Chapter 8

ACCESS CHARGES, COSTS, AND SUBSIDIES: THE EFFECT OF LONG DISTANCE COMPETITION ON LOCAL RATES

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The current period may be unique since the days of Theodore Vail in offering an opportunity to refashion the institutional setting affecting the telecommunications industry. This opportunity has arisen basically because technological change has already altered large parts of the system, particularly the provision of long distance transmission and the design of terminal equipment. Those alterations in turn have brought about fundamental changes in some of the institu-

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tional arrangements, and require restructuring of the remainder. Thus, the Federal Communications Commission (FCC) has already adopted major regulatory changes in the way companies are to treat terminal equipment, inside wiring, and depreciation.[1] The settlement agreement between AT&T and the Justice Department requires major changes in the ways that AT&T Long Lines conducts business with the local distribution companies to be formed from the current Bell Operating Companies (BOCs).[2]

Both the FCC decisions and the settlement will require other regulatory and institutional changes to be made, one of the most prominent of which will be the abolition of the current system of Division of Revenues. In its place will have to come a system of access charges by which long distance providers compensate local service companies for the use of local facilities.

The central social concern in the discussion about substituting access charges for the current Division of Revenues has been the future level and rate of change of local rates. That concern now seems to center on a fear that the forthcoming divestiture of the local operations of the BOCs will force sharply higher rates; some have proposed that an access charge should be structured to protect against this.[3] The title of this article reflects accurately the way these people see the issue.

The pressures on local rates, however, are not due to divestiture but were inevitable in light of the past regulatory accounting practices and the response of AT&T to the changes in technology. Indeed, before the settlement was even negotiated, the BOCs had filed for large local rate increases in many states. Use of the access charge to try to correct for these past errors will ultimately fail, but in the meantime will lead to protracted regulatory proceedings that attempt to answer unanswerable questions. Access to the local network for long distance companies is only one of a number of telephone services that local operating companies offer. Decisions about pricing access that are taken in isolation from decisions about pricing all those other services will only create new regulatory problems that are likely to be worse than the ones faced today.

Discussed less frequently in the current debate but also of great relevance to the level and rate of change of local rates is the question of how local telephone service pricing in general, and access charges in particular, will affect the structure of the local telephone

market. For, if telephone companies are directed to charge prices for service (including for access) that differ significantly from the costs of providing service (access) to different customers, it could speed the introduction of systems that should not necessarily be built. Thus, rather than aiding the efficient development of the industry, the process of setting access charges, to the extent that it serves as a major precedent for other local pricing decisions, could simply impede the proper development of a "workably competitive" market and promote uneconomic investment.

THE SETTING OF THE PROBLEM

Local wire-line telephone service in virtually all parts of the United States is provided by companies that are legal monopolies in the territories that they serve. In exchange for their monopoly position, these firms are not free to set their prices at any level they choose, but instead have those rates set in regulatory proceedings.

Rate-of-Return Regulation

The level of rates for local telephone service is determined by a number of factors, the two most important of which are the amount of the local rate base assigned to intrastate jurisdictions and the rate of return that the company is allowed to earn on that rate base by the state public utility commissions.[4] The rate base of a regulated company is that collection of investments, which are not rejected by regulatory bodies (Commissions), on which the company is permitted to try to earn its allowed rate of return. The allowed rate of return is supposed to be sufficient for the firm to earn a normal profit, but not as high as it could earn if it were free to take full advantage of its monopoly position.

At any given time, the size of the rate base depends upon a number of regulatory decisions concerning the business activities and accounting practices of the telephone companies. Thus, Commissions have been asked to rule upon the magnitude of the expenses that companies should be allowed to treat as capital investments, on the rate at which those expenditures are depreciated, and on the magnitude of expenditures that the companies can treat as costs to

be charged to its customers. Costs that do not meet this last test must be absorbed by the stockholders.

The way regulation works in practice, Commissions do not sit down by themselves and establish all these rules. Instead, the companies come before the Commissions and propose how the issues should be handled. The Commissions either accept, amend, or reject the company proposals. Eventually, some agreement is reached, and the Commissions make a ruling that then governs the way the companies must do business.[5]

Once both the rate base and the allowed rate of return are determined, however, most regulatory statutes basically require the regulatory bodies to permit the firms to set rates at levels that allow them to earn that rate of return. Thus, only market pressures, not regulatory decisions, are supposed to prevent achieving that rate of return. As the firms were considered to be natural monopolies as well as being granted *de jure* monopolies, nobody envisioned a world in which, for any substantial period of time, the firms could not earn whatever rate of return they were authorized to earn.

Historical Regulatory Decisions

On the assumption that rates would be low, either for everyone or for politically favored groups, for much of the history of the telephone industry firms proposed, and federal and state regulators accepted, very long depreciation periods. The assumption was that telecommunications equipment was physically very durable, and little regulatory attention was focused on the question of how rapidly the equipment would be made obsolete by technological change. Also with the aim of keeping rates low, especially the rate charged to become a new telephone subscriber, firms proposed and regulators accepted the idea of capitalizing the labor cost of new station installations.

Until recently this procedure posed no problems for the regulated companies. Their earnings and rate bases grew. Unfortunately for the telephone companies, however, the dual pressures of technological advances in the telecommunications industry and the opening to competition of most of its previously monopoly markets have exposed the weakness of these accounting practices.

The result of the use of unduly long depreciation practices and capitalization of labor expenses has been a large buildup in the rate base of regulated telephone companies, a buildup that is not matched by assets of commensurate market value.[6] AT&T has been approaching the stage where its ability to recover the book value of assets would be called into question, and the major factors responsible for this situation are the two accounting practices historically relied upon: low rates of depreciation taken on most telephone company plant and equipment, and capitalization of new installations. Given the current state of the various markets, however, these deferred collections can only be captured, if at all, from the sole remaining monopoly market—local telephone service.

The Role of Separations

Coincident with the settlement of the antitrust suit, federal and state regulators have begun to modify the separations process, whereby the costs of the regulated telephone companies are allocated between interstate and intrastate jurisdictions and services. The earliest approach to jurisdictional separations was the "board-to-board" theory. Under this approach, the cost of all local facilities (including station equipment, local distribution plant, and local exchange switching equipment) was recovered from local exchange rates. Toll costs included only those facilities emanating from the trunk side of local switchboards. The Supreme Court ruled in 1930 that a portion of local exchange costs had to be paid for by long distance providers.[7] As a consequence, the decision was made to allocate costs between the intrastate and interstate jurisdictions in order to develop some system that complied with the court decision. Over the years, various changes have been adopted in the separations scheme, each of which had the effect of increasing the share of costs allocated to the interstate jurisdiction.[8]

Recently, AT&T has been attempting to curb the escalation in the shifting of revenue requirements to the interstate operations.[9] This is not at all surprising, since AT&T has been facing increasing competition across all of its interstate services, and its long distance competitors currently appear able to offer a cost/quality service combination that, at least for some, is attractive relative to the

AT&T offering. These competitors do not participate in the separations process, but pay access charges that have been arrived at through highly contentious negotiations and regulatory proceedings.

To date, AT&T has not been able to use those proceedings to impose access charges high enough to erode the market niche of its competitors, nor does it appear likely that it would have been able to succeed in the future. Given the competitive pressure, adding new costs to AT&T's interstate jurisdiction would only worsen its competitive position. Moreover, even if its competitors that interconnect directly with the local loop are slowed by high access charges, carriers that build around the local loop are beginning to pose a threat to AT&T.

The settlement of the government's antitrust case against AT&T alters the significance of the separations process. No longer will separations serve as a vehicle for allocating revenue requirements between two jurisdictions served by a single corporation. Instead, it will serve as the basis for the determination of access charges paid by interexchange carriers to exchange carriers. With the planned substitution of access charges for the Division of Revenue process, however, the claim has been made that local rates will abruptly rise if local companies will only recover the "costs" of providing access to long distance companies and lose the "subsidy" they are currently receiving.

There are several fallacies in that claim, but what lies behind all of them is the belief that the separations process or formulas somehow are undeniable proof of a subsidy. Separations is purely an accounting process whereby the costs of several categories of telephone company equipment are divided between intrastate and interstate jurisdictions. The factor, called the SPF factor, used for allocating "non-traffic sensitive" costs (including terminal equipment, outside plant, and inside wiring, and some portions of telephone central office switching costs) has received the most attention because the percent assigned to the interstate jurisdiction is several times the estimated relative use of this equipment for interstate telephone traffic.[10] It is this allocation practice that has formed the basis for the claim that long distance service subsidizes local service.

The belief that this practice results in a subsidy, however, is based on several leaps of faith. The first underlying assumption is that an allocation based on the percent of relative use would involve no subsidy. There is no basis for that assumption, since the result-

ing allocation of local costs to the interstate jurisdiction ignores a large set of costs that the provision of long distance services imposes on local networks.[11] Many of these costs cannot easily be separated out and charged directly to long distance providers because they have been built into the entire service. Thus, for example, all local switches have been built to recognize many more digits than would be necessary for purely local service. An adequate accounting and unbundling of these costs could probably never be accomplished, and need not take place now that the settlement removes the issue of discriminatory access. Nonetheless, it does point out the complexity of the "cross-subsidy" issue.

A second assumption that must lie behind the claimed subsidy is that the shift of revenue requirements achieved by the SPF factor actually reduces local telephone rates. All the separations process accomplishes is an allocation of the costs that form the basis of the revenue requirements in the state and federal regulatory jurisdictions. Even if it were true that the costs imposed on local companies were less than the revenues received through the separations process, local telephone service is only one of several services under state regulatory jurisdiction. One of these other services may actually be the one receiving the resulting subsidy. Indeed, evidence presented in several state rate proceedings has raised the possibility of a subsidy flowing to private line services and at least some terminal equipment offerings.[12]

Thus, the separations process, and the various allocation factors used in this process, should not be regarded as evidence that a subsidy has been flowing from one jurisdiction to another. Rather, it has been simply one of several accounting practices that generated the costs that were to be recovered as part of the "revenue requirements" of the regulated telephone companies.

The Effects of the Antitrust Settlement Agreement

In light of the complexity of the separations process and the effects of competition, the continued integration of AT&T (Long Lines and the BOCs) could have proven to be quite costly in the regulatory context. Long Lines would have continued to participate

in the separations process, but would no longer have found it such a good deal; the technical features that were built, to Long Lines' advantage, into the local loop (and that may never have been fully paid for) would no longer have been so valuable. The local operating companies would have faced increasing costs and would probably have been unable substantially to raise access charges to AT&T's Long Lines' competitors without facing intense criticism of discriminatory treatment.

The divestiture of AT&T presents the possibility that the continuous process of Long Lines and the BOCs dividing the costs of certain facilities (many of which are underdepreciated) may be replaced by a one-time division of physical and financial assets. If, in the process, AT&T is able to shift the burden of underdepreciation to the new local service companies, it will be out of the woods. No longer will it have to face the prospect of bearing a share of these embedded underdepreciated costs. By the same token, however, regulators may have one shot at shifting costs out of the local companies, by influencing the terms of the divestiture. Once divestiture occurs, the overall level of the rate base, from which the local revenue requirements will be derived, will be set.

THE DESIGN OF ACCESS CHARGES

While not called for in the settlement, the divestiture will also result in changes in the continued negotiation among AT&T, the independents, and federal and state regulators that occurs in the separations process. The substitution of an access charge for the Division of Revenues suggests that Separations itself be replaced by an access charge mechanism. Moreover, the technical and monetary terms of access to the local loop by AT&T and its competitors will no longer be intertwined with the separations process. Instead, nondiscriminatory access will be made available to all long distance telephone companies.

Past Attempts at Access Charge Design

The idea of replacing the existing crazy quilt of interconnection arrangements with a single set of access charges, applicable to all long distance carriers, is not new. The FCC over the past few years

has been working to design just such a scheme.[13] Various bills that have been introduced in Congress have alternatively called for a joint board to be created for the same purpose.[14]

Going from that idea, which has the merit of simplicity and nondiscrimination among carriers to commend it, to the reality of implementation, however, has until now proven very difficult and highly contentious. Three major problems kept arising. The first was to decide how much revenue access charges should raise. The FCC and many state regulators desired, at least initially, to keep the revenue flows unchanged while moving from the world of Division of Revenues to that of access charges.[15] To do so, however, meant trying to unravel some of the questions of subsidy—questions that have turned out to be unanswerable. Second, the technical conditions of access have differed for AT&T Long Lines as compared with those offered to its competitors.[16] Regulators have not been in any position to assess properly claims and counterclaims on either the ease of making truly equal access available or on the accuracy of assertions of differences in costs alleged for the different access arrangements. Finally, because the revenues that flow in the Division of Revenues process between Long Lines and the BOCs were not the only revenue flows, regulators and AT&T's competitors were never certain that Long Lines would end up effectively paying the same amount for access as did its competitors.

The settlement of the antitrust suit against AT&T removes these two last impediments to the establishment of optimal access charges. Both regulators and competitors need be less concerned about the accuracy of the claims by local companies about the technical features of access that it can offer, because local companies will no longer have a strong incentive to provide superior access to one long distance company over the others. This does not mean that local operating companies will only be able to provide access of a unique quality, or that they can interconnect many companies with the same quality of access arrangements now being offered to AT&T Long Lines. It will mean that, if a variety of types of access are made available by a local company at different prices, there will be no reason to suspect that it is deliberately structuring its offering to favor one long distance company over its rivals.

Divestiture will also remove some of the transfers of funds from the BOCs to AT&T, such as license contract payments, that obfuscate any claims of whether a cross-subsidy exists between local and

long distance telephone services. The local companies and the new AT&T will make payments almost exclusively for services rendered to each other under tariffs or for equipment purchases, with most of the same services and equipment being available to all others. Further, the incentives of the BOCs will have changed so that they no longer would be willing to purchase equipment at prices that exceed the prices of equipment offered by competitors. Thus, the fear that visible access payments would be reduced by hard-to-audit reverse payments should be gone.

The settlement requires both the new AT&T and the newly formed local operating companies to propose cost-based access charges and to offer all long distance companies nondiscriminatory access arrangements. As we noted earlier, access charges are simply one of many telephone rates that must be set by the local telephone companies in the regulatory process. As the newly formed local operating companies begin to develop their required cost-based access charge proposals, they will at the same time be learning more about the costs of providing each of the individual local telephone service offerings. The requirement to move to institute access charges, therefore, offers a new opportunity to reopen the questions of how all local telephone services should be priced.

The Debate Over How to Price Local Telephone Service

As noted earlier, the BOCs have been asking for large rate increases in state proceedings all across the country. These requests have brought to the fore a debate about how to price all the various offerings of the local telephone companies. Two questions are raised squarely in this debate: how should telephone service be priced to be economically most efficient, and are there favored groups whose service should be subsidized by the prices paid by other groups?

Economic theory shows that efficiency is best served when prices are equal to marginal cost. The problem is that if all services are charged only their marginal cost, the total revenues earned may not equal total costs.[17] This of course violates the firms' rights to recover fully their costs and to earn whatever is the regulatorily allowed rate of return. As a result, attention has focused on two other options: fully distributed cost pricing, which is a form of aver-

age cost pricing; and so-called Ramsey pricing, which starts with marginal costs and then increases each unequally, based on the intensity of demand for each service.

The theory of Ramsey pricing suggests that prices for local telephone service should vary in relation to the intensity of demand by various users for those services. As a result, the high fixed costs of the telephone system would be spread across customers in such a way as to discourage use of the network as little as possible. It is also claimed that Ramsey pricing would stimulate entry by new firms into segments of the telephone industry's market only if the new firms could produce these services as efficiently as the monopoly telephone company. Moreover, proponents of Ramsey pricing have implied that the task of the regulator is really quite easy since the telephone company would select Ramsey pricing on its own as a means of self-preservation or "sustainability."[18]

In reality, the assumptions of the Ramsey pricing literature do not apply to the circumstances of local telephone markets. First, the theory relies on all of the monopolist's markets being open to potential entry. Local regulations, however, form a formidable barrier to entry. The existence of such regulatory barriers to entry eliminates the incentive for the monopolist to set Ramsey prices on its own, since it makes it impossible for any competitor to offer the same full range of services as it offers.

Local regulation, moreover, constrains the pricing freedom of the monopolist in a way that reinforces the likelihood that the firm will not choose optimal prices on its own. The requirement that total revenue not exceed costs (including a return on capital) provides an even greater incentive than is provided by the barriers to entry to the firm to underprice competitive services and to make up the difference on services protected from entry. Furthermore, any suggestion that regulators could prescribe Ramsey prices on their own ignores the vast amount of cost and demand elasticity data that is beyond the scope of any regulator to accumulate and act upon.

Finally, even if entry were possible in *all* the monopolist's markets, the theory ignores dynamic effects, which have been particularly important in the telecommunications industry. Technological change can easily make the set of sustainable prices (based on old technology) undefensible. Rather than adopt the "socially optimal" set of prices that would ultimately stimulate entry, the monop-

olist may set prices for competitive services below the optimal prices in order to deter competitors.

Some of the same problems exist with the arguments calling for one group of telephone users to subsidize others. First, those who call for such subsidies are quick to name who should receive them, but less able to identify who *really* pays for them. Arguments that local residential service, for example, needs to be kept "affordable" ignore the fact that subscribers at all income levels would receive the subsidy, not just the poor.

Some economists also have argued that charges to subscribers for access to the local network should be subsidized to account for the externalities of telephone networks.[19] While this point is certainly based on sound theoretical reasoning, the importance of these externalities has never been measured. It is very likely that in light of the limited number of people most subscribers would be interested in reaching, much of the external nature of telephone networking is internalized by group decisions, such as with group decisions to join clubs.

More importantly, regulatory processes are not very amenable to fine tuning, and so subsidies designed to have very limited effects in fact may be very widely available. For example, as long as both customer access and the rental of a handset were bundled, any subsidy that might have been given for access would have applied equally to extra lines subscribed to by the same household. Under these conditions, the adoption of simpler pricing rules may be a necessary second-best outcome.

Thus, regulators should seek a pricing policy that is far easier to implement and that will provide the industry with greater certainty when making investment decisions. With significant advances being made in the development of alternatives to the present wire-line local loop technology, it would be very costly if these advances were slowed down by pricing practices that must be regarded as questionable attempts to maintain an outdated "natural" monopoly or to provide such untargeted subsidies as to be virtually counterproductive. Cost-based pricing, even if it must be average cost pricing rather than marginal cost pricing as called for in the textbooks, offers such a policy.[20] Adopting it would require significant changes in the way telephone service is priced today, but would also begin to point to a solution to many concerns over the future level and direction of local rates.

Changes Needed in Current Local Telephone Service Pricing Practices

Presently, local rates in most states are set on a flat-rate basis. That means that a subscriber may make as many calls as he wants within a local calling area and talk as long as he wants for a fixed fee per month.[21] Telephone companies have made some attempts to adjust for varying usage patterns by setting different rates for different classes of customers, such as private branch exchange (PBX) customers, but as a rule customers are not charged according to their usage of the network.[22] This problem is quite serious because many of the costs of telephone companies are sensitive to usage, for example, local trunking and switching facilities. As long as the subscriber can use these facilities for free, that is, at zero additional perceived cost to himself, more of these facilities will be provided than are socially optimal.[23]

What realignment in local rates should logically occur? First, the unbundling and detariffing of terminal equipment and inside wiring should be adopted as soon as possible. While recent regulatory decisions will accomplish this, there may be unnecessary delays in totally removing these activities from the regulated activities of local telephone companies.[24] The removal of these costs from the regulated activities of telephone companies should reduce the percentage of telephone company costs that are insensitive to usage, and thus reduce the actual cost of access to the network.

The second step in the realignment of local telephone rates should be the unbundling of the charge for customer access (hooking up to the network) from the charges for making calls. Hooking up an additional customer to the telephone network obviously imposes costs on the local telephone company, and the user should bear those costs. Much of the remainder of telephone company costs, however, depends on usage of the network and should be imposed on the subscribers in relationship to their use of the network. Depending on the availability and costs of monitoring equipment, local rates should reflect frequency, duration, and distance of calls.[25] This would encourage more efficient utilization of the network, and would ensure that the price for customer access would be kept at a low enough rate to serve social ends.

The third rule for local service pricing is that charges for local access and service (termed a "two-part tariff") should be identical

for all users. Telephone companies should not be permitted to establish tariffs, as they have in the past, that discriminate among *users*, rather than *use* of the network.[26] There is no justification for setting different rates for business and residential customers, or any other user of the network, or for restrictions on resale of network services, which must always accompany discriminatory tariffs.[27] Once a large portion of the non-usage sensitive portion of telephone company equipment is removed from the company's rate base, the largest share of its costs will be related to the use of the network, and tariffs should be set to reflect those costs.[28]

Applicability of Local Tariffs to Long Distance Companies

The same set of concerns should also guide the industry and regulators in setting charges for access and use of the local network by long distance companies. As a first step, state regulatory commissions should adopt rules requiring that local telephone companies permit access by long distance companies (or any telecommunications company that utilizes local telephone networks as an input in the production of its services) on the same terms and prices as any individual subscriber to their networks. The service available to individual subscribers (line-side connections at a Class 5 central office) would then serve as the benchmark against which all other forms of access would be considered.

This rule requiring nondiscriminatory pricing of local access would provide many benefits to users of the telephone network. First, the elimination of artificial tariff distinctions would encourage efficient use of the telephone network. Since the resulting difference in price between a local and a long distance call would then reflect the long distance (or interexchange) portion of the call, users could choose which calls to make solely on the basis of costs.[29]

A nondiscriminatory price rule would also provide the basis for encouraging the local and long distance telephone companies to negotiate a more complex set of access arrangements.[30] Certainly access at a point in the local telephone network above the line side of the Class 5 central office is valuable to long distance companies, and these companies would be willing to pay more for better access arrangements. While local companies are in a position to provide

better access, they would obviously face additional costs to provide the access features long distance companies are likely to want. For example, access codes to the local network are both valuable to long distance companies and other providers of telecommunications services and are also costly for local companies to provide. Allowing the two sides to the access issue to negotiate the terms of access is likely to lead to a far better outcome than if regulators determine these issues.

A necessary element in encouraging an acceptable outcome to the negotiation process, though, is a "starting point." The starting point, or frame of reference of the negotiations, is the fallback position of the two parties if negotiations fail, and will influence the outcome of the negotiations. The option of interconnection at the line side of the Class 5 office at the same rate as any other subscriber pays is an excellent starting point for the negotiation process. Adopting it in the post-divestiture world should limit additional regulatory oversight of access arrangements to the task of ensuring that access arrangements be made on some reasonable nondiscriminatory basis to all long distance telephone companies.

Finally, adoption of line-side access at the same price as all other subscribers pay should provide the needed regulatory solution to the access charge issue, regardless of where the split between local and long distance plant is made in the divestiture of AT&T. Ownership of the Class 4 office by the local companies should not provide them with the degree of monopoly power that would require significant regulatory control as long as access on the same terms as those offered to other subscribers is available to the long distance companies.

CONCLUSION

The basic argument of this article is that access charges should be cost based, as should all other local telephone rates. The factors that may make arriving at this solution more difficult are regulatory policies: those that led to telephone companies having a book value signficantly larger than the real market value of their assets, and those that favor seeking a set of rates that contain subsidies for politically attractive groups while not driving away those who have

to pay for them. The attempt to use the design of access charges as a way to correct the underdepreciated rate base and to subsidize local ratepayers, however, cannot succeed in the long run.

If no other action is taken by the regulatory and legislative authorities, the implementation of the settlement agreement between AT&T and the Justice Department will largely determine which parts of the system will have to bear what proportion of the underdepreciation. Because so much of the rate base is represented by terminal equipment and non-reusable inside wiring (as well as the labor costs of those installations), it is likely that a large fraction, if not all, will go with the new local distribution companies.

This conclusion is strengthened by the fact that in the short run, the new AT&T, much more clearly than the new distribution companies, will be facing significant competition so that its ability to recover the shortfall through exploitation of any monopoly positions will be quite limited. Despite being the dominant force in terms of current market share in virtually all of its new markets, AT&T's competitors have had considerable time to position themselves to take advantage of market opportunities that overpricing by AT&T would afford. Thus, the new AT&T can be expected to have a greater incentive to see that the bulk of the shortfall moves into the newly formed local operating companies than the local companies have to oppose this. To the extent that it fails, and some of the shortfall enters the books of the new AT&T, its stockholders may bear the loss.

The new local companies, however, may have less ability to recoup those losses than they appear to have at first blush. The technological changes that have rendered the long distance market at least potentially competitive are also beginning to point to alternative means of distributing local telephone traffic other than over copper wires. These new options are less likely to be viewed as monopoly services, as witness the decisions already made on digital termination services and cellular mobile radio.[31]

It is to be hoped that a lesson can be learned from the history of telephone regulation. The past regulatory policies on depreciation rates and treatment of expenses have made more difficult both the institutional changes already mandated and those still to come.[32] Those regulatory policies were adopted in an era when it was a basically unchallenged notion that telecommunications services

would largely be provided by a single firm or a partnership of firms. At the federal level, events have shown that the assumption of single firm supply was untenable in all areas of service, and the same kinds of challenges are now being mounted at the state and local level. Indeed, perhaps the most striking lesson of the past 50 years should be that if any significant segment of the market can be served at a lower price than the existing service provider offers, entry will occur even when the regulatory body initially prefers to prevent it.

In order to ensure that entry occurs only when it is truly efficient to have it, therefore, local service should be priced so that each service covers its costs, rather than having any one or a group of services paying more in order to subsidize some other offering. This argument applies equally to access for long distance companies and to other offerings by the local companies.

If access charges are the only prices that deviate from the real market costs of providing such service, the result will be to encourage the development of systems that bypass the existing local plant. Moreover, given the structure of long distance telephone traffic, such a bypass is likely to be developed originally for bulk business traffic rather than for residential traffic. The result could be the development of two networks, one modern, efficient, and low cost that serves businesses, the other old and increasingly undermaintained, serving largely residential and low density traffic. Such developments, in fact, are poised to happen now, with offerings such as that by Satellite Business Systems and the potential digital termination service. While some movement of very large blocks of traffic to specialized networks is likely to be efficient, the regulatory process should not artificially encourage such developments.

If the local companies receive the bulk of the underdepreciated assets but establish cost-based pricing for all services, including access, they may still be in a position where their attempts to exploit their local monopoly position simply induces entry by alternative service vendors sooner than would otherwise occur.

Regulators cannot avoid these outcomes by trying to continue past practices of establishing artificial service categories (business versus residential, PBX versus keyset service, and the like) and charging different prices based not on costs but on some quite unspecific notion of willingness to pay. The same technological developments

discussed before have made potential entrants watch the growing communications markets for identifiable groups that are being charged more than it would cost to serve them. Continuation of that form of price discrimination, not based on real cost differences, will only encourage entry at the local level.

In short, the same forces that have pushed the interstate jurisdiction to develop cost-based prices are now beginning to exert pressure on the local level as well. If regulators and legislators want to solve the access charge question rather than engage in an endless debate about costs and subsidies, they will move to institute nondiscriminatory cost-based pricing throughout the local system. In the process, however, they will need to end the illusory search for socially optimal subsidies and address specifically the tangible evidence of past regulatory errors: the underdepreciated assets of the telephone companies.

FOOTNOTES

1. See, Second Computer Inquiry (Reconsideration), *Memorandum Opinion and Order*, 84 FCC 2d (1980). The decision on expensing of station connections is *First Report and Order*, CC Docket No. 79-105, March 31, 1981, 46 Fed. Reg. 19481. The decision on depreciation changes is *Report and Order*, Docket 20188, 83 FCC 2d 67 (1980).

2. Modification of Final Judgment entered in *United States* v. *Western Electric, et al.*, CA no. 17-49, D.N.J.

3. For example, H.R. 5158, cleared unanimously by the House Subcommittee on Telecommunications, Consumer Protection, and Finance on March 25, 1982, includes a provision for the payment of subsidies from long distance service to avoid "substantial or undue increases in charges for" local service that are caused by the transition from Division of Revenues to access charges.

A similar provision was incorporated prior to the announcement of the settlement. Nevertheless, concerns over local rates have heightened in recent months following the announcement of the settlement.

4. Specifically, under the current regulatory structure, the rate base as well as all telephone company costs are divided among interstate and intrastate jurisdictions. "Local" telephone service is just

one of the many "intrastate" services that contribute to cover all intrastate costs. There is no formal division of costs in most states among intrastate service categories.

5. These decisions are made individually by the FCC and the state commissions or, as in the case of depreciation rates for the largest telephone companies, in annual three-way meetings between FCC, state regulatory staffs, and telephone company personnel.

6. Bolter, W., "Moving Around the Depreciation Barrier and into the Modern, Competitive Era," *Telephony*, April 27, 1981, and May 25, 1981.

7. *Smith* v. *Illinois Bell Telephone Co.*, 282 US 148.

8. For a description of this process, see Gable, R., *Development of Separations Principles in the Telephone Industry*, East Lansing: Michigan State University, Institute of Public Utilities, 1967.

9. See, for example, "Proposal of American Telephone & Telegraph Company and Associated Bell System Companies for a Revision to the Jurisdictional Separations Process," June 2, 1981, FCC Docket 80-286.

10. The SPF factor used for allocating costs between jurisdictions varies from carrier to carrier but was on average 25.14 percent for the Bell System in 1980. Relative use of this equipment for interstate telephone traffic was on average 7.64 percent for the Bell System in the same year. See "Comments of the National Telecommunications and Information Administration to the Federal-State Joint Board," FCC CC Docket No. 80-286, August 17, 1981.

11. See MCI Telecommunications Corporation, "Comments on Exchange Access Charges," in FCC Docket No. 78-72, August 15, 1980. Also note FX (Foreign Exchange Service) and other uses of local exchange not accounted for in the separations process.

12. For example, the results of the 1980 Embedded Direct Analysis of Southern Bell in Florida show a revenue-to-cost relationship of 0.83 for vertical business and 0.56 for intrastate private line services. Submitted by Southern Bell Telephone and Telegraph Corp., Florida Public Service Commission Docket No. 810035-TP.

13. The most recent FCC notice dealing with the access charge issue is the *Fourth Supplemental Notice of Inquiry and Proposed Rulemaking*, CC Docket No. 78-72, June 4, 1982. Under the "Pure II" strategy described in that *Notice*, all the non-traffic-sensitive costs of local exchange networks would be "directly assigned" to

and paid for by the subscribers. None of those non-traffic-sensitive costs would be assigned for recovery in interexchange tariffs. Traffic sensitive costs would be allocated to the jurisdictions, and inevitably to the services, based on relative use. While this proposal is quite similar to the one we describe, some key differences exist. For one, we do not see the need to formalize the cost allocation through the separations process. Rather, it would appear that as long as traffic sensitive costs are recovered from the cost-causing user, there is no reason to make a formal a priori cost allocation. The question of whether the elimination of a formal separations process via a properly designed access charge is legally acceptable is beyond the scope of this article. But in any case the separations process should not stand in the way of establishing optimal access charges. A second area where we go beyond the scope of the *Fourth Notice* is in our recommendation that rates both for local and long distance use and access of local facilities not be set unduly high to make up for the mistakes of the past. Who will bear these costs is another matter, but the least favorable outcome would be for the local ratepayers to pay for past mistakes in a manner that sends false market signals.

14. See H.R. 5158 and its predecessors.

15. *Second Supplemental Notice of Inquiry and Proposed Rulemaking* 77 FCC 2d 224 (1980).

16. Thus, AT&T Long Lines is connected on the trunk side of switches, often Class 4 switches, while the competitors have all been offered only line-side access at Class 5 switches. Many of the features that have been built into the local telephone system to improve the quality of long distance service are only available if connection is made on the trunk side of the switches.

17. If it were true that the conditions of the telephone industry were such that the firm could not recover its full costs by charging prices equal to marginal cost, it would imply that the industry was a natural monopoly. If so, market competition under conditions where *all* of the firm's offerings were freely open to competition would nonetheless result in conditions of single firm supply. Because local service is still a *de jure* monopoly, the question of whether marginal cost prices would lead to under-recovery of the *market* value of costs remains untested. Our basic argument in favor of cost-based pricing is only strengthened if local wire-line service is also not a natural monopoly.

18. Baumol, W.J., "Minimum and Maximum Pricing Principles for Residual Regulation," *Eastern Economics Journal*, January/April 1979, p. 235.

19. Willig, R.D., "The Theory of Network Access Pricing," in Trebing, H.M., ed., *Issues in Public Utility Regulation*, East Lansing: Michigan State University, 1979.

20. Whether the marginal cost of traffic sensitive equipment deviates substantially from average cost is hard to say, but in any case allowing the prices for local service to be set on the basis of demand conditions is an invitation to the telephone company to engage in anticompetitive conduct. Certainly average, or fully distributed, costing does not imply that prices will be set to achieve static "first best" efficiency, but in the present regulatory context that goal is elusive and will not be achieved by adoption of incremental costing techniques, coupled with pricing based on demand elasticity studies.

21. In some states customers, particularly business subscribers, are charged message units, which may be duration and/or distance sensitive. A recent survey of business line rates in the largest cities in each state indicates 41 flat-rate service cities and 12 measured-rate service cities. See AT&T filing dated June 23, 1981, in CC Docket 80-286.

22. This problem has been exacerbated by the practice in many municipal areas of widening the local toll-free calling areas by the establishment of extended area calling.

23. It is also noteworthy that telephone service to those users about whom policymakers have expressed the most concern—the poor and the elderly—may cost those users more than they would be charged if local rates were set closer to costs. Thus, there is no reason to believe that a realignment of local telephone rates closer to costs would necessarily harm any single worthy group of local ratepayers. One study of the effects of measured service on subscribership and usage patterns showed that separate pricing for access and usage would increase the total number of subscribers. New subscribers would be "predominantly those lower income households who make relatively few calls and who have therefore been unwilling to subscribe to telephone service because they have regarded it as too expensive under current flat rates." Mitchell, B.M., "Optimal Pricing of Local Telephone Service," *American Economic Review*, September 1978, p. 533.

24. The modification of the original *Computer II* decision (i.e., it keeps existing terminal equipment in the rate base of telephone companics and allows these companies to continue to offer that equipment on a tariffed basis) is a step in the wrong direction. It delays the removal of clearly competitive offerings from the distortions of the regulatory process. But once this step is taken, there is no reason to believe that an undue burden would be placed on any telephone subscriber required to pay the actual costs of installing new inside wiring and purchase or lease telephone equipment in a competitive market. If the large stock of underdepreciated terminal equipment currently in Bell's hands were placed on the open market, it could dramatically lower the price of used equipment and thus the cost of becoming a new subscriber. The removal of inside wiring from the rate base of the telephone companies should also be accomplished as soon as possible by the sale of this equipment to the public—if necessary, financed by an outside party.

25. While the unbundling of local rates has been advocated by AT&T for several years, it takes on particular importance in light of the settlement and other recent regulatory changes. We will argue that the potential for basing access charges on the rates charged to any other user of the local network will provide a workable solution to a difficult regulatory problem.

26. Some economists have proposed the adoption of self-selecting two-part tariffs as the most efficient way to price local telephone service. Under such a scheme, ratepayers would be offered a "menu" of two-part tariffs providing combinations of access and usage prices. Low access charges would be paired with high usage charges, while higher access charges would be paired with lower usage charges. This pricing scheme would have the same effect as a tariff that set a low access charge and declining rates for increased blocks of usage. According to this view, such a menu would offer the potential for a more "efficient" outcome than a single two-part tariff, since marginal usage and marginal access could be priced closer to marginal than to average costs.

While we do not oppose self-selecting two-part tariffs in principle, it would appear that several difficulties may prevent their implementation. First, in the absence of resale restrictions some users, such as residents of the same apartment building, may find it advantageous to pool access and usage. They could effectively lower their

individual usage costs by sharing (or buying through a reseller) the high access, low usage tariff and placing almost all calls at the lowest marginal usage rates. Maintaining resale restrictions to support a self-selecting two-part tariff scheme would have far-reaching implications for competition and efficient use of the system.

Second, it is possible that a telephone company may set the lowest usage rates below marginal costs as a way of deterring entry into its markets. The likelihood that telephone companies will pursue this strategy is hard to predict, but certainly regulators could not determine easily if usage rates were being set below marginal cost.

Finally, the efforts devoted to establishing more "efficient" tariff schemes may divert the attention of regulators from other, more important changes in tariff structure, such as the need to eliminate discrimination among classes of users.

The efficiency properties of self-selecting two-part tariffs are discussed in Faulhaber, G.R., and Panzar, J.C., "Optimal Two-Part Tariffs With Self-Selection," Bell Laboratories, Economic Discussion Paper #74, January 1977. See also the proposals by Kahn, A.E., and Zielinski, C.A., "New Rate Structures in Communications," *Public Utilities Fortnightly*, March 24, 1976, p. 19; and Duvall, J.B., "Telephone Rates and Rate Structures: A Regulatory Perspective," presented at the Workshop on Local Access: Strategies for Public Policy, St. Louis, Missouri, September 16, 1982.

27. If resale is not restricted in a world of discriminatory tariffs, resellers will enter the market and arbitrage away any price differences not related to the real differences in the costs of serving the various groups.

28. Certain changes in technology are likely to increase even more the portion of the network whose costs are usage sensitive. For example, the introduction of concentrators in the local loop will decrease the portion of a subscriber line that is dedicated to a single customer and implies that the charge for access should fall relative to the charges for usage.

29. The same point has been made in the nearly identical proposal for access pricing of Margeson, A., "Public Policy Issues of Network Access Pricing," in Trebing, *Issues in Public Utility Regulation, op. cit.* The intention of this proposal is to provide incentives for efficient decision making. Although it might be true that in the past certain costly features of the local loop were designed to

provide superior long distance service, the prices for nondiscriminatory access should not reflect sunk costs. As long as the long distance companies make exactly the same use of the network as do direct subscribers, they should be charged the same. Of course, if the local companies provide technically superior service to long distance companies, they should be able to charge more.

30. The discussion of negotiation for access is based on the work of Morris, R., and Preece, R., "Negotiating for Improved Interconnection: The Incentives to Bargain," FCC, Office of Plans and Policy, Working Paper 7, January 1982.

31. Report and Order, An Inquiry Into the Use of Bands 825—845 MHz and 870—890 MHz for Cellular Communications Systems, CC Docket No. 79–318, 86 FCC 2d 469 (1981). First Report and Order, Digital Termination Systems, 86 FCC 2d 360 (1981). Some existing private radio services that use 900 MHz spectrum and that already are well established could become more significant competitors to local wire-line telephone companies with only minor changes in the regulatory rules. A new citizen's band radio service at 900 MHz, if the rules permitted it, could also compete.

32. The long life span of these poor regulatory decisions is nowhere better exemplified than in the case of the desired detariffing of terminal equipment. The FCC's original decision in *Computer Inquiry II* called for the removal of customer premises equipment from telephone company rate bases. Upon implementation of the decision, the entire terminal equipment market would have been free of the distortions induced by rate-of-return regulation. Telephone company subsidiaries and interconnect companies would have been in a position to compete freely, regardless of past problems. But that decision would also have removed the terminal equipment from the rate base of the telephone companies at its highly inflated book value. The loss the companies would have incurred in selling that equipment was regarded as unacceptable and led to a modification of the *Computer II* decision that may leave the "embedded" terminal equipment in the rate bases of the telephone companies for several years. *Second Computer Inquiry*, Memorandum Opinion and Order (Reconsideration) 84 FCC 2d 50 (1981). As a result, "new" terminal equipment that will be sold by independent companies will compete with the "embedded" terminal equipment that will continue to be offered on a tariffed basis by the local telephone companies.

The FCC recognized this when it modified its *Computer II* decision, but was forced into this position by the mistakes of the past and the limitations of the present.