitted a degree of competition, they generally have opposed divestiture and deregulation and have worked hard to preserve locally franchised monopolies. Unfortunately the attempt to minimize interjurisdictional conflict is probably futile in the long run, and may hamper industry performance in the not-too-distant future.

The main message of this essay is that federal policy makers need to be significantly more aggressive in expanding the domain of competition inside the local telephone exchange, working toward a long-term goal of deregulating as much of the industry as possible. The war against cumbersome regulated monopoly in telecommunications is not over; the next battle will be to free customers from reliance on franchised monopolies for connection to the national telecommunications network and the array of services it can offer.

The Modification of Final Judgment

There are three essential features of the 1982 settlement, or MFJ. First, the divested Bell Operating Companies (BOCs) were prohibited from entering most competitive telecommunications markets, including long-distance service, equipment manufacturing, and information services. But they were given access to three potentially competitive lines of business: cellular radio for mobile telephones, equipment retail, and business directories ("Yellow Pages"). Second, the boundary between local and long-distance service was drawn favorably for the BOCs by the creation of 160 "Local Access and Transport Areas" (LATAs). Within each LATA, local telephone companies are permitted to provide long-distance service, and state regulators have the authority to decide whether competition will be permitted. Because LATAs are large—some cover entire states—long-distance service within LATAs accounts for about 25 percent of all long-distance revenues. Virtually all such service remains monopolized by the BOCs. Third, the BOCs were required to provide "equal access" to all interstate long-distance companies within a few years after the divestiture. In nearly all urban areas the technical means of connecting customers to their long-distance carriers will be approximately the same for all carriers; AT&T's technical advantage will have been eliminated.

The MFJ Revisited

Judge Greene's recent ruling reaffirms the basic decisions of the MFJ. The BOCs urged the court to eliminate all line-of-business restrictions. Their arguments were essentially the same as AT&T's defense in the antitrust case just five years earlier: an integrated telecommunications network can exploit substantial economies of scale and technological possibilities that are sacrificed by the artificial separation of the local exchange from the rest of the industry. AT&T disagreed, adopting essentially the same position it had opposed earlier. AT&T argued that the BOCs, as regulated monopolies in local exchange service, had the motive and the opportunity to engage in anticompetitive behavior in competitive markets, and that state and federal regulators were helpless to prevent it.

Ironically the Department of Justice also largely reversed its position. Justice, along with other cognizant federal agencies, contended that changes in technology and regulatory procedures made the FCC capable of regulating the industry in a way that protected against competitive abuses. Justice was unconcerned with the possibility that the BOCs might cross-subsidize competitive services in order to retain economically unwarranted market shares. It maintained that such behavior would actually lower prices in the markets under its purview and that it was the state regulator's job to prevent prices from rising in regulated markets to subsidize losses in competitive markets. Following this logic, Justice initially proposed that each BOC be permitted into all businesses except interLATA long-distance service within its regional service area. It subsequently amended its position, recommending the continuation of restrictions on the entry of the BOCs into all long-distance; it continued to favor BOC entry into equipment manufactur-

ing and information services.

Behind the Justice Department's current view is the Reagan Administration's commitment to federalism. Devolving responsibility to the states—even if that means expanding the role of economic regulation—is a major tenet of this administration. In telecommunications this has implied a division of regulatory responsibility. The federal government regulates interstate telecommunications (including customer equipment used for interstate services) and anything that uses the electromagnetic spectrum. The states regulate services that operate solely within their boundaries. Technically and economically, this jurisdictional separation is artificial; even in a competitive world it would be very costly to maintain completely separate facilities for providing national and local services. Indeed, much of the inefficiency created by regulation results from the elaborate accounting and regulatory processes invented to implement jurisdictional separations. It is expensive nonsense to pursue greater devolution in telecommunications regulation as the technology of national and local services becomes increasingly complex and integrated.

Judge Greene rejected the arguments of the BOCs and the Justice Department. He found no evidence that conditions in the industry had changed sufficiently to abandon the vertical separation of local exchange companies from most other elements of the industry. The single important exception was the infrastructure for information services (but not the services themselves); the court plans to hold hearings on precisely how to let the BOCs enter these businesses. The thrust of Judge Greene's decision is that reintegration of telecommunications firms should be prevented as long as local exchange companies have a monopoly in local service. Since Judge Greene has stated repeatedly that these monopolies are natural, it is reasonable to conclude that he foresees no change in line-of-business restrictions for many years to come.

A Cap for AT&T

While Judge Greene has been restructuring the industry, the FCC has been retreating from regulating AT&T. This began in the late 1970s when the FCC seemed to deregulate whenever it believed competition was sufficiently robust that it undermined AT&T's market power. Today the FCC deregulates as fast as it can without causing a proregulatory backlash in Congress. Political feasibility now appears to be the binding constraint.

The FCC's price-cap proposal is the logical last step before complete deregulation (although the commission's preliminary notice only hints that this is so). The basic idea behind the proposal is to let AT&T do anything it wants—and earn whatever profits it can—as long as it does not raise prices for ordinary message toll telephone service above a predetermined level. Under one version of the price cap, known as "CPI minus two," AT&T's long-distance prices could not increase faster than the annual increase in the Consumer Price Index less 2 percent.

A price cap makes sense as a temporary policy. About the same time the new pricing rules go into effect (probably in 1989 or 1990), long-distance companies will have equal access to virtually all local exchanges. A true test of the viability of competition in long-distance will be possible. Price-cap regulation is a sensible policy to have in place during this test. It gives AT&T considerable flexibility in pricing, while it protects consumers against a failure of competition by requiring that AT&T maintain price performance no worse than when it was a regulated monopoly. If competition in technology, service, and price improve the performance of both AT&T and the industry as a whole, the price cap will not be a binding constraint, and the FCC will have a convincing rationale for abandoning price regulation altogether.

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The FCC proposal makes far less sense as a long-term policy since it is not altogether different from rate-of-return regulation as practiced over the years by the FCC. If AT&T were unable to earn its cost of capital under a price cap, the FCC probably would be legally required to grant a price increase. Likewise, if AT&T's profits soared, the political pressure on the FCC to tighten the cap would be irresistible. It is troubling therefore that the FCC proposal contains a

long discussion about how to adjust the pricing formula should the need arise, which is relevant only if the price-cap approach endures.

The price cap does have one redeeming feature as a permanent policy: it gives AT&T a strong incentive to reduce costs between reviews of the cap and generally to exercise pricing restraint for fear of invoking tighter regulation. The price cap can be thought of as a means of institutionalizing "regulatory-lag" in traditional rate-of-return regulation.

Accommodating the States

Both the MFJ and federal regulations leave the states considerable discretion to decide the future of local telephone service. State regulators are directly responsible for the basic monthly charge for local service, the installation charge for new service, and the price of pay telephone calls. These are the only prices that are uniform across a large number of customers and changes in them are highly visible and newsworthy.

Unfortunately deregulation fever has yet to break out in most state regulatory agencies. State regulators like to keep the prices they regulate low, particularly the highly visible, politically salient monthly charge for residential service. To accomplish this, they typically support residual pricing and restricted entry. Residual pricing extracts as much revenue as possible from low-visibility services in order to minimize the charges on basic residential service. Essentially, it aligns a company's pricing structure according to the regulators' political priorities. Residual pricing is facilitated by broadly drawn barriers to entry that insulate the overpriced services from the pressures of competition.

Clearly state and federal policies are inconsistent and potentially in conflict. The FCC and Judge Greene have the technical and legal means to effect procompetitive policies which would seriously threaten anticompetitive state policies. They could, for example, authorize private microwave links, radio telephones, and cable television to compete head-on with local telephone companies. But federal policy appears to be moving in a different direction altogether, toward an accommodation with the states. The FCC deregulates much of the industry, while preserving for the states substantial discretion. Federal policy encourages competition in terminal equipment, long-distance, and services for large-scale telecommunication users, for example, but not in the use of new technologies for basic local telephone service.

Hobson's Choice

How the accommodation between federal and state policy makers affects industry performance will depend primarily on whether Judge Greene relaxes the line-of-business restrictions when he next reviews them. If the line-of-business restrictions are removed, the BOCs will face essentially the same regulatory environment that AT&T faced in the early 1970s. A likely consequence would be that the BOCs enter equipment manufacturing and long-distance interconnection services to reestablish the vertically integrated structure AT&T enjoyed before divestiture. If one generally accepts the economic theory of the AT&T antitrust case, this would bring the same danger of anticompetitive practices that gave rise to divestiture in the first place, which is why Judge Greene has generally refused to let the BOCs enter most competitive markets.

If the line-of-business restrictions are not removed, the BOCs will be confined to a market that consists primarily of the slowest-growing component of the telecommunications industry: basic local access and switching services. Regulatory limits on expansion and controls on prices will dull the incentives for efficient operation. These regulations may also force technically inefficient boundaries to develop between the regulated local telephone monopolies and the deregulated, competitive markets for interconnection, enhanced services, and equipment manufacture and sales. Retaining the line-of-business restrictions raises the unsavory prospect that the BOCs will be transformed into the railroads of the twenty-first century: sluggish, inefficient firms that are moribund because of the constraints imposed by regulation. Certainly it was a recognition of this prospect that motivated the Justice Department and others to support the

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BOCs' request for removing at least some of the line-of-business restrictions.

The accommodationist strategy creates a real dilemma, a Hobson's choice, regarding line-of-business restrictions. There are just two stark alternatives, reintegrated monopoly or the railroadization of local telephone service. Expanding the alternatives and resolving the dilemma requires an assault on the anticompetitive policies of the states—a difficult task given the success of state regulation in achieving its political objectives.

State Incentives

State regulation has largely achieved universal service at low prices. Nearly all households, even among the lowest income groups, subscribe to telephone service. Only in the most isolated rural areas is service unavailable. Moreover, at current prices the demand elasticity for basic service is low: it is generally agreed that a 10 percent increase in the price of local service would reduce the number of subscribers by less than 1 percent. No unregulated monopoly would charge so little for basic exchange service in the face of such a low demand elasticity. Clearly state regulators are holding prices for basic service well below the price a monopolist would charge. Through residual pricing, they are probably even holding prices for some customers below competitive levels.

But there are constraints on the regulators' ability to keep prices for basic service low. Both constitutional law and economic survival require that regulated firms recover their costs of doing business, including a reasonable return to capital. Cost-based price regulation has a well-known effect on the behavior of regulated firms. The only way to increase profits is to increase the costs on which allowable profits are based. This gives the BOCs an incentive to enter seemingly unprofitable competitive markets. They do so using two strategies that are anticompetitive and inefficient.

The first strategy is to cross-subsidize operations in competitive markets using excess profits realized in monopoly markets. A relatively modest increase in prices in a regulated monopoly market, where demand is inelastic, causes a negligible loss of business. But a modest price decrease in a competitive market can increase market share dramatically.

The second strategy is to use control over "bottleneck facilities"—the copper wire pair that connects a customer's telephone to the telecommunications network—to make it more costly for rivals to do business in competitive markets. (AT&T did this when it provided inferior interconnection to entrants into long-distance, lowering the quality and raising the costs of its emerging competitors.) Like cross-subsidization, this strategy allows the BOC to increase its market share in competitive markets. Unlike cross-subsidization, it raises prices in the competitive market and may even enable the BOC to reduce prices in the monopoly market.

State regulators are hardly indifferent about these policies. They are likely to oppose cross-subsidization because it puts at risk the price of basic exchange service. The interests of state regulators conflict with those of local operating companies, and regulators have the incentive to adopt policies that limit the extent of cross-subsidies. These policies are likely to be only partially successful, however, since regulators lack the technical and market knowledge required for effective regulation.

With respect to preventing discriminatory acts against competitors, the interests of state regulators are compatible with the interests of local operating companies. Inhibiting competition enables the regulated firm to charge higher prices in potentially competitive markets. From the regulator's perspective, this increases the net revenue the firm can earn in markets with low political visibility. Under residual pricing, this relieves pressure on prices with high political visibility.

Herein lies the source of the long-run problem with accommodation. State regulators, responding to the political incentives they face, can be expected to try to advantage local telephone companies in the provision of competitive services within the state. Removing the line-of-business restrictions would expand the domain in which state regulators can hope to advantage the local operating company at the expense of competition.

Obviously a procompetitive FCC will not stand by idly while state regulators encourage local telephone companies to reintegrate and remonopolize the industry. But the FCC faces a very difficult information problem. Competitors (including AT&T) will claim that they are being disadvantaged, while state regulators and local telephone companies will claim otherwise.

Highly complex technical and economic arguments will be involved. To determine whether its competitive policies have actually been retarded by state regulation, the FCC will need substantially better information than it is likely to have. A procompetitive FCC could not effectively prevent anticompetitive practices in the 1970s when it still regulated nearly all of the interstate portion of the industry. By the early 1990s the FCC probably will have deregulated everything in its jurisdiction, except spectrum allocation for telecommunications uses, and will have even less information and fewer policy levers at its disposal.

Resolving the Dilemma

At the heart of the accommodationist dilemma is the basic economic fact of local exchange service: at prices roughly equal to the long-run cost of providing local service, demand is highly inelastic. There is good reason not to hand over the market to an unregulated monopoly: Doing so would probably result in massive price increases. Indeed the first response of the BOCs to divestiture and the procompetitive policies of the FCC was to propose massive price increases for local exchange service.

Economic theory provides a rationale for the BOCs' response. It is optimal for a firm with large fixed costs to set prices so that the difference between price and long-run marginal cost is greatest for services with the lowest elasticity of demand. This is true whether those fixed costs are the result of efficient or inefficient operations. Such a pricing strategy translates into large increases in the price of single-line access for residences and small businesses.

But economic and political optimality do not coincide. This pricing strategy is qualitatively similar to the pricing strategy of an unregulated monopoly, and hence is incompatible with the political forces that gave rise to regulation in the first place. Political realities constrain the response of regulation to growing competition by dictating that prices for local exchange service remain low. That leaves only one feasible policy alternative: the introduction of sufficient competition for local service so that state regulation can be eliminated and prices can be set competitively. Given the policies of state regulators, this will happen only if federal regulators carry the burden of creating an environment in which competition can penetrate the local network and the line-of-business restrictions can be safely removed.

If competition is to have a chance, federal policy must do more than encourage competition in interstate long-distance, equipment manufacture, and bypass technologies for large-scale users. It must create opportunities for technologies such as radio telephony, shared-tenant service, and cable television to compete with local wireline telephone networks for small-scale customers. It must also create opportunities for suppliers of various long-distance and bypass services to offer a wide array of services within the LATAs. Federal officials need to recognize the depth of their conflict with state regulators over the ultimate aim of telecommunications policy. They should wage "jurisdiction war" with the states, much like when the FCC seized control of cable television and terminal equipment.

Judge Greene plays a key role in determining whether competition emerges: he sets the standard for deciding the proper domain of business activities for the BOCs. According to the MFJ, as forcefully reiterated by Judge Greene in the triennial review, BOCs should be permitted into a market only if there is no opportunity for them to use bottleneck facilities for anticompetitive purposes. Judging from his opinions, the analysis of whether conditions are ripe for relaxing a line-of-business restriction apparently must focus on the entire industry, rather than on a specific local service company and a specific market.

Judge Greene's logic is mainly right. A procompetitive policy requires that most line-of-business restrictions be retained, but not indefinitely or without exceptions.

Untwisting the Pair

A generally deregulated and competitive telecommunications industry can be achieved through a sustained commitment by federal officials, over a period of 10 to 20 years, to several basic policies. First, the appropriate business unit for relaxing line-of-business restrictions should be defined as the state operating company, not the seven regional holding companies or the industry as a whole. Second, reintegration should be made easier for companies in states that foster local competition. Third, the appropriate level of aggregation of business activities for examining the desirability of BOC entry

should be the same as in antitrust analysis—the relevant market. Broad aggregates such as equipment manufacturing or information services are insufficiently precise. Fourth, FCC regulations should seek to make services within LATAs more competitive so as to facilitate the eventual relaxation of line-of-business restrictions. Fifth, a BOC should be accorded some latitude in experimenting with new services and equipment within its service territory. Even if such experiments often lead to compulsory licensing instead of full-fledged BOC entry, the BOCs would retain some incentive to innovate and to increase demand for their facilities.

A BOC should be permitted to enter precluded markets if it can bear the burden of proof on three issues: first, that the market is competitive or that the proposed service is unlike anything offered by others; second, if competitive, that there are significant economies in offering an integrated service, either because costs are lower or service quality is higher; and third, if economies are uncertain, that anticompetitive strategies are either technically infeasible or easily detected. This essentially constrains the BOCs

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from entering markets when it is uncertain that this will improve efficiency. While such a policy runs the risk of inhibiting some competition, it offers protection against anticompetitive discrimination, and it gives the BOCs an incentive to engineer service-specific technical means to assure robust competition in the markets they wish to enter.

Because state regulation affects the competition facing local telephone companies, it ought to influence decisions to remove line-of-business restrictions. For example, if a state requires equal access and open competition in intraLATA long-distance service, a much stronger case can be made to permit the BOC to enter the interLATA long-distance market.

In the longer term two more avenues for eliminating the line-of-business restrictions should be opened. One avenue is to switch the burden of proof from the BOC to the opponents of entry. The other is to eliminate entry restrictions completely. Either approach could be applied at different times for different markets, depending on the degree of competition. These changes should be made after competition has been permitted for traditional BOC services inside the LATAs, provided that the track record of the BOCs is good in the markets that they have been permitted to enter.

The Transition to Competition

These guidelines provide a sound basis for undertaking a transition to a generally deregulated and competitive telecommunications industry. Realistically such a transition is likely to be a long one, for basic network access and local exchange service are far from competitive now. The hope is that some combination of cable television and radio telephones, together with a significant expansion of current bypass technologies, will offer an alternative to the local wireline telephone company that constrains market power at least as effectively as regulation. Eventually this would permit the formation of integrated telecommunications companies, equipped with an access and local exchange system, that could compete with reintegrated BOCs.

Different policies tend to promote different industry structures in the long term. Recalling the three possible futures for the telecommunications industry, the accommodationist approach favors the local monopoly outcome, with a strong possibility that reintegrated regulated monopoly will be the eventual result. The approach described here stacks the deck in favor of full competition.

The most controversial element of this proposal is its implicit technological forecast. Today no technology is as inexpensive for providing local telephone service as the copper wire network of the local telephone company. But the cost of alternative technologies is falling rapidly, enabling them to begin competing effectively in some very high-cost areas, such as low-density rural communities.

Optical fiber connected to each customer promises to deliver enormous capacity for telecommunications services at a very low cost per unit of capacity and use, but at a much greater total cost than the present telecommunications system. Many believe that the value of the potential new services may be so great that consumers will purchase them even at a substantial increase

in telephone bills. If so, the basic cost structure of local fiber-optic networks could make local telephone service a natural monopoly for the indefinite future.

It is possible, though, that most residential and small business customers will want to purchase the same services offered by the present telecommunications network at more or less current prices, and may resist a massive increase in capabilities at a commensurately massive increase in costs. If so, local fiber-optic networks will prove to be uneconomic. In this case effective entry into local telephone company markets by cable TV, mobile radio, and diversifying bypass companies becomes a more promising prospect.

Because all aspects of the industry are dependent on the future course of technology, the social benefit of pursuing deregulation of local service is not certain. As a purely technical matter, though, these alternative technologies may well prove equal or superior to the present local telephone network. If one considers, in addition, the debilitating effects of regulated monopoly, the prospects seem brighter still for a technology-based rivalry in local service that can outperform the present system.

The Risks

A slow transition to full competition over the next 10 to 20 years is not without risks. If local exchange service is a natural monopoly, this policy will invite investment in competitive facilities that eventually wither under the effective, efficient attack of the reintegrated BOCs. It also risks a change in the federal regulatory environment—a loss of ardor for competition, and a backsliding into ossifying regulation. To be successful telecommunications policy must somehow weather changes in administrations, congressional oversight committees, and government agencies, as well as the federal judiciary. It must also endure the inevitable conflict between state and federal officials and among industry participants.

The case for accepting the risks of a transition to competition rests in the dreary performance of regulated monopoly, even if the monopoly is natural in a technical sense. Deregulation and divestiture, incomplete as they may be, have revealed two important phenomena. One is that the regulatory system distorts the structure of services. The other is that regulated industries generally operate with higher costs. Since divestiture, AT&T has faced a serious decline in market share for many lines of equipment, especially terminal devices. It has responded by reducing and reassigning its labor force to improve unit labor costs in all lines of business. The lesson is that an alternative to regulated monopoly does not have to be perfect to be worthy of experiment.

It may be hopelessly optimistic to count on the federal government for a sustained, long-term commitment to procompetitive policies. Indeed, all of our theories of the politics of regulation tell us that deregulation of telecommunications is an aberration. Nonetheless, this may be the only hope for an efficient industry.

Perhaps reluctantly, we must rely on federal officials to continue to promote competition over regulated monopoly. Their actions will determine whether the BOCs and state regulators have the incentive to work toward robust competition in all aspects of telecommunications. Without the commitment of federal officials, the grand experiment with competition will probably fail. With their commitment, a favorable legal environment can be established in which competition and deregulation at least have a fighting chance. ☐

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