Toward Competition in Phone Service

Why Local Rates Are Rising

Leland L. Johnson

MORE THAN A DECADE AGO, the Federal Communications Commission (FCC) opened the door to competition in long-distance telephone service by permitting MCI and other carriers to compete in some markets. Ever since, controversy has raged about the effects of that action on telephone subscribers (especially residential) and on the national goal of ensuring "universal" telephone service. AT&T's coming divestiture of its twenty-two Bell operating companies, scheduled for January 1, 1984, has only brought the matter to a head.

In recent months, both the House and the Senate have held hearings in response to widely voiced fears that local telephone rates are going to double or triple in the next few years (over and above general inflation)—possibly forcing many residential subscribers to discontinue service. Fourteen bills designed to keep that from happening are now before Congress, with more on the way. Other initiatives are in the works in the states. (For a brief description of these bills—as well as of the costing and pricing of phone service, before and after January 1, 1984—see page 34.)

That rates will rise is clear enough. For some years AT&T's prices for long-distance calls have been set above cost in order to help keep prices for local calls below cost. That is, local service has been subsidized. Under the FCC's recent access charge ruling (on which, more later), this subsidy is to be gradually replaced by charges imposed directly on telephone subscribers. If that ruling goes into effect on schedule, local phone bills will begin to rise next year.

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What Is the Problem?

Many are asking why the traditional subsidy is being reduced. Some blame the AT&T divestiture. As a case in point, Moody's explained its recent downgrading of the Bell System's bonds by noting in part that, at divestiture, the local telephone companies will lose highly profitable long-distance facilities to AT&T. Yet the nation's nearly 1,500 *independent* telephone companies have been able to offer low local rates

for decades without owning much in the way of long-distance facilities and without themselves being owned by AT&T. The reason is that they have been receiving financial support through "settlements," the process by which AT&T pays them for handling the local-exchange ends of long-distance traffic. Surely, the newly divested companies could demand similar arrangements.

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No, the fundamental problem is that new technologies are eroding the local monopolies of both the Bell telephone companies and the independents over access to the local subscriber. Increasingly, long-distance carriers can use satellites and other advanced means to connect their large customers, thus bypassing local telephone lines altogether. No one knows how fast bypass will develop. What is clear is that if it occurs on a significant scale, the resulting revenue loss to the local companies would force them to raise rates for their remaining customers—unless, of course, countervailing regulatory or legislative action were taken.

Some large telecommunications users are already bypassing telephone networks—both local and long-distance—using satellites, land-based microwave stations, private (coaxial or fiber optic) cable lines, and other technologies. For example, Satellite Business Systems offers nationwide high-speed data transmission and other services using satellites that communicate with antennas located on its customers' premises. A number of organizations, including hotels in Atlantic City and Las Vegas, use microwave lines to bypass local telephone networks. At least one business firm uses a combination of satellite links and its own fiber optic cable to carry on video conferencing among its scattered locations. New York City leases channels from a local cable TV system to provide high-speed data communications, and has requested proposals for a network to connect city offices, police stations, and firehouses throughout its five boroughs. Finally, increasingly ambitious "local area networks" are being developed to provide communications within a building or cluster of buildings.

While it is most unlikely that telecommunications firms will ever be able to compete across the board with the local telephone companies, they will unquestionably be able to compete on a selective basis for the largest users. Today 1 percent of the nation's business phone customers account for about 40 percent of business interstate message toll revenues. If even a fraction of these heavy users bypass the local companies, it could badly undercut the present rate structure.

The erosion of the local telephone monopoly is responsible for two particularly important developments. First, anticipating the competition to come, companies are accelerating the write-off of their capital assets to reflect current economic value, rather than their remaining physical life. Accelerated depreciation raises rates in the near term, but contributes to lower rates in later years. Thus, the problems posed by the change, while serious, are transitory. Second, facing the threat of bypass, these companies are less able to extract from long-distance users the large subsidies that today help to keep local rates down. This article focuses on the second of these developments because issues of whether and how to maintain low local rates are being widely debated and because the outcome of the debate will affect the long-term efficiency of our telephone system.

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The Threat of Uneconomic Bypass

In principle, there can be little objection if long-distance users take advantage of lower-cost alternatives to telephone lines. But economic inefficiencies arise if long-distance carriers have

to pay such high rates for access to local lines that they resort to bypass systems even when the cost of connecting their subscribers that way exceeds the cost to local phone companies of providing the access.

To understand the problem of uneconomic bypass, it is helpful to look briefly at how telephone costs and long-distance revenues are divided between the interstate and intrastate jurisdictions. Under procedures instituted in 1943, the annual costs of facilities used only for interstate calls, along with part of the costs of facilities that are used for both interstate and intrastate calls, are assigned to the interstate jurisdiction and are covered from revenues on interstate service. This leaves only a portion of the joint costs to be covered from intrastate revenues. After World War II rapid advances in coaxial cable and microwave radio technology radically lowered the per-circuit costs of long-distance transmission, but had much less effect on the cost of local exchange equipment. State regulators, having jurisdiction over intrastate operations and facing political pressures from local voters, naturally wanted some of the cost savings to be passed back to local users—especially residential—through lower monthly rates. The FCC, having jurisdiction over interstate service and being one step removed from local pressures, thought the benefits of long-distance technology should flow to long-distance users through lower toll rates. As a result of the push and tug, the FCC and the state regulators have agreed to change the cost separations formula many times, always increasing the interstate contribution to help cover intrastate costs.

Among these intrastate costs are the costs of the local "subscriber lines" required for end-to-end connections. Subscriber lines include the telephones in residences and businesses, the wires that connect the telephones to local switching centers, and the connections in these centers. Because these lines are required for access to both the local and the nationwide network, the cost of maintaining and replacing them can be considered the cost of subscriber "access," separate from the costs of either local or long-distance calls. In 1981, according to AT&T, about 38 percent of the interstate revenues from ordinary long-distance service and wide-area telephone service (WATS)—more than $7 billion annually—went toward covering the cost of subscriber access. The $7 billion translates to about $7 a month, as a nationwide average, per subscriber line.

The problem of uneconomic bypass arises because the subscriber-line costs assigned to the interstate jurisdiction are recovered on a usage basis (at an average rate of about 14 cents per message minute), even though the cost of subscriber lines does not vary with usage. The resulting distortion creates incentives for inefficient behavior. For example, a business firm that makes 200 interstate calls a month of five minutes each can expect to pay $140 a month if it uses regular subscriber lines to do so. If the firm can find a way to make end-to-end connections for less than $140, it comes out ahead. But the price it pays for the alternative, though less than $140, might be far greater than what it costs the local telephone company to provide access. Society loses by the difference. The more calls the firm makes, the greater its incentive to seek bypass, and the greater the chances that the cost of the alternative it picks will exceed the access costs to the telephone company. This source of economic inefficiency would be eliminated if the usage charges on long-distance services were replaced with flat charges (not varying with use) paid by subscribers directly.

The Regulators' Dilemma

That is what the FCC's access charge plan is designed to accomplish. Under that plan, subscriber line costs assigned to the interstate jurisdiction are to be recovered by gradually substituting—over a six-year period starting January 1984—flat subscriber-access charges for usage charges on interstate traffic. As the burden on interstate service is shifted to local service, long-distance rates are expected to fall. Thus, heavy long-distance users will gain, while those making few such calls will lose. The FCC's ruling also creates a new universal service fund, to be supported by charges on interstate carriers in proportion to their use of local telephone facilities. The fund will help support service by local telephone companies whose costs for providing subscriber lines are particularly high.

The FCC's order created so much controversy when it was issued in December that the commission modified it in July, primarily by setting the rates a bit lower and phasing them in

How the Money Circulates

Telephone costing and pricing is confusing partly because the geographic bounds that separate levels of service from each other are different from those that separate the operating reach of the various companies and the two levels of regulatory jurisdictions. (1) Local calls are those made within an exchange area; long-distance calls, also known as toll calls, are those made from one exchange area to another. (2) Local service is provided by local operating companies, consisting of the twenty-two Bell companies and some 1,500 independents; long-distance service has traditionally been provided by AT&T's Long Lines division, by the Bell companies, and to a small degree by some independents. (3) The Federal Communications Commission regulates interstate long-distance operations, while state commissions regulate intrastate operations.

Thus a call originates and terminates with either a Bell or an independent phone company, and is either a local call (intra-exchange) or a long-distance call (inter-exchange—which can be either intrastate or interstate). The originating company bills the caller for the total amount and gives part of it to the other companies involved.

Today's System

Three procedures have evolved for allocating costs and revenues among the parts of this network:

Separations is a procedure devised by federal and state regulators to divide costs between the federal and state jurisdictions so as to establish how much consumers will be charged in each jurisdiction. Because local equipment is used in making long-distance as well as local calls, this procedure assigns a share of its cost to the federal jurisdiction. Some of the costs involved are traffic-sensitive (primarily switches and trunks) and others are not (primarily the wires connecting each subscriber to the local exchange). Under the complicated, but ultimately political, formula used for dividing these costs, the share assigned to the federal jurisdiction has risen over the years.

Settlements is a procedure that allocates long-distance revenues, nearly all of which are earned by AT&T Long Lines, between AT&T Long Lines and the independent phone companies. It is meant to pay for AT&T's use of the independent companies' facilities. *Division of revenues* is an internal Bell System procedure that channels payments from AT&T Long Lines to the Bell operating companies. It serves the same function as settlements.

In the 1970s, such firms as MCI emerged to compete with the traditional long-distance network. The new firms built their own long-distance facilities and initially rented local lines at regular business rates (now about $20 per month) in order to pick up and deliver their customers' calls. AT&T wanted the competitors to pay higher rates, equivalent to what it was paying through separations, settlements, and division of revenues. The competitors responded that the lines they were using were ordinary business lines and that these "line-side" connections were distinctly inferior to the "trunk-side" connections AT&T was getting. Negotiations between the Bell System companies and the competitors finally led in 1978 to the ENFIA tariff (Exchange Network Facilities for Interstate Access), under which the competitive carriers now pay about $230 per line per month for business lines.

The System after January 1, 1984

The AT&T antitrust settlement and the FCC's access charge ruling, which go into effect on January 1, 1984, mandate changes in the traditional system.

First, the court order codifying the settlement requires the local phone companies to make access of equal quality available to every long-distance carrier by 1987. Second, both the court order and the FCC's access charge ruling—discarding settlements, division of revenues, and the ENFIA tariff—require the local companies to charge long-distance carriers cost-based rates for access to local subscribers. For its superior connection, AT&T will pay a premium until equal access is achieved.

Third, the FCC's ruling also requires the local companies to charge subscribers a flat rate for access to the network, as follows: for residential users, a maximum of $2 a month in 1984, rising to $3 in 1985 and $4 in 1986, and then to full cost (estimated at $6–8) by 1989; for business users, a maximum of $6 a month in 1984 and full cost by 1989. These charges are intended to shift all costs that are not traffic-sensitive to end users—subscribers. The overall effect will be to lower long-distance rates and raise local rates.

Because of concerns about rising local rates, the FCC decided to phase in the subscriber charges over six years and to create a universal service fund paid for by the long-distance carriers to assist high-cost areas (such as Wyoming and Alaska). In addition, Congress has before it fourteen bills that seek to prevent or moderate the rise in local rates. The apparent frontrunners are H.R. 3621 (Reps. John Dingell, D-Mich., and Timothy Wirth, (D-Colo.) and S. 1660 (Sen. Robert Packwood, R-Oregon). These bills would replace the FCC's subscriber access charges with new charges on long-distance systems and would set them high enough to cover all non-traffic-sensitive costs assigned to the federal jurisdiction, now estimated at $11 billion. More modest bills, H.R. 3647 (Rep. Edward Markey, D-Mass.) and H.R. 3671 (Rep. Robert Whittaker, R-Kansas), would keep the FCC's plan but stretch out the transition to ten years.

over six years rather than five. That action has not mollified congressional fears. The Packwood and the Dingell-Wirth bills would undo the order completely and cope with the bypass problem by authorizing local telephone companies to assess charges on any carrier that uses alternatives to their lines.

Whatever the fate of the FCC's plan for interstate services, there will remain similar problems at the intrastate level. Subscriber line costs are also covered in part by usage charges on long-distance calls within a state, once again raising the possibility of uneconomic bypass. In response, state regulators and telephone companies are considering charges for access to the intrastate network. Bell of Pennsylvania, for example, has proposed to the state Public Utility Commission an intrastate access charge of $2 a month for residential customers and $4 per line for business users, to be accompanied by a 25 percent reduction in intrastate long-distance rates.

All this poses a serious dilemma for the FCC and the state regulatory commission. On the one hand, the beneficiaries of the current system—local phone companies and the residential users who make or receive few long-distance calls—strongly oppose requiring subscribers to pay access charges. Access rates will rise to unreasonably high levels, they say, and some current users will have to give up service. Moreover, the regulators will face considerable political heat if, after a time, the bypass threat turns out to have been exaggerated. On the other hand, defenders of the plan point out that if the subsidy is continued and widespread bypass does occur, the revenues of the local companies will drop by so much that their remaining subscribers could be even worse off than with an access charge. And once bypass facilities are built, these companies will be hard put to retrieve many of their lost customers by making belated adjustments in their rate structures.

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Subsidizing Residential Access

Subsidization of residential access to the network reflects a long-standing national policy of encouraging widespread telephone use, in keeping with the aim of the 1934 Communications Act "to make available, so far as possible, to all people of the United States a rapid, efficient nationwide and worldwide radio and communications service." The underlying idea is that the value of the network to each subscriber increases as the size of the network expands and subscribers are able to reach more people in more places. This increase in value, called "network externalities," is said to benefit, on balance, even those who pay the subsidies.

How big is the difference between what subscribers now pay for access and what it costs the local companies to provide that access? The average subscriber line cost for the Bell System was about $26 a month in 1981, according to AT&T, and was increasing.* Residential telephone rates for access averaged less than $10 a month. Of the $16 difference, about $7 came from the $7 billion contributed by interstate services, and the remaining $9 was covered by intrastate services.

Not surprisingly, there are wide variations around these averages from state to state. For example, in Nevada and Wyoming subscriber line costs were $42 and $45 a month respectively in 1981, as against the $26 national average, and interstate services contributed $27 and $25 a month respectively to those costs, as against the $7 national average.

To be sure, these line cost figures reflect average historical costs, while the relevant economic cost is the current cost of connecting an additional subscriber. However, given the relatively low rate of technological progress in residential subscriber lines in recent decades, there is no reason to believe that incremental costs are below the Bell System's historical average of $26. Indeed, they may be higher than $26 because of the rapid inflation that has occurred since many of the existing lines were built.

*This figure reflects the combined average of both business and residential lines, but there is no evidence that the average cost of residential subscriber lines is substantially different.

Thus, residential access is subsidized in the sense that, as a group, these users pay less—apparently much less—than their incremental costs. The subsidy is paid by users of other interstate and intrastate services.

In addition to the problem of bypass, the subsidy creates a number of other difficulties:

- The subsidy is untargeted, benefiting both the rich and the poor, and therefore is an inefficient way to keep on the network those who would otherwise drop off. As a case in point, the author, who pays only $4.10 a month for access, has often wondered about the social justification for his good fortune at the expense of others—including those among the poor who make lots of long-distance calls.
- Some argue that untargeted subsidies were justified in earlier decades in order to stimulate the development of a strong nationwide network. But today, when more than 95 percent of the nation's households have telephones, a universal service fund carefully targeted to the highest cost areas may be sufficient to maintain universal service. Fortunately, there are relatively few subscribers in high-cost areas. In 1980, for example, Nevada, Wyoming, and Alaska together contained less than 0.8 percent of the nation's residential telephones.
- Since the current system forces long-distance users to pay prices that exceed the cost of serving them, those users make fewer calls than they would if prices matched costs. A 1978 study by the National Telecommunications and Information Administration concluded that the social loss resulting from this uneconomic reduction in interstate calls runs to about $1.7 billion annually.
- Moreover, subsidization may encourage local phone companies to operate inefficiently. The larger their local costs, the more they receive in payments from outside sources—a relationship that lowers their incentive to minimize cost. This inefficiency, together with the uneconomic reduction in long-distance traffic, calls into question the wisdom of maintaining the subsidy even if bypass were not a threat.
- On the local level, business rates generally are markedly higher than residential rates, perhaps even high enough in some areas to supply part of the subsidy to residential access. The reason for the high rates is that business firms are widely thought to be much less sensitive than households to the rates they pay. Of course, they presumably pass at least some of their increased cost on to their customers.

If the reasoning behind the FCC's access decision is carried to its logical conclusion, the price of residential subscriber access will end up near its full cost, with the flat charges rising on average from less than $10 a month to more like $25 (in current dollars). It is this possibility that arouses fears that some households might simply have to do without phone service entirely, especially in high-cost areas.

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Maintaining Universal Service

Most agree that by now we have achieved universal telephone service. Today, more than 95 percent of the nation's households have at least one telephone, the figure varying from 72 percent in Alaska through 88 percent in Nevada to nearly 100 percent in Massachusetts and several other states. How much would residents of other states be willing to pay—how large would the network externalities be—if they could reach those last few thousand Nevadans and Alaskans? No one knows.

To most people universal service seems to mean 100 percent of all residences having telephones. But accessibility is not determined solely by whether there is a telephone in a home. Some people can be reached through a close neighbor's phone, or a pay phone down the hall, or a phone at work. Indeed, they may be more accessible on average than the person who has a phone at home but is seldom there. Finally, we cannot dismiss the U.S. Postal Service as a partial substitute.

Although the exact relationship between the number of subscribers and the degree of telephone accessibility is unclear, the two are surely related to each other. The next question is, therefore, to what extent would an increase in the price for access to the network lead some

(Continues on page 50)

Why Local Rates Are Rising
(*Continued from page 36*)

subscribers to drop out? The evidence suggests that even substantial price increases would have a rather small effect. To begin with, econometric studies of the demand for network access have shown that doubling the price would reduce the number of subscribers by about 10 percent (Lester Taylor, *Telecommunications Demand: A Survey and Critique,* 1980). Second, the forthcoming rise in local rates will be accompanied by lower long-distance rates, probably intrastate as well as interstate. These lower rates will provide a double incentive for subscribers to stay in the system: both because they could expect to get more incoming calls and because they would place more long-distance calls themselves. Overall, then, the reduction in subscribers should be even lower than the previous studies would suggest.

To be sure, the states with especially high subscriber access costs will be hit harder than the average. But it turns out that these same states will get a disproportionate advantage from the lowering of long-distance rates. In 1981, for example, the residents of Nevada and Wyoming spent about 19 percent and 17 percent (respectively) of their phone time on interstate calls, compared with a nationwide Bell System average of 8 percent. Thus, the residents of Nevada and Wyoming should be more willing to continue telephone service than residents elsewhere since they will enjoy large benefits from lower interstate rates.

Of course, none of this provides much comfort to state regulators, state legislators, and members of Congress. They will have to listen to complaints about higher phone bills, even if not a single household drops out of the system. Those complaints will be especially persistent because, in contrast to the situation with electricity prices, the increases in phone rates will reflect not obvious increases in underlying costs, but only a change in how costs are covered.

Can Regulators Maintain Low Rates?

For better or worse, members of Congress, state regulators, and others are casting about for ways to relieve the pain of rising local rates. It is instructive to consider alternatives that might do that while holding efficiency losses to a minimum.

Taxing All Long-Distance Carriers. There is, of course, the possibility of trying to preserve the current system with as few changes as possible. The obvious way to do this would be simply to enlarge the universal service fund in future years as particular states find it harder to subsidize residential access. But imposing substantial charges only on those long-distance carriers that connect their subscribers through local telephone lines would simply exacerbate the bypass problem that the FCC seeks to mitigate.

[The approach] embodied in the Packwood and Dingell-Wirth bills . . . would avoid the bypass threat. But it would discourage long-distance calling. . . . [while] penalizing the development of new and lower-cost technologies. . . .

So attention in Congress is turning in a different direction. Local rates could be kept down nationwide, or just in high-cost areas, by levying a charge on *all* long-distance carriers, whether or not they require access to the local telephone systems. This approach, which is embodied in the Packwood and the Dingell-Wirth bills, would avoid the bypass threat. But it would discourage long-distance calling to a greater degree than other alternatives. Moreover, such a clear-cut case of penalizing the development of new and lower-cost technologies raises major issues of national economic policy.

Low-Cost Loans. Another idea borrows from an old New Deal program. Today 95 percent of rural homes have telephones, compared with only 38 percent in 1950, thanks in large part to federal loans and loan guarantees made to rural telephone companies at low interest rates. Similar loans and loan guarantees could be used now to help reduce access rates in rural areas. However, any policy of subsidizing rural access per se is open to charges of inequity, one reason being that many rural people do not have particularly low incomes, especially in the West. Why—it would be asked—should working-class city dwellers pay taxes to bring telephones to

cattle ranches and oil fields? "Network externalities" are a poor justification, since middle-class ruralites will buy telephones whether they are subsidized or not.

Thus the question arises: why not subsidize just the poor?

Telephone Stamps. One straightforward way to reach the poor would be to establish "telephone stamps" as an add-on to the food stamp program. The recipient would cash in the stamps to cover some specified maximum dollar purchase of local telephone service. This approach would target many of those most likely to drop phone service as rates rise. It would also have the advantages of drawing on the food stamp administrative machinery already in place and putting the burden of subsidy on the general taxpayer, rather than on users of other telephone services priced above cost. Finally, the total outlay it would require (for any given level of subsidy) would be much lower than the one that would be needed to subsidize access across-the-board, since only about 8 percent of households are food stamp recipients.

Despite these advantages, this approach would be hard to sell. Economists are fond of saying that subsidies should be made explicit in order to subject them to public scrutiny. But politicians tend to prefer internal subsidy schemes whose costs do not appear as a line item in anyone's budget. Moreover, it is not clear why, if the food stamp program is to be expanded to include nonfood items, telephone service should be the top item on the list. A more compelling case might be made for fuel aid, or clothing, or shelter, or any other basic human need.

"Lifeline" Pricing of Access. "Lifeline" service, which is already used in some areas, employs a flat below-cost access fee, along with higher separate charges for local calls to meet the revenue shortfall. This approach has the attraction of not requiring explicit subsidies from taxpayers. On the other hand, it would be economically inefficient because some local calls would be priced above cost. And the higher the charges for local calls, the greater the incentive to bypass subscriber lines and compete with telephone companies for *local* service. Moreover, the task of metering local calls would be an additional burden to local exchanges that do not now have metering equipment. Finally, unless some kind of means test is incorporated in the scheme, the subsidies are untargeted.

Despite these problems, lifeline service may prove to be a workable compromise. If it is targeted only to the poor (food stamp recipients, for example), the burden imposed on local calls might be small enough that uneconomic bypass would not be a serious problem.

BECAUSE THE ALTERNATIVES for keeping residential access rates low have serious drawbacks, it is likely these rates will rise toward the actual cost of service. This should stimulate more use of long-distance services and more cost-cutting efforts in local service—both of which should contribute to more efficient use of resources. Carefully targeted subsidies through a universal service fund—a political compromise—*may* suffice to keep rates within reasonable bounds in the highest-cost areas. Lifeline service with a means test might also help.

Moving beyond the current controversies, we should remember that our dilemma has been brought on by our good fortune. The new technologies responsible for the transformation of the industry are, overall, cutting the cost of transmitting information dramatically and stimulating a badly needed increase in the nation's productivity. Like the robot welders on GM's assembly lines, the new telecommunications technologies will benefit society as a whole. But not everyone will be better off—and that is why the problems arise. ■