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Local Competition under the 1996 Act

Decades of regulation have left the U.S. telecommunications sector with a distorted rate structure.¹ A substantial share of long-distance revenue has traditionally been used to defray the non-traffic-sensitive costs of the local network, through carrier access charges and excessive intrastate rates. In addition, local residential rates have been kept artificially low, particularly in less densely populated areas, while local single-line business rates are generally more than twice as high, despite the fact that the average business line is shorter than the average residential line.² In view of this distortion, entrants should have ample opportunity to target business and residential subscribers that use a large amount of long-distance service, particularly in the areas of greatest population density.

Even so, entrants have no road map for success because their experience with local competition is so limited. The last time the United States had competitive local telephone markets was at the beginning of the twentieth century, after the initial Bell patents expired.³ That history would be of little use to an entrant contemplating entry into today's market, with its sophisticated modern technology.

The Difficult Economics of Local Entry

When the 1996 Telecommunications Act opened all telecommunications markets to entry, long-distance rates were still far above incremental cost,

partly because of excessive carrier access charges. Given the distortion in local residential rates and the highly skewed distribution of long-distance calling, a large share of local residential customers were generating negligible net returns to local carriers.⁴ But even with the profitable local customers included, incumbent local telephone carriers were not earning excess returns at this time because they were tightly regulated. At the end of 1996, financial markets valued the large Bell companies' nonwireless assets at about \$1,940 per switched access line, which was approximately equal to the book value of these companies' network assets per line.⁵ The value of their domestic local operations was undoubtedly even less because foreign operations, directories, and various other miscellaneous services are included in the nonwireless assets.⁶ Without these assets, the value of the local exchange operations was little more than \$1,600 per line at the end of 1996, or probably no more than the *reproduction* cost of network assets. Thus the tightly regulated incumbent carriers were not likely earning monopoly rents that entrants could attack after 1996.⁷

Between 1996 and 2003, the incumbents' market value grew about \$230 per line, or 12 percent. During this period, the S&P 500 index of equity prices rose by about 50 percent. Therefore the Bell companies' equities increased in value by substantially less than the general stock market over this seven-year period, despite their considerable investment expenditures to upgrade their networks so as to be able to offer advanced (digital subscriber line, DSL) services (see chapter 8).

According to data from the Federal Communications Commission (FCC), the incumbent local carriers realized about \$615 in annual revenue per switched access line in 1996–98.⁸ The larger incumbents had cash flows equal to approximately 42 percent of these revenues, or about \$258 per switched access line.⁹ A new entrant might be able to exceed the incumbents' revenue yield by targeting business customers, but its capital cost per customer would likely be far above the incumbents' \$1,600 investment per line in the first few years of operation because of the economies of density. An entrant that did happen to attract the lower-yielding residential customers might realize annual revenues from local service of only \$300 per line or even less. At these yields, the incumbent firm would be losing money except in the most densely populated areas. Even if the entrant operated much more efficiently than the incumbent, surely a possibility, the returns would not be high enough to amortize its fixed investment if it simply replicated the incumbent's plant. An entrant would there-

fore have to search for a lower-cost entry strategy or provide new services to its customers so as to increase net revenues per line.

Entry Strategies

As already mentioned, the 1996 act opened local telecommunications markets to entry by barring state regulators from denying entrants the right to compete and by specifying a complex set of "interconnection" requirements between entrants and incumbent local exchange carriers (ILECs). Under the latter provisions, ILECs were required to (1) offer their services at wholesale rates to the entrants so that the entrants could "resell" them; (2) "unbundle" their networks so as to enable entrants to lease ILEC facilities, unbundled network elements (UNEs), at regulated prices that reflect costs; and (3) interconnect with entrants at any technically feasible point.¹⁰ These provisions allowed new firms to enter local telecommunications markets without having to replicate all of the incumbents' network facilities.

Resale

Entrants have found the new entry options to be a mixed blessing. The simple resale of incumbents' services could never be a very profitable activity because under the 1996 act entrants would simply be obtaining a marketing margin equal at most to the incumbents' "avoided costs" of retailing their services. This margin between retail and wholesale prices was generally in the range of 15 to 20 percent of the retail rate because incumbents do not have to engage in large marketing programs to enroll their subscribers.¹¹ Hence if a residential customer was paying \$360 a year for its local service, the entrant would receive a gross margin of \$54 to \$72 a year to pay for its marketing, billing, and other customer service costs. Entrants quickly discovered that offering residential resale service at these margins could not be a profitable stand-alone business. Unfortunately, neither is the resale of much higher-priced local business services because the entrant is locked into the incumbent's service package and cannot offer the business customer new or enhanced services.

Resale is likely to be an attractive short-term option only for an entrant whose long-range strategy is to build its own network, a strategy that takes time to implement. If the entrant markets its new services throughout a metropolitan area but its network facilities reach only a small share of the

area, it can use resale to serve customers who respond to its marketing in areas that are not yet served by its own network.

In other cases, an entrant may be offering a bundle of services over its network that does not include local telephony. For example, RCN has built hybrid fiber-coaxial cable networks to deliver broadband Internet access and video services. If it does not wish to build its own circuit-switched telephone facilities into such a network, preferring to wait for an improvement in the technology for delivery of voice over Internet protocol (VoIP) services, it may decide to offer resold local telephony service to fill out its "bundle" of services.

Network Unbundling

A very large share of the incumbent local telephone network's \$1,600 to \$2,000 in investment per line is sunk in the distribution plant deployed to reach the final subscriber. Replicating this cost for all but the highest-revenue customers in the more densely populated areas is a daunting task unless the entrant can offer an array of new services. For this reason, the 1996 act included a requirement for unbundling incumbent facilities and providing them at wholesale "cost-based" rates to entrants. These rates are established through state-by-state arbitration and regulation and have been the subject of endless controversy since the act was passed. Despite the FCC's prescription that these rates be based on forward-looking, total-element, long-run incremental cost (TELRIC), the actual rates vary enormously across the states. For example, the rate for leasing the subscriber line in the areas of greatest population density in Illinois was just \$2.59 to \$7.07 a month in early 2002, but it was more than \$15 in such areas in eleven other states.¹²

TELRIC prices are supposed to be based on the cost of building new facilities and amortizing them over their full economic life, but entrants are allowed to lease the incumbents' facilities at these rates on a month-to-month basis. Therefore for facilities that are irretrievably "sunk," entrants are provided with a free option because they do not have to incur the risk that the incumbent faces from technological obsolescence or other forces that could strand such an investment.¹³

The requirement for network unbundling can be defended on grounds similar to those just advanced for resale. Building network facilities to connect all of an entrant's customers can be extremely expensive and time-consuming. An entrant could begin by investing in local switching and interoffice transport capacity but use the incumbents' local loops to con-

nect its customers to its own switches until it has enough of them to justify building its own distribution lines in densely populated areas. Doing so may never be warranted in the less densely populated areas if the entrant is using a technology based on terrestrial wires or cables. In these latter areas, it may almost always be necessary to rely on unbundled loops or resale. Hence these may be "essential facilities" to which the incumbent is required to provide entrants access.¹⁴

The use of unbundled network elements grew substantially once regulators began insisting that the entire complement of incumbent facilities be provided to entrants at these TELRIC rates, thereby essentially providing the entrant with the opportunity to resell the incumbent's services at a much larger wholesale discount.¹⁵ If the entrant used this entire UNE "platform," however, it sacrificed the flexibility to design its own network to offer new services. In other words, it simply obtained a resale option at a wider discount.

Facilities-Based Entry

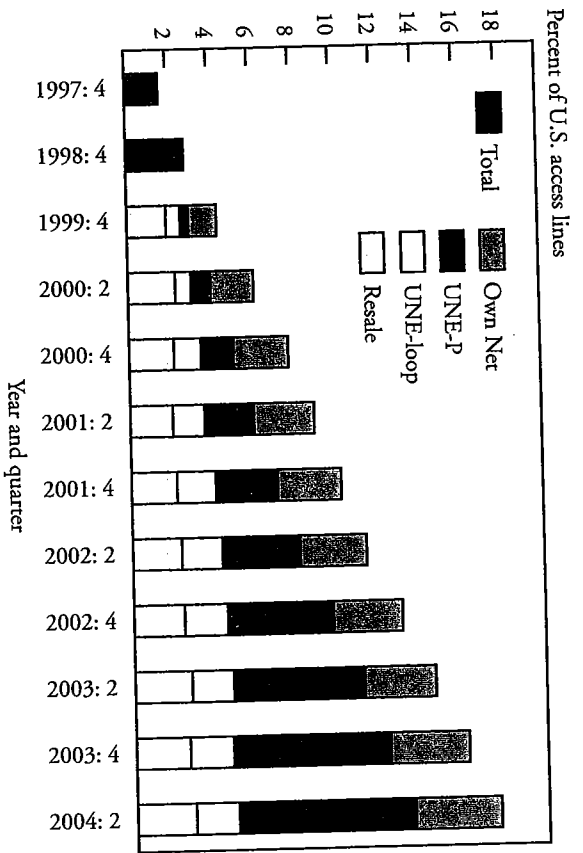
An entrant into local telecommunications may choose to build its own network facilities, thereby allowing it the flexibility to develop new technologies or offer new services. These facilities may be in the form of the fiber-optic/copper plant deployed by the incumbents, fiber-optic/coaxial cable deployed by cable television companies, fixed wireless facilities, cellular systems, or even satellite systems. While such entry is initially more expensive, it enables the entrant to differentiate its services from those of the incumbent. Equally important, it frees the entrant from the need to depend on its principal rival for maintaining and modernizing its network.

Growth of the New Entrants

Before 1996 there was little local mass-market competition in the U.S. telecommunications sector because state regulators generally discouraged local competition. A few competitive access providers (CAPs) had begun to build fiber rings in central business districts principally to interconnect large customers with long-distance carriers. State regulators could not block these entrants because they were providing a local service defined as "interstate access." However, the 1996 act opened all telecom markets to entry, including the local market for small business and residential subscribers.

Entry began slowly in 1997-98, as total lines of competitive local exchange carriers (CLECs) increased from about 1.5 million CAP lines to

Figure 4-1. U.S. Local Competitors' Share of Access Lines, 1997-2004



Source: FCC, *Local Telephone Competition: Status as of December 31, 2003* (June 2004).

2.4 million total entrant lines. Thereafter the pace accelerated, and by the middle of 2004 entrants had 32 million lines, or about 17.8 percent of all switched access lines (figure 4-1).

Network Strategy

More than two-thirds of the growth in CLEC lines since June 2000 is attributable to resale, including traditional, total service resale and the lines leased as UNE-P (figure 4-1). As might be expected, the share of CLEC lines represented by traditional resale has not grown appreciably since the end of 1999. The 15 to 20 percent gross margins available to the entrants from this form of entry are not very attractive. However, the use of the UNE-P has soared, in large part because entrants have been able to gain access to the entire platform at low TELRIC rates or even less without having to make any capital expenditures.¹⁶ This use of the entire incumbent's network is, in essence, resale at discounts of 50 percent or more, providing potentially very attractive margins for arbitrage-entrants (see table 4-1).

Table 4-1. Arbitrage Margins Available in Bell Company Territories, 2002

Company	Average wholesale		Average retail	
	UNE-P rate (dollars/month)	UNE-P rate (dollars/month)	revenue/line (dollars/month)	revenue/line (dollars/month)
BellSouth	23.10	23.10	53.69	53.69
SBC	16.55	16.55	51.23	51.23
Verizon	19.40	19.40	42.49	42.49
Qwest	22.94	22.94	51.10	51.10

Source: Anna Maria Kovacs, Kristin Burns, and Gregory S. Vitale, *The Status of 271 and UNE-Platform in the Regional Bell Territories* (Commerce Capital Markets, November 8, 2002).

As a result, by the end of 2003 nearly two-thirds of all entrants' lines reflected little more than the resale of the incumbents' services.¹⁷ Before 2001 the share of CLEC lines served by their own facilities had been growing, but it had receded to just 23 percent by the end of 2003. The rest of the 30 million entrants' lines were leased or resold from the incumbents.

Even more significant, reliance on the unbundled platform has been associated with a lack of growth in the new noncable entrants' use of their own lines. The slight increase in the net share of all entrants' own lines since June 30, 2000 (see figure 4-1), reflects the steady expansion of telephone subscribers to cable television systems, from 1.2 million in December 2000 to 3.3 million in June 2004. By contrast, the facilities-based lines of noncable company entrants remained constant at about 4 million lines.¹⁸ Thus it appears that noncable entrants stopped investing in their own facilities, perhaps because of the adverse outcomes for those who did so before the 2000 collapse in CLEC stock values, but also because the environment created by regulators provided passive resellers of incumbent services more attractive returns than did investing in their own switches or even their own complete networks.

The growth of entrants using their own switches and leasing incumbent loops has also slowed with the expansion of the resale of incumbents' services through the UNE-P. This trend would not likely have reversed itself under any conditions because there is no evidence that the entrants who use the entire UNE-P—such as MCI, AT&T, Talk America, or Z-Tel—were doing so to obtain a “toehold” before launching facilities-based entry. Now that the Court of Appeals has virtually closed the door on the UNE-P, however, these companies will be forced to invest in at least some of their own

facilities or slowly withdraw from offering local services. Most will choose the latter course.

The Effect of UNE Rates on Entrants' Choice of Network

Given the enormous variation in wholesale UNE rates across states, it is possible to test for the effect of these rates on the CLECs' choice of network strategy in the first five years of the new act's implementation. If the UNE rate is lower than construction cost per line, CLECs would obviously want to lease lines rather than build them. On the other hand, if the UNE rate exceeds construction costs, CLECs would be motivated to build their own facilities, all other things being equal.

To determine the effect of UNE rates on the use of unbundled loops, I and two colleagues undertook an econometric analysis of the choice of network design in 2000-01 and 2002.¹⁹ First, we estimated the direct elasticity of substitution between UNEs and the CLECs' own loops from a cross section of state data:

$$\log(F_i) - \log(U_i) = a + b * \log(UPrice_i) + d * \log(FCost_i) + u_i, \quad (1)$$

where i is a geographic (state) index, F = CLEC-facilities-based lines, U = UNE lines, $UPrice$ = statewide average UNE loop rate, $FCost$ = statewide average of FCC ARMS data on embedded costs per line or FCC estimates from the Hybrid Cost Proxy Model (HCPM), and u = random disturbance term. We expected that the absolute value of the estimate of b would not be significantly different from d . If the estimates passed this empirical test, we could then estimate equation (2), to obtain an estimate of the direct elasticity of substitution, b .

$$\log(F_i) - \log(U_i) = a + b * [\log(UPrice_i) - \log(FCost_i)] + e_i. \quad (2)$$

For the monthly UNE price per line, we used the average UNE loop rate as determined in proceedings supervised by each state's Public Utilities Commission (PUC) and published by the National Regulatory Research Institute (NRRRI).²⁰ To estimate the cost of building loops, we used two alternatives: the embedded cost per loop from the FCC's ARMS data and the FCC's HCPM model. We calculated the number of CLEC facilities-based lines and the number of UNE lines from two sources as well: the E911 database and the FCC's *Local Competition*

reports. Thus our model focuses on a CLEC's incentive to lease UNE loops in relation to investing in its own facilities-based network, a decision that most CLECs face.²¹

In a least-squares regression estimate of equation (1), using the available data on CLEC lines, we found the coefficient of the $FCost$ variable to be negative as expected, and the absolute values of these two regression coefficients in equation (1) were not significantly different.²² The resulting estimates of the direct elasticity of substitution in equation (2) are generally statistically significant and between 0.4 and 1.4, depending on the year and the source of the CLEC lines data. These estimates suggest that wholesale UNE rates have a substantial effect on the incentive for entrants to invest in their own facilities.²³

The Determinants of the Level of CLEC Entry

Given the short history of local competition, there is not a wealth of evidence on what influences local entry. Even the few empirical studies published on the subject shed little light on the determinants of *successful* entry because most of the local entrants examined were failures. In general, entry appears to correlate with market size and density, surely a reasonable result.²⁴ Entrants have tended to target business customers more than residential customers for obvious reasons: regulated business rates are much higher than residential rates. Even if they are not using their own network facilities, entrants will be attracted to the larger, urban markets because of the economies of density in marketing their services. Entry is also correlated with population or employment in the local market.²⁵ Interestingly, many entrants avoid the largest markets because of the difficulty in competing with the first movers in this arena, the CAPs.²⁶ Entrants fall into several types: some are national, others local or regional. Many of the latter are privately owned firms about which little public financial information is available. Some serve business customers exclusively, others both businesses and residences. Some target a particular group of small to medium businesses. Because entry conditions have been greatly eased by providing entrants access to incumbents' facilities, a major problem for the new competitors is their proliferation in a given market. This is particularly true of the larger, national CLECs in the major metro politan areas. For this reason, the most successful entrants may be those who target a particular class of customers in medium-sized cities that are still unexplored by the larger national entrants.²⁷

So far scholarly analysis of the effect of state regulation on the extent of local entry has provided mixed results. Some studies have found that rate-of-return regulation reduces UNE-based entry, because regulated UNE rates tend to be higher in such states, but that price-cap regulation tends to produce more entry in general.²⁸ Using *number of entrants* rather than extent of penetration to measure entry, one study has shown that local access and transport areas (LATAs) in states with price-cap regulation attract fewer entrants than those without such incentive-based regulation.²⁹ This model does not include wholesale or retail prices and does not account for the effects of cable telephony or wireless competition. Still others report that UNE rates, as well as the resale discount, have little effect on total CLEC lines when the effect of Bell company entry into long distance is taken into account.³⁰ However, they do find a mild positive effect on entry from the regulated retail residential rate.³¹

At this stage, as mentioned earlier, no one really knows what drives *successful* entry. In the first eight years, entrants typically offered virtually the same services as the incumbents did, particularly to residential customers. They also went after small to medium-sized businesses, but their instability made them dubious candidates for providing such an essential service to this market. The next section documents the entrants' struggle.

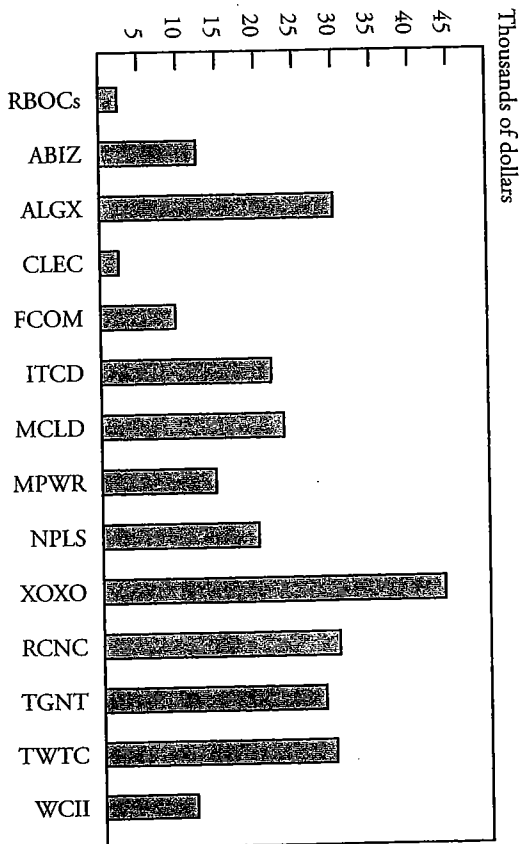
How Have the Entrants Fared?

Given the limited experience with rivalry in local telephone markets and the time it would take to develop entry strategies, it is hardly surprising that entry has not developed at a more rapid pace. In 1996 capital spending by the local entrants, excluding the CAPS, was only \$1.2 billion, but it increased rapidly thereafter, more than doubling each year through 1999.³² In 2000 entrants reportedly spent \$12 billion on capital facilities.³³ Unfortunately, despite these expenditures, few of them were able to attract subscribers rapidly, so by 2000 they were beginning to encounter severe financial difficulties.

Capital Spending and Equity Values

By the end of 1999, entrants, excluding the CAPs, had spent at least \$22 billion on capital facilities, but they had attracted only 8.2 million subscribers, 3.5 million of which derived from the low-margin resale of incumbent services.³⁴ Even ignoring the CAPs' lines altogether, the new entrants' cumulative 1996-99 capital spending amounted to \$4,700 per

Figure 4-2. Market Value per Line for RBOCs and CLECs, December 31, 1999



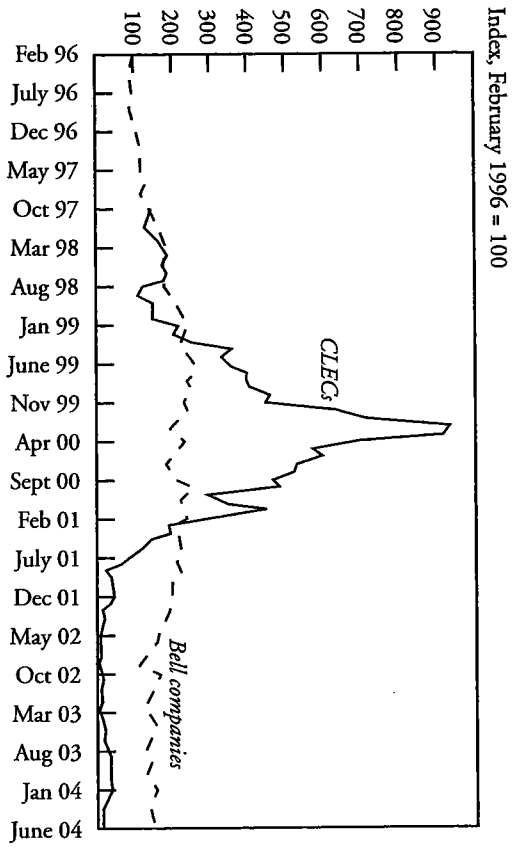
Source: Author's calculations and www.quote.yahoo.com.

UNE or facilities-based line, or \$2,700 per total line, including the lines offered through simple resale.

At end of 1999, the publicly traded CLECs were valued at an astounding \$116 billion, or about \$20,000 per switched access line (excluding the CAPs).³⁵ By contrast, as figure 4-2 shows, the weighted average of Verizon, Bell South, and SBC market values per switched access line (excluding their wireless operations) was less than \$2,500, or about one-twelfth the value of the leading CLECs at the time, namely, Allegiance, Time Warner Telecom, XO, McLeod, Teligent, and RCN. Obviously, the financial markets had a very optimistic view of the future prospects of these new local entrants in late 1999. This view would change with a vengeance by the middle of 2000.

When the market value of telecom firms dropped sharply in 2000-02, CLEC equities took the steepest dive, driving the value of the listed CLECs from \$116 billion to just \$10 billion (see figure 4-3). The total value of the surviving CLECs was about \$1,300 per line at the end of 2002.³⁶ By the end of 2003, the surviving CLECs were valued at only about one-quarter

Figure 4-3. Local Telecom Company Stock Prices, 1996-2004



Source: Author's calculations and www.quote.yahoo.com.

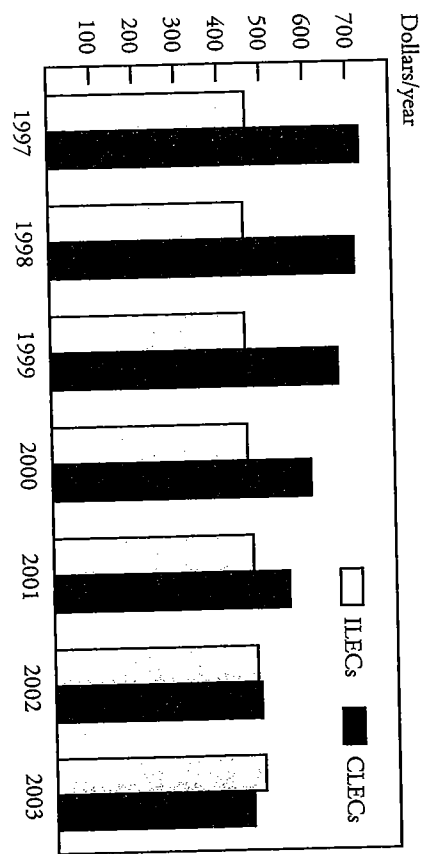
of all listed CLECs' cumulative capital expenditures since 1996.³⁷ The equity markets reacted harshly when it became clear that these companies are not likely to grow very rapidly in the foreseeable future.

As discussed in the next section, the long-distance carriers (IXCs) also plummeted in value, whereas cable and regional Bell operating companies (RBOCs) experienced a more modest decline, generally outperforming the overall equity market. The telecom "meltdown" (see figure 3-2) therefore affected primarily the long-distance carriers, the wireless companies, the wholesale fiber suppliers, and the CLECs (the travails of the first two are examined in chapters 6 and 7).

Subscriber Revenues

One of the reasons why the CLEC market valuations shown in figure 4-2 did not persist is that these new companies were unable to generate revenue growth from their modest subscriber base. As the CLECs grew, their end-user revenues per subscriber fell steadily (see figure 4-4). Apparently these entrants were unable to attract many large business and institutional customers or to "cherry-pick" residential customers with large monthly bills. As a result, the CLECs' average annual end-user rev-

Figure 4-4. ILEC and CLEC End-User Revenues per Line, 1997-2003



Source: FCC, *Telecommunications Industry Revenues, 2002* (March 2004); FCC, *Local Telephone Competition: Status as of December 31, 2003* (June 2004). Revenues per line are equal to the full year's revenue divided by the average of December 31 end-user lines data for the current and preceding years.

enue per line fell by more than \$150 between 1997 and 2001, a period in which ILEC revenues per line increased slightly. These trends could not have been very heartening to entrants, or to their investors, who must have thought they could exploit the distorted regulated rate structure to gain a foothold. Moreover, the Bell companies' huge advantage in broadband is likely to narrow the differential substantially.

Assume that in 1999 investors could have foreseen that the entrants' total revenues per line, including wholesale revenues, would decline to the level they achieved in 2002, or \$689 a year.³⁸ Also, assume optimistically that they could achieve cash-flow margins of 42 percent (equal to margins of the incumbents). In that case, the CLECs' cash flow would have averaged about \$289 per line in 2002. Even then, to justify the market capitalization of \$20,000 per line achieved at the end of 1999, these carriers would have had to increase their subscribers at a rate of 24 percent a year ad infinitum, assuming a before-tax cost of capital of 25 percent.³⁹ But a 24 percent annual growth in lines would find the entrants owning all of the country's lines in just thirteen years, not a likely outcome.

Alternatively, one could assume no subscriber growth and an annual cash flow percentage equal to that of the incumbents, in which case these CLECs would have had to have more than 30 percent of the country's

access lines at the end of 1999 to justify their market capitalization at the *RBOCs' cost of capital*. But at that time, the entrants had only 4 percent of the country's access lines and a much higher cost of capital. Clearly, the equity markets had placed a very optimistic set of bets on these companies in 1999.

Why have CLEC end-user revenues per line generally been declining since 1997? Given the distorted local rate structure, one would have expected entrants to target business customers and residential customers who spent heavily on telecommunications. However, nearly two-thirds of the entrants' lines connect to residences and small businesses, and this share has been rising steadily.⁴⁰ Furthermore, these are not residential customers whose telecom spending is atypically high.⁴¹ Also, the entrants do not appear to offer residences much lower rates than the ILEC rates for their connections. The average CLEC local bill in the first two quarters of 2001 was \$35 a month for CLEC customers and \$32 a month for ILEC customers.⁴²

A linear regression of the monthly local bill on the various calling features and the number of lines finds that the prices charged by CLECs for calling features, such as call waiting or caller ID, are strikingly similar to those charged by the ILECs in the first two quarters of 2001.⁴³ After netting out these features and the number of lines, the average charge for local residential services was slightly higher for entrants (\$25) than for incumbents (\$23). The average number of features chosen by CLEC customers (2.25) was slightly lower than the number chosen by incumbent-carrier customers (2.40). In short, the entrants did not attract households with a greater propensity to spend on telecom services, nor did they appear to offer residential subscribers measurably lower rates. In light of these facts, one might reasonably ask why these subscribers bothered to shift to CLECs at all. Of course, the rates offered *business* subscribers may have been substantially below those offered by the incumbents.⁴⁴

Given the limited penetration of the new entrants into the residential market, it is difficult to estimate a model of consumer choice of local carrier through an econometric model. In addition, it is difficult to ascertain the availability of CLEC services in various parts of the country.⁴⁵ How, then, can one determine if a household that subscribes to an incumbent carrier's services makes this choice because there is no alternative or because it is unaware of any alternative? To explore this question, I use a logit model of household choice between a CLEC and an ILEC as its local carrier for the first and second quarters of 2001. I focus on urban households since entry

in urban areas was advanced enough by 2001 to provide a very large share of households in these areas with at least one competitive choice.⁴⁶

The model's independent variables are size of the metropolitan area, income, age of the head of household, number of persons in the household, race or ethnicity, and two dummy variables indicating whether the household subscribes to AT&T or MCI for its long-distance service. The latter two variables are intended to capture the fact that AT&T and MCI are also new entrants into local exchange service and may therefore have an advantage in inducing their customers to switch from the incumbent local carrier.

Because of the large number of local entrants, I was unable to identify a single price variable for the entrant's local service for each household in the sample. A given household may have a number of entrants to choose from, and their prices may vary. Instead of using any one entrant's price, I use the UNE-P wholesale rate that any entrant faces in the state in which the household resides. For the incumbent rate, I use the average ILEC rate in the state, stripped of the estimated prices of second lines and calling features. Hence my price variable is the ratio of the UNE-P rate to the average ILEC rate for the state.

For the first quarter of 2001, my sample includes 658 households, 52 of which used a new entrant for their local service. The chi-square goodness of fit score for the entire logit regression is 50.3, which is significant at the 2 percent level of confidence. The relative price coefficient is -0.379, which has the expected sign but is not statistically significant. For the second quarter of 2001, with 49 households of a total of 685 subscribing to an entrant's service, the goodness of fit improves to a chi-square of 57.6, which is significant at the 0.4 percent level of confidence. The estimated coefficient for the UNE-P/ILEC price variable in this quarter is -2.094, which is significant at the 0.5 percent confidence level. Thus in the second quarter of 2001, at least, households appear to have been responsive to relative prices of local service. At the point of means, the elasticity of CLEC choice with respect to relative prices is close to -2.0.

Why Have Local Entrants Struggled?

The market's lofty expectations for CLECs have clearly not been realized. What has happened since 1999 to suggest otherwise? As explained earlier, the simplest answer is that CLECs could not and did not wrest sufficient revenues from the incumbents to satisfy these expectations. By the end of

1999, it was already clear that their revenues per line were declining steadily (see figure 4-4). At that time, 41 percent of CLEC lines were residential and small business lines; by the end of 2003, this share had risen to 63 percent. Between December 1999 and December 2003, the incumbent companies' line counts among medium and large businesses and institutions fell by 8.4 million, while the CLECs attracted 6 million net additions from these large users.⁴⁷ But there is little evidence that the CLECs were attracting the high-revenue customers from this group.

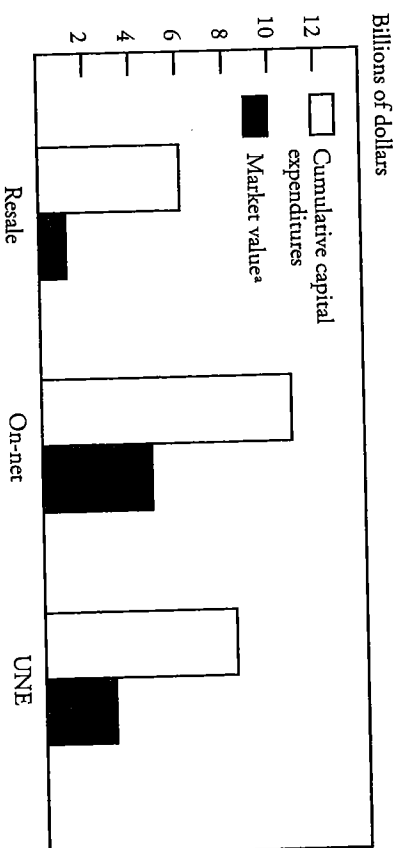
In earlier research, I concluded that the entrants' network strategies were an important determinant of their ability to grow and to attract revenues.⁴⁸ Specifically, CLECs that built their own networks were more likely to convert capital spending into revenues than were those that relied heavily on resale or UNEs. Since that time, however, several of the larger facilities-based carriers, such as XO and RCN, have encountered severe difficulties and have been reorganized under the protection of bankruptcy. Indeed, all of the new carriers are now struggling or have failed altogether.

By the end of 2002, the market values of new entrants, regardless of network strategy, were substantially less than the cumulative 1996–2002 capital expenditures by all new entrants in each category (figure 4-5). By this measure, the carriers building their own facilities had slightly outperformed those relying on UNEs, but the difference was very small. Since reported capital expenditures presumably do not include start-up losses, all three groups of entrants obviously performed badly by this measure.

Surprisingly, reliance on unbundled elements or resale does not generate more revenues per dollar of capital investment than building one's own facilities. The carriers that survived into 2002 by relying heavily on UNEs generated \$0.67 in 2001 revenues for each dollar of cumulative capital spending between 1996 and 2001.⁴⁹ Those relying on resale did somewhat worse, obtaining \$0.47 in 2001 revenues per dollar of cumulative investment.⁵⁰ But those investing in their own facilities generated \$0.65 in 2001 revenues per dollar of cumulative investment, presumably because by having their own facilities they could generate more revenue per customer than resellers to offset their greater investment.⁵¹

By a second measure, the change in market capitalization, all CLECs have suffered. The facilities-based carriers' market values declined by more than 86 percent between December 31, 1999, and December 31, 2003. During this same period, resellers lost 95 percent of their market value, and UNE-based carriers lost 91 percent of theirs. The facilities-based carriers and the UNE-based carriers each had total market capitalization of \$36 bil-

Figure 4-5. CLECs' Market Value, December 31, 2002, versus Cumulative Capital Expenditures, 1996–2002



Source: Company reports; and www.quote.yahoo.com.

a. The market values include the book value of debt.

lion on December 31, 1999. By the end of 2003, these values had declined to just over \$2 billion. Over the same period, the resellers' market cap fell from \$20.3 billion to \$0.4 billion. In short, there was very little equity left in the competitive local exchange sector by the end of 2003.

A closer look at the individual entrants provides little evidence of a winning strategy among any of them. Of the major publicly traded CLECs that entered in 1996–2002 (excluding the long-distance carriers), few have survived, and of the survivors, many have been forced into bankruptcy (table 4-2). Twenty-five of these survivors, excluding WorldCom and AT&T, realized revenues of \$9.3 billion in 2002, but these sums include a variety of nontelephone revenues. At the end of 2002, cable television companies had 3 million telephone subscribers, or 0.8 million more than at the end of 2001.⁵² Assuming that these cable companies realized \$500 per line in telephone revenues, they accounted for about \$1.3 billion in CLEC revenues in 2002. Given that the competitive local carriers realized \$18.5 billion in total revenues in 2002, as reported by the FCC, the CLECs not listed in table 4-2, namely, the long-distance carriers and various privately traded companies, accounted for about \$7.9 billion in revenues in 2002.

In addition to the publicly traded companies, about forty small, private firms were offering telecommunications service at the end of 2002. These companies accounted for about one-eighth of entrants' telephone revenues

Table 4-2. CLECs: Entrants and Survivors, 2004

<i>Company</i>	<i>Network strategy</i>	<i>Survivor?</i>	<i>Revenue (millions of dollars, 2002)</i>
Adelphia Business Solutions	Resale/on-net	Yes (operating in bankruptcy)	...
Allegiance Telecom	UNE	No	771
Allied Riser	On-net	No (acquired by Cogent)	...
Advanced Radio		No	...
US LEC Corp	UNE	Yes	247
Choice One	UNE	Yes	291
Cogent	On-net	Yes	52
Concentric Network	On-net/UNE	No	...
AT&T	UNE-P	Yes	Local revenues unknown
ATX (formerly CoreComm Ltd)	Resale	Yes	299
Convergent Communications	Resale	No	...
Covad Communications Group	UNE	Yes (reorganized in bankruptcy)	384
CTC Communications Corp.	Resale	No (acquired by Columbia Ventures)	330
CapRock	Resale	No (acquired by Mcleod)	...
Cypress Communications	UNE plus on-net	No (acquired by US RealTel)	...
DSLNet	UNE	Yes	46
Elec Communications	UNE-P	Yes	14
Electric Lightwave	UNE/on-net	No (acquired by Citizens)	185
e.spire Communications	UNE	No (acquired by Xspedius in bankruptcy)	...
Ixnet	UNE	No	...
Focal Communications Corp.	UNE	No	329
GCI	UNE/on-net	Yes	32
GST Telecom	UNE plus on-net	No (acquitted by Time Warner in bankruptcy)	...
<hr/>			
ICG Telecommunications	UNE/on-net	Yes	420
Intermedia Communications	UNE	No (acquired by WorldCom)	...
ITC DeltaCom	UNE	Yes	415
Level 3 Communications	Owns 1/3 of RCN	Yes	1,101 ^a
McLeod USA Inc.	Resale plus UNE	Yes, reorganized in bankruptcy	992
Mpower Holding Corp.	UNE	Yes	146
Network Access Solutions	UNE	No (acquired by DSLNET)	50
Network Plus CP	UNE	No (assets sold in bankruptcy)	...
NorthPoint Communications	UNE	No (assets sold in bankruptcy)	...
Net 2000 Communications	UNE plus resale	No	...
XO Communications (Nextlink)	On-net/ UNE	Yes (reorganized in bankruptcy)	1,260
Pac-West Telecomm	UNE	Yes	164
Pointe Communications	UNE	No	...
RCN Corp.	On-net/resale	Yes (in bankruptcy)	457
RSL		No	...
Rhythms NetConnections	UNE	No	...
Talk America	UNE-P	Yes	318
Teligent	On-net	Yes (reorganized in bankruptcy)	...
Telocity	UNE	No	...
Time Warner Telecom	On-net	Yes	696
USOL Holdings	On-net/UNE	Yes	16
World Access		No	...
Winstar Communications	On-net/UNE-P	No (sold in bankruptcy to IDT)	...
WorldCom	UNE-P	Yes (reorganized in bankruptcy; now called MCI)	Local revenues unknown
Z-Tel Technologies	UNE-P	Yes	235
Total for public companies		(25 public companies)	9,250

Source: Financial reports of companies; also www.quote.yahoo.com and www.alts.org.

a. Communications revenue only.

in 2002; virtually all of this was from the use of UNE loops or the UNE platform (see table 4-3).⁵³ These private companies appear to have a narrower geographical focus, generally using unbundled loops to serve small to medium-sized businesses. Without public financial data on their performance, it is impossible to know if they are more successful than their publicly traded counterparts listed in table 4-2. It is important to stress, however, that they apparently accounted for fewer than 2 percent of U.S. switched access lines in 2002.

Unless entrants can attract high-revenue customers or offer other customers new services, they will have difficulty competing with the incumbent telephone companies. The recipe for success may be facilities-based entry that allows the entrant to offer an array of services—such as video, long-distance telephony, local telephony, and high-speed Internet access—over a single, integrated platform. Such a strategy may provide the entrant with an advantage over its regulated incumbent rivals, many of whom were unable to offer long-distance or other services that cross LATA boundaries or have an old copper plant that cannot deliver high-speed services to a large share of their subscribers, and all of whom have the provider of last resort responsibility at low regulated local rates. This is precisely why cable companies are expanding and why the noncable CLECs that do not have their own facilities are struggling or even collapsing.

In addition, there may be limited room for smaller carriers providing niche services or better service to businesses than the large, regulated incumbents can offer. This may explain why there are still a large number of smaller, private CLECs in operation today. But the roster of the publicly traded companies, each of which surely is cognizant of the strategies of some of these smaller, private companies, provides no obvious recipe for success.⁵⁴

Local Entry by Long-Distance Carriers (AT&T and MCI-WorldCom)

The two largest long-distance carriers, AT&T and MCI (formerly WorldCom), are major participants in the delivery of local telecommunications services. By June 2003, each was offering approximately 3 million subscriber lines through the UNE platform, and by March 2004 AT&T alone had 4.4 million access lines.⁵⁵ These carriers have been highly aggressive in lobbying for low UNE-P rates, particularly since the Bell companies have gained access to the interLATA long-distance market.

Table 4-3. *Private U.S. CLECs, End of 2002*

<i>Company</i>	<i>Network strategy</i>	<i>Current status</i>
KMC Telecom	Facilities and UNE	Solvent
Birch Telecom	UNE	Emerged from bankruptcy; operating
Pac Tec Communications	Unknown	Unknown
Ionex Telecom	Unknown	Unknown
BTI Telecom	Facilities; UNE	Solvent
Globalcom	UNE	Solvent
Broadview Networks	Unknown	Solvent
New South Communications	UNE	Solvent
Integra Telecom	UNE	Solvent
Eschelon Telecom	UNE	Solvent
NuVox Communications	UNE	Solvent
Eagle Comm	Unknown	Solvent
U.S. Telepacific	UNE	Solvent
Florida Digital Networks	UNE	Solvent
Advanced Telecom Group	UNE	Solvent
Network Telephone	UNE	Solvent
NTS Communications	UNE	Solvent
Knology	Facilities	Bankrupt; operating
RNK Telecom	UNE	Solvent
Buckeye Telesystem	Facilities	Solvent
Xpedius	UNE	Solvent
Global NAPs	UNE	Solvent
Lightship Telecom	UNE	Solvent
Conversant	UNE	Solvent
Grande Communications Networks	Facilities	Solvent
Sigecom	Facilities	Solvent
Everest Connections	Facilities	Solvent
RIO Communications	UNE	Solvent
Approximately 10 others	Various	Solvent

Source: Various public sources and press releases.

In December 1999, Verizon was granted permission to offer long-distance services in New York. SBC gained entry in Texas in 2000. Since that time the Bell companies have been granted approval to offer in-region interLATA services in the rest of the lower forty-eight states and the District of Columbia and now can compete for long-distance customers in all

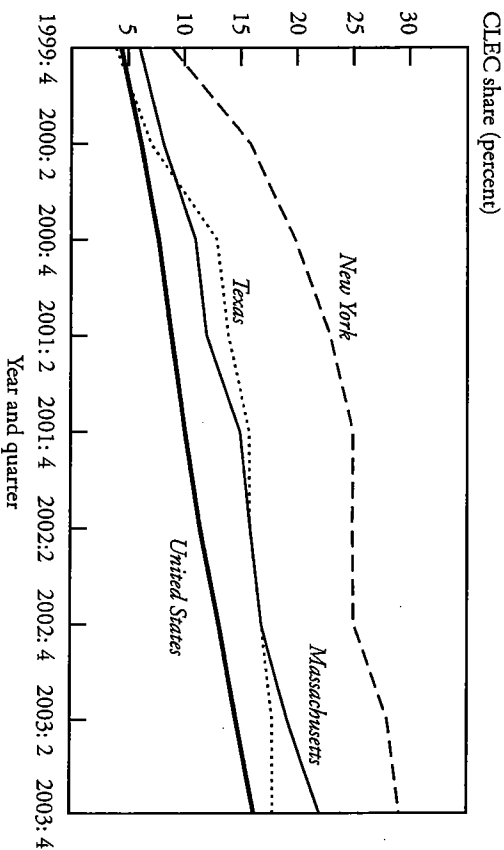
of these states.⁵⁶ Combined with the aggressive wireless competition that has developed, this entry has placed enormous pressure on the large long-distance companies that are also CLECs to respond by offering a bundle of local and long-distance services in these states.⁵⁷ As a result, following Bell entry the CLECs' share of lines in the state usually rises much more rapidly than the national average.

When the national growth in CLEC lines is compared with that in three of the first states to allow Bell company entry into long distance (Texas, New York, and Massachusetts), each of these states registers a sharp rise in CLEC lines following the Bell company's long-distance entry (figure 4-6). In Texas, virtually all of the entry has been accomplished through UNE-Ps, while in New York approximately 80 percent of the CLEC lines are UNE-Ps. More than half of all UNE-P lines through December 2002 can be found in these two states, which led the way in granting their incumbent carriers the right to compete in long distance.⁵⁸ Only Massachusetts shows little evidence of reliance on the UNE platform, perhaps because of its high wholesale rate.

Recent research shows that the number of entrants using UNE loops in a state is directly related to Section 271 approval for the RBOC in the state.⁵⁹ In one case the number of such entrants rose from five to eight carriers in the year in which the Bell company gained approval for entry into interLATA long-distance service in the state. However, the number of entrants using UNE loops is not a good indicator of the degree of sustainable competition. Many of the public firms using UNE loops have failed or are failing, and the private companies are very small in general. These findings may reflect the fact that states ultimately use the *appearance* of competition, in the form of UNE-based entry, to justify Section 271 approval, not that such approval creates sustainable entry. Indeed, as I have just shown, the number of lines accounted for by entrants generally rises following Bell company entry into long distance as MCI (WorldCom) and AT&T accelerate their use of the UNE platform to try to stave off Bell company competition for long-distance customers.

One may quibble over whether entry by the long-distance carriers through the use of the ILEC platform is competition in any real sense. Recall that I was unable to find any effect of CLEC entry on local residential rates through mid-2001.⁶⁰ The extent of this type of competition may be limited because the entrants have little new to offer through this extension of resale. But even if the CLECs could continue to enroll customers through the use of the UNE platform, they would not likely prosper by

Figure 4-6. *Effect of Bell Company entry on CLEC Competition, 1999-2003*



Source: FCC, *Local Telephone Competition: Status as of December 31, 2003* (June 2004), Table 7.

doing so. Anyone can resell the incumbents' facilities in this way; indeed, arbitrageurs such as Birch, Z-Tel, Talk America, and IDT (through its Winstar division) were already doing so before the Court of Appeals brought this policy to a virtual halt in 2004. Therefore margins would surely have been driven down to very low levels by entrants using the incumbents' platforms. AT&T and MCI may have enjoyed a fleeting advantage because of their established brand names, but simply attaching the resale of local service to their long-distance services, which are now experiencing a staggering revenue decline, was not likely to save them (see chapter 6). They need new services—new ideas—but these are not likely to be developed on someone else's network.

Welfare Gains from Local Competition

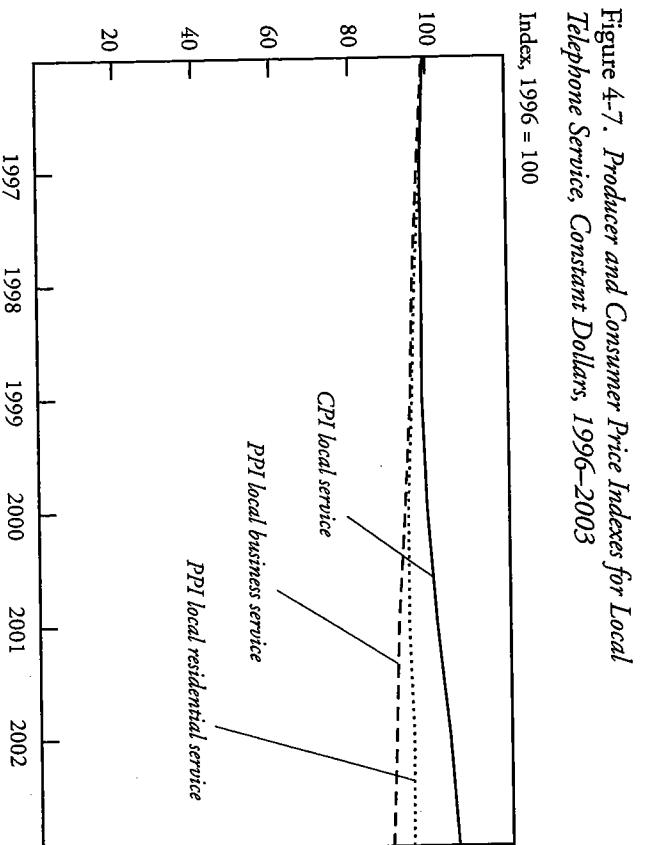
Since 1996 entrants have expended enormous capital resources to wrest 18 percent of access lines from incumbents, with an uncertain effect on economic welfare. The rather limited evidence reviewed earlier in this chapter suggests little difference between entrants' services and those of the

incumbents or even in the prices charged to subscribers. Nevertheless, it is difficult to believe that subscribers would have shifted from incumbents to the entrants unless they were offered lower rates for the same service or higher service quality at the same rates.

The data on local telephone rates reflect very little change since 1996 despite the advent of competition. The incumbents' local rates are still regulated by the states and did not move perceptibly from 1996 to 2002.⁶¹ Between 1999 and 2002, the FCC raised the subscriber line charges attached to residential bills by approximately \$2.00 a line in order to reduce access charges on interstate long-distance calls.⁶² Net of this increase, the average urban rate for incumbents' local residential service in 2002 was \$21.32. In 1995 the average rate was \$20.01.⁶³ Regulated local residential rates did not decline in nominal terms over these six years; in fact, they increased by about 44 percent of the increase in the average consumer price index.⁶⁴

Similarly, the Bureau of Labor Statistics producer price index and consumer price index for local telephone service show little movement, even in constant dollars (see figure 4-7). This is not so surprising given that entrants had captured about 10 percent of residential and small business lines by 2002 and that the incumbents' rates have not moved in nominal dollars.⁶⁵ Even if the entrants were offering local rates that were, say, 15 to 20 percent lower than the incumbents' rates, they would only have reduced the average local rate by 1.5 to 2.0 percent by 2002, assuming no corresponding decline in incumbent rates. The effect of this decline would only be sufficient to offset 16 to 21 percent of the effect of the FCC's increase in subscriber line charges.

The FCC reported that competitive local carriers received \$17.7 billion in end-user revenues in 2003.⁶⁶ It also reported that the CLECs had 16.7 million small business and residential lines as of June 30, 2003. Given that the average residential subscriber spent \$441 in 2003 on services from local carriers, the CLECs' small business and residential revenues may be estimated at \$7.4 billion, leaving \$10.3 billion in end-user revenues from medium and large business ("enterprise") customers.⁶⁷ Assuming that the residential and small business customers received discounts of 15 percent from the incumbents' rates, these customers saved \$1.3 billion in 2003.⁶⁸ Given that these lines are likely to be delivered mostly through the UNE-P, there is no innovation in such a service, and residential and small business demand is extremely price inelastic. As a result, there is no increase in output to consumers. If the competitors' vari-



Source: Bureau of Labor Statistics, *Consumer Price Index and Producer Price Indexes*; Bureau of Economic Analysis, *Gross Domestic Product* (chain price deflator).

able costs are no greater than the incumbents' avoided costs, an extremely unlikely assumption, the amount of noncapital resources devoted to these local services is unchanged, and there is no net welfare gain or loss to the economy other than the investment in duplicative capital facilities. Moreover, the 15 percent decline in price is entirely a transfer from the incumbents to consumers.

The CLEC competition in the larger business market is focused on special access services and various private line services, including high-speed lines. The incumbent Bell carriers reported \$14.4 billion in special access revenues and \$1.9 billion in private line revenues in 2003, but the special access revenues include DSL revenues.⁶⁹ Assuming that the average DSL revenue was \$480, the 6.5 million Bell DSL subscribers in mid-2003 generated \$3.1 billion in revenues, which must be deducted from the Bell companies' total of \$16.3 billion in special access and private line revenues. This leaves \$13.2 billion in revenues to be added to the \$10.3 billion of larger-company CLEC revenues, or \$23.5 billion. It has been estimated that Bell

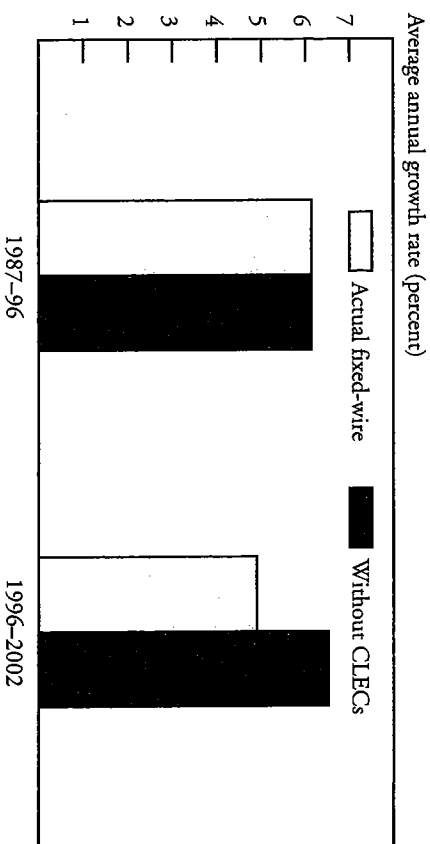
company special access revenues per line fell by about 30 percent in constant dollars between 1996 and 2003.⁷⁰ Assuming, quite generously, that this entire decline is due to increased competition from CLECs and that the price elasticity of demand for special access and private lines is -0.5, the gain to business consumers is equal to \$9.2 billion, but \$8.4 billion of this gain is simply a transfer from the incumbents to business customers.⁷¹ Thus the net welfare benefits in the business market are \$0.8 billion. Since there are no net welfare benefits in the residential market, the total net welfare benefits from local competition may be estimated at \$0.8 billion in 2003. The total consumer welfare gain is much larger, of course, totaling \$10.5 billion, but \$9.7 billion is simply a transfer from producers to consumers.

If the CLECs served their business and residential customers at the same variable costs as the ILECs (surely an extremely generous assumption), the cost of conveying these benefits would only be the annual capital costs of the entrants.⁷² Between 1996 and 2003, the publicly traded entrants—excluding AT&T, WorldCom, and the cable television companies—invested \$35.8 billion in capital facilities.⁷³ A conservative estimate of total entrants' capital spending over this period would be \$55 billion; the entrants' trade association claims that \$75 billion was invested between 1996 and 2003.⁷⁴ Even with only a 15 percent capital charge to cover the before-tax cost of capital and depreciation, the annual capital charges required to amortize this cumulative investment would have been in excess of \$8 billion.⁷⁵ Thus the entrants would have incurred at least \$8 billion in annual capital charges to generate a net welfare gain of just \$0.8 billion in 2002.

These calculations ignore the considerable expenditures made by the entrants on marketing and general administration, including executive salaries. According to financial analysts, in 2000 the largest entrants were spending approximately one-half of their revenues on sales, general, and administrative (SG&A) expenses.⁷⁶ By comparison, the SG&A expenses of the large incumbent GTE were only 17 percent of revenues in 2000.⁷⁷ The high entry costs are understandable since most of the new entrants were still in a start-up phase and had to spend large sums on marketing to shift customers to a service that was little different from what they already had. But these higher costs must also be deducted from any potential gains of the new competition. Indeed, the additional SG&A by itself swamps any conceivable estimate of the net benefit to the economy.⁷⁸

By 2000 the new entrants were accounting for almost 12 percent of employment in the fixed-wire sector.⁷⁹ At the same time, they had a much smaller share of industry revenues and added even less to national output

Figure 4-8. *Labor Productivity Growth in Wired Telecommunications, with and without the CLECs, 1987-2002*



Source: Bureau of Labor Statistics and author's calculation.

because much of their revenue derived simply from reselling the incumbents' services. As a result, the CLECs were a substantial drag on industry productivity growth between 1996 and 2002. To estimate the extent of this drag, I adjust the Bureau of Labor Statistics productivity figures for CLEC output and labor inputs.⁸⁰ As figure 4-8 shows, without the CLECs the fixed-wire sector's productivity growth would have accelerated, but at a lesser rate than that experienced by the wireless carriers (see chapter 3).

One might argue that the discounted value of *future* gains could offset the \$55 billion in additional capital expenditures made by entrants in 1996-2003, but given the collapse of many of these companies, it seems unlikely that entrant revenues will grow very much in the next few years. Surely these revenues would not defray both the capital charges and the additional SG&A incurred by the CLECs. In short, most of the cost of the 1996-2003 exercise in promoting local entry must at this point be written off as a failed experiment. This is not to say that competition will not emerge or has not emerged (see chapter 7). Rather, the competitors induced into the marketplace through 2003 by regulatory incentives designed to encourage resale in one form or another have not generated benefits that can justify their huge investments in facilities, start-up costs, and marketing expense.⁸¹

Conclusion

The FCC no doubt attempted to implement the 1996 act with the best of intentions, hoping that its liberal "interconnection" policy would encourage sustainable entry. In fact, a large number of entrants did appear, investing at least \$55 billion in capital facilities. Eight years later, few of these entrants remain viable. Entry has not reduced subscriber rates measurably, nor has it provided a notable increase in new services.⁸² Local competition seems to be settling down to a battle between the incumbents, the cable television companies, and the wireless carriers. In chapter 5, I examine the effect of these failed regulatory policies on the incumbent Bell companies.

5 Effect of the 1996 Act on Incumbent Local Companies

There can be little doubt that the incumbent telephone companies have lost subscribers to the new entrants since 1996. Between 1996 and 2000, a period of vibrant economic expansion, these losses occurred against a backdrop of subscriber line growth and a generally buoyant stock market. Now, however, the total number of access lines in the country is declining as residences reduce their use of second lines and some simply rely on wireless service as their only telephone service.¹ More important, the equity markets in general have soured on telecommunications. In this environment, the incumbents' loss of retail (end-user) lines to entrants is even more painful than if it had occurred when total line counts were increasing.

Between 1984 and 1996, total access lines increased about 3 percent a year (table 5-1). Virtually all of this growth was registered by the incumbent local companies, principally the Bell companies and GTE.² The growth in access lines accelerated after 1996, fed by the demand for second lines due to the Internet, but then slowed after 2000 as broadband services began to replace ordinary voice-grade connections to the Internet and the economy turned sluggish and even became negative after 2001. At the same time, the competitive local exchange carriers (CLECs) trebled their number of access lines, replacing the Bell companies' and other incumbents' end-user lines with services offered over the incumbents' wholesale lines and over their own lines. In the face of these three forces, incumbents

Table 5-1. *Switched End-User Access Lines, Selected Years, 1984-2003*
Millions at Year-End^a

Year	Total lines	Incumbents	Competitive carriers
1984	113.8		
1994	151.5		
1999	189.5	181.3	8.2
2000	192.6	177.6	14.9
2001	191.7	172.0	19.7
2002	187.5	162.7	24.8
2003	181.4	151.8	29.6

Source: FCC, *Trends in Telephone Service* (May 2004), table 7.1; FCC, *Local Telephone Competition: Status as of December 31, 2003* (June 2004), table 1.

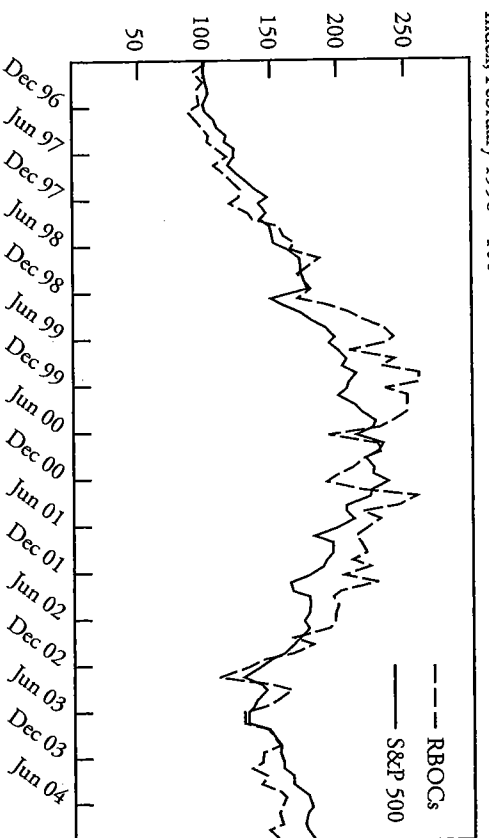
a. Total lines for 1984 and 1994 are not strictly comparable with data for later years.

suffered a decline of 16 percent in their end-user lines between the end of 1999 and 2003.

Bell Company Equity Values

Since 1996 the large Bell company incumbents have seen their equity values rise and fall with the general stock market (figure 5-1). They underperformed the S&P 500 in early 2000 in response to an adverse Supreme Court ruling that affirmed the Federal Communications Commission's (FCC's) right to establish pricing rules for unbundled elements, but they rebounded in late 2000 and 2001.³ In the spring of 2002, they began to lag behind the S&P 500 once again in the wake of additional adverse legal rulings concerning broadband regulation and evidence that local wireline services were losing traffic to wireless operators. In February 2003, the FCC's adverse ruling on UNE-Ps drove Bell company equities down, and though it was reversed by the U.S. Court of Appeals early the next year, Bell company stocks had still not recovered by the end of June 2004. Nevertheless, of the U.S. telecom carriers, the Bell companies have been the least affected by the telecom bubble and the subsequent meltdown that began in 2000.⁴ The reasons for this result are to be found in the post-1984 regulatory history of the telecommunications industry.

When divested from AT&T in 1984, the Bell operating companies were sequestered in the local-exchange business by the AT&T antitrust decree.

Figure 5-1. *RBOC Equities versus Standard & Poor's 500^a*
Index, February 1996 = 100

Source: Author's calculation from data obtained from www.finance.yahoo.com.

a. RBOCs in this index are Bell South, SBC, and Verizon only. US West was acquired by Qwest, a long-distance company, in 2000.

For twelve years, they attempted to gain entry into the more dynamic parts of the telecommunications business, with only modest success.⁵ Indeed, the 1996 act was largely the result of the frustration that the Bell companies felt in trying to free themselves from the shackles of the 1982 AT&T decree. They negotiated their potential freedom by agreeing to the regulatory requirements built into the 1996 act in return for eventual entry into long-distance services, including those required to function in the Internet economy.

Six years after the passage of the 1996 act, the Bell companies had still not attained the freedom they had bargained for in Congress. By the middle of 2002, they had obtained approval for long-distance entry in states that accounted for only about one-third of the country's access lines (see table 5-2). The slow pace of state and FCC approval had kept them from attempting to develop long-distance networks, Internet backbones, and related Internet services. Moreover, regulators had refused to relieve them of regulating the facilities required to deliver broadband digital subscriber line (DSL) services. By early 2004, however, they had shed some of these shackles. Between June 2002 and December 2003, the Bell companies received

Table 5-2. *Regulatory Approval of Bell Company Entry into in-Region InterLATA Services*

<i>Company</i>	<i>State</i>	<i>Date of approval</i>	<i>Switched access lines, 12/31/01 (thousands)</i>
Verizon	New York	12/99	12,591
SBC	Texas	6/00	10,399
SBC	Kansas, Oklahoma	1/01	2,825
Verizon	Massachusetts	4/01	4,374
Verizon	Connecticut	7/01	2,390
Verizon	Pennsylvania	9/01	7,929
SBC	Arkansas, Missouri	11/01	4,050
Verizon	Rhode Island	2/02	649
Verizon	Vermont	4/02	369
BellSouth	Georgia, Louisiana	5/02	6,437
Verizon	Maine, New Jersey	6/02	7,835
BellSouth	Alabama, Kentucky, Mississippi, North Carolina, South Carolina	9/02	15,724
Verizon	Delaware, New Hampshire	9/02	1,389
Verizon	Virginia	10/02	4,696
BellSouth	Florida, Tennessee	12/02	13,682
SBC	California	12/02	22,285
Qwest	Colorado, Idaho, Iowa, Montana, Nebraska, North Dakota, Utah, Washington, Wyoming	12/02	10,841
Verizon	D.C., Maryland, West Virginia	3/03	5,795
SBC	Nevada	4/03	1,309
Qwest	New Mexico, Oregon, South Dakota	4/03	3,119
Qwest	Minnesota	6/03	2,230
SBC	Michigan	9/03	5,608
SBC	Illinois, Indiana, Ohio, Wisconsin	10/03	19,473
Qwest	Arizona	12/03	2,901
Total approved through June 2002 (percent of U.S. total, excluding Alaska and Hawaii)			59,848 (36.3)

Source: FCC, *RBOC Applications to Provide In-region, InterLATA Services under § 271* (www.fcc.gov/Bureaus/Common_Carrier/In-region_applications/); FCC, *Statistics of Communications Common Carriers, 2001-02* edition.

Table 5-3. *Measures of Equity Risk in Various Industries*

<i>Sector</i>	<i>Range of betas</i>
Bell companies	0.8-1.0
Large trucking companies	0.3-1.3
Four major railroads	0.4-0.6
Major airlines	1.0-2.8
CLECs	1.0-4.5
Long-distance companies	0.7-1.4

Source: <http://quote.yahoo.com> (July 11, 2004).

regulatory approval to begin offering interLATA long-distance services in all of the remaining states, and in February 2003 they received some relief from the FCC on the requirements for unbundling and line sharing for broadband (see chapter 2). Finally, in early 2004, the U.S. Court of Appeals overturned the FCC's attempt to retain the unbundling regime that permits competitors to lease the entire UNE platform.⁶

Before 2002 the only major segment of domestic telecommunications that the Bell companies had been able to enter without the restraint of regulation was commercial wireless service (cellular). These wireless operators have accounted for between 15 and 30 percent of the companies' market value since 1996. Until recently, the remainder had been a no-growth, "public utility" business that was relatively secure, unexciting, and almost devoid of incentives to innovate. The best evidence of this situation is to be found in the financial markets' evaluation of the risk of investing in their equities.

As table 5-3 shows, the Bell companies' equities have beta values of risk somewhat less than 1.0. The higher the beta measure, the greater is the market's view of the risk in holding the company's shares.⁷ A beta of 1.0 is average for all traded risky assets. Two firms with beta values close to 1.0 are Ford and General Motors, while airlines have betas of 1.0 to 2.8. The financial markets apparently viewed the Bell companies as generally less risky, or at least they did so until recently. Beta values go up to 4.5 for the largest CLECs, which are failing rapidly, but are in the range of 0.7 to 1.4 for long-distance companies.

The beta estimates in table 5-3 are provided by a commercial source and are apparently estimated from stock-price movements over a considerable period of time. To examine the recent trend in beta estimates more closely

Table 5-4. *Estimates of Equity Betas, 1996-2003*

Company	1996-97	1998-99	2000-01	2002-03	Entire period
Bell South	1.38	0.31	0.24	0.90	0.58
SBC	1.26	0.71	0.44	1.08	0.80
Verizon	1.15	0.62	0.43	0.77	0.69
Qwest	n.a.	1.42	0.79	1.20	1.01
AT&T	0.80	0.70	1.09	0.77	0.83

Source: Author's estimates from closing prices on <http://finance.yahoo.com>.
n.a. Not available.

(table 5-4), I calculated each company's beta from weekly closing prices for two-year periods between 1996 and 2003 and for the entire eight-year period. Note the relatively high estimates for Bell company equities about the time the telecom act was passed and in the early stages of implementation, in 1996-97. Clearly, this was a period of great uncertainty for these companies.

For the next four years, however, the Bell companies' equity betas fell sharply, as they were now confined by the act to their intrastate and local markets and were losing few lines to competitors. Regulation had apparently succeeded in bottling up the resources of a large part of the telecommunications sector and was treating it like a strait trucking company or railroad. The Bell companies were prevented from making the mistakes of their unconstrained fellow telecom companies, but the country was deprived of the potential innovation that might have come from this reservoir of expertise in telecommunications.⁸

Once the Bell companies were allowed to offer interstate services and were saddled with ever lower rates for their wholesale services, the risk of holding their stocks rose markedly.⁹ Although not quite back to 1996-97 levels, their estimated betas are now about 1.0 on average. The uncertainty over the FCC's unbundling rules, the loss of lines to competitors, and the more competitive era unleashed by Bell company entry into interLATA long-distance markets has made the Bell stocks more risky to hold.¹⁰ In response, the equity markets did not raise AT&T's beta very much, which is surprising.

The overall effect of the new regulatory order on the Bell companies has thus been rather mixed. On the one hand, the companies were kept out of interLATA markets until recently and have been required to provide

wholesale facilities to their rivals, thereby having less incentive to invest. On the other hand, they saw their equity prices track the entire stock market with betas of 0.3 to 0.7 for several years. As a result, the market value of the Bells' wireline assets has grown modestly since 1996, whereas the value of their enterprises per access line has not changed very much. At the end of 1996, the Bell company nonwireless assets were valued at about \$1,940 per switched access line; by the end of 2003, they were valued at about \$2,170 per line, an increase of 12 percent during a period in which the overall stock market grew by 50 percent.¹¹ Given the surge in capital expenditures by these companies in 1998-2001, as they modernized their facilities to deploy broadband DSL services, this modest growth could hardly be reassuring to the Bell companies, even if one interprets the impact of the 1996 act on the incumbents as relatively benign.

Threats to Bell Company Revenues

Despite very little change in local rates since 1996 and little growth in retail access lines, the incumbent local exchange carriers (ILECs) recorded wireline revenue growth of approximately 20 percent between 1996 and 2001.¹² A large share of this growth came from second lines required for dial-up Internet services.

The slow, steady growth of the incumbent Bell companies' wireline operations has been threatened from at least three directions. First, the loss of end-user lines (subscribers) to the new CLECs, mostly in the form of leased wholesale lines or the entire UNE-P platform, has reduced the Bell companies' revenues by far more than their costs. The average regulated wholesale price of leasing the entire UNE platform declined steadily through 2003 owing to pressure on regulators to provide the entrants with greater potential operating margins. By November 2002, these UNE platform rates had fallen to about 40 percent of the incumbents' retail revenues per line (see table 4-1).¹³ These low rates for essentially reselling the incumbents' services over their entire platform had attracted entrants and contributed 8 percentage points of the incumbents' 16 percent loss of retail lines by the end of 2003 (see figure 4-1). The replacement of retail revenues with wholesale revenues, in turn, reduced Bell company revenues by about 5 percent. Since the Bell companies' avoided costs of customer service and marketing are only about 10 percent of their total costs, their cost savings from ceding the retailing function pale in comparison with their revenue losses from leasing the UNE platform, as shown in the last two columns of

Table 5-5. *Effects of CLEEC Use of UNE Platform on the Bell Companies, 2002*

Company	Average wholesale UNE-P rate (dollars/month)	Average retail revenue/line (dollars/month)	Lines leased at UNE-P rates ^a	Revenue lost from UNE-P (millions of dollars/year) ^a	Savings in marketing and customer service (millions of dollars/year)
Bellsouth	23.10	53.69	1,359,000 (6)	499 (3)	95
SBC	16.55	51.23	3,851,000 (7)	1,603 (5)	253
Verizon	19.40	42.49	2,574,000 (6)	713 (4)	112
Qwest	22.94	51.10	n.a.	n.a.	n.a.

Source: Anna Maria Kovacs, Kristin Burns, and Gregory S. Virale, *The Status of 271 and UNE-Platform in the Regional Bell Territories* (Commerce Capital Markets, November 8, 2002).

n.a. Not available.

a. Figures in parentheses represent percent of total.

table 5-5. These data show that the three largest Bell companies' losses from the UNE-P had reached \$2.4 billion by mid-2002. By mid-2004 the number of UNE-P lines had more than doubled, suggesting a loss of \$5 billion a year for the Bell companies. However, the federal appeals court reversal of the FCC's unbundling rules in early 2004 has probably brought an end to this source of erosion of Bell revenues.

Second, all wire-based local telephone carriers are likely to suffer increasing losses in lines to wireless carriers, cable television companies, and broadband services. The decline in wireless rates and the national pricing plans first introduced in 1998-99 have already led some households to drop their wireline service altogether. Broadband services, whether in the form of DSL, cable modem services, or wireless services, reduce the need for residences to subscribe to second lines. Since 1997 the number of U.S. fixed lines has declined by 11 million, from 192.5 million to 181.4 million.¹⁴

Equally important, the cable television companies are steadily expanding their telephone service over their own coaxial cable networks. As cable modem service spreads, they will begin to offer their subscribers voice over Internet protocol (VoIP) services at very low rates.¹⁵ The potential advantages of VoIP are substantially enhanced by current regulatory policies. If

the VoIP services do not have to pay federal universal service charges, which are now 9 percent of interstate and international revenues, and can avoid regulated interstate and intrastate switched access charges on long distance, they will have a sizable cost advantage over traditional wire-based local and long-distance carriers. As a result, the growth of VoIP threatens the incumbent local carriers with revenue losses, not only from declining numbers of local access lines, but also from the loss of switched access charge revenues that are used to cross-subsidize local service. Even as recently as 2003, the Bell companies realized more than 7 percent of their local revenues from these access charges.¹⁶ State regulators, in particular, have been reluctant to allow these access charges to decline despite threats from wireless and VoIP, because they are unwilling to allow incumbents to raise fixed monthly rates to defray the potential revenue losses.¹⁷

The likely impact of wireless and cable television competition on incumbent telephone companies may be deduced from the proliferation of bundled pricing plans offered by both. Table 5-6 shows a selection of the plans available in mid-2004. For \$60 a month, subscribers can now get 800 to 1,000 minutes of local and long-distance minutes during peak calling hours and unlimited minutes on weekends or on nights and weekends; for \$100, they can purchase up to 2,500 peak minutes plus unlimited off-peak minutes. In some cases, these plans even allow free "roaming" to areas outside the subscriber's home market.

These wireless plans are competitive with the incumbents' wireline services for a substantial number of customers. The average bill for residential wireline service, including long-distance, is now about \$47 a month.¹⁸ However, a substantial share of subscribers spend much more, primarily because of extensive long-distance calling. If this calling is concentrated during evening or weekend hours, the subscriber can save money by dropping the wireline service and subscribing to one of the plans shown in table 5-6. Unless the subscriber makes large numbers of zero-priced, local peak-hour calls from his or her residential telephone, using a wireless phone for local calls is likely to be less expensive than the \$35 a month for local wireline service, including optional services. Given the continuing decline in wireless rates and the relatively constant regulated incumbent telephone company local rates, wireless/wireline substitution will surely grow (see chapter 7).

At the same time, cable companies like Cox, Comcast, and Cablevision are offering a variety of local and long-distance plans that are competitive with incumbents' services. For instance, Cox offers a number of local/long-distance calling plans for \$25 to \$39.95 a month.¹⁹ By late 2002 it

Table 5-6. *Wireless and Cable Telephone Pricing Plans, Late 2004*

Company	Service	Monthly rate (dollars)
<i>Wireless</i>		
T-Mobile	1,000 anytime, unlimited night and weekend minutes	59.99
	2,500 anytime, unlimited night and weekend minutes	99.99
	850 anytime, unlimited night and weekend minutes	59.99
Cingular	2,000 anytime, unlimited night and weekend minutes	99.99
	800 anytime, unlimited night and weekend minutes	59.99
Verizon	2,000 anytime, unlimited night and weekend minutes	99.99
	800 anytime, unlimited night and weekend minutes	59.99
AT&T	1,800 anytime, unlimited night and weekend minutes	99.99
	700 anytime, unlimited night and weekend minutes	50.00
Sprint	2,000 anytime, unlimited night and weekend minutes	100.00
<i>Cable</i>		
Cablevision	Unlimited local and long distance over VoIP in New York	34.95
Comcast	5,000 local and long-distance minutes/month in New England	49.00
	Local service plus 500 minutes long distance in California, Connecticut, and Rhode Island or 90 minutes long distance in other states	25.00 to 39.95

Sources: Various company web sites and news releases, July–October 2004.

had already attracted as many as 30 percent of its cable subscribers to its telephone service in its most mature markets.²⁰ Given the cable companies' overwhelming share of residential broadband connections (see chapter 8), they are now beginning to offer even lower-priced Internet relay service.²¹

Third, until recently, the Bell companies were losing the broadband race to their unregulated cable television rivals. Because of this, their opportunity for growth had appeared to be diminishing, a fact that they recognized by reducing their capital expenditure budgets in 2002–03 to levels below those of 1995–96 (see chapter 8 and the next section). The FCC's 2003 decision to discontinue line sharing for broadband services may have stimulated Bell company deployment of DSL and is apparently allowing them to narrow the gap with cable modem service (see chapter 8).

Together, these forces have eroded Bell company revenues. All incumbent local companies' revenues fell by 2.5 percent in 2002, from \$117.9 bil-

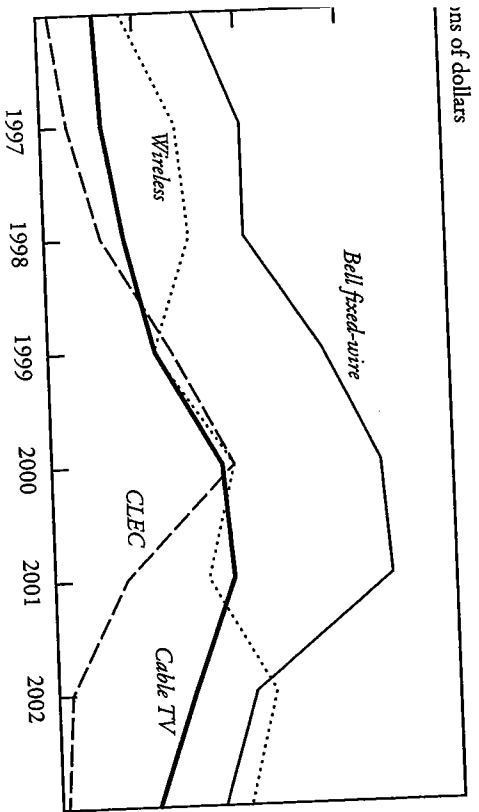
lion to \$115.0 billion, and a further 4.5 percent in 2003.²² Furthermore, analysts were predicting that the Bell companies' fixed-line revenues would decline slowly for the next few years as increases in DSL revenues failed to offset the revenue losses from the rapid growth in UNE-P lines.²³ Given the uncertainty surrounding FCC and state regulation of wholesale prices, services, and VoIP, these projections are subject to substantial error, but they are obviously reflected in the performance of Bell company equities, as figure 5-1 shows.

Capital Expenditures

The pessimism surrounding the Bell companies has obviously affected their capital expenditure budgets. After substantially increasing capital spending between 1998 and 2000 to prepare for the broadband revolution (see figure 5-2), incumbent carriers trimmed their budgets in 2002–03. The problem was not "excess capacity"—so common elsewhere in the telecommunications sector—since the Bell companies were blocked from interLATA services between 1996 and 2000. If anything, they lack the capital facilities to deliver the new DSL services (see chapter 8). Rather, the economic and regulatory environment forced incumbent local carriers, including the Bell companies, to reduce their capital spending more than their major rivals in local communications markets, namely, the cable companies and wireless carriers. Of course, CLEC investment has collapsed because none of these companies has found a sound business mode (for an analysis of entrants, see chapter 4).

How far the wholesale unbundling regime affected Bell companies' incentives to invest is the subject of lively debate. Many claim that the low wholesale UNE and UNE-P rates and the requirement of line sharing reduce the incumbent local companies' incentives to invest because they are forced to share the fruits of their investments with rivals at low, total-element, long-run incremental cost (TELRIC). Others argue that low wholesale rates prod the Bell companies to invest more so as to fend off the competition unleashed by low UNE and UNE-P rates. In support of this suggestion, Robert Willig and his associates have found that Bell company capital expenditures across forty-eight states in 1996–2000 and 1996–2001 varied inversely with UNE-P rates in *June 2002*, holding other influences constant.²⁴ While it is possible that lower wholesale rates induce the Bell companies to invest more in their networks to cope with prospective increases in competition, such a response seems unlikely. Why would a

re 5-2. Capital Expenditures by U.S. Local Telecom Operators, 6-2003

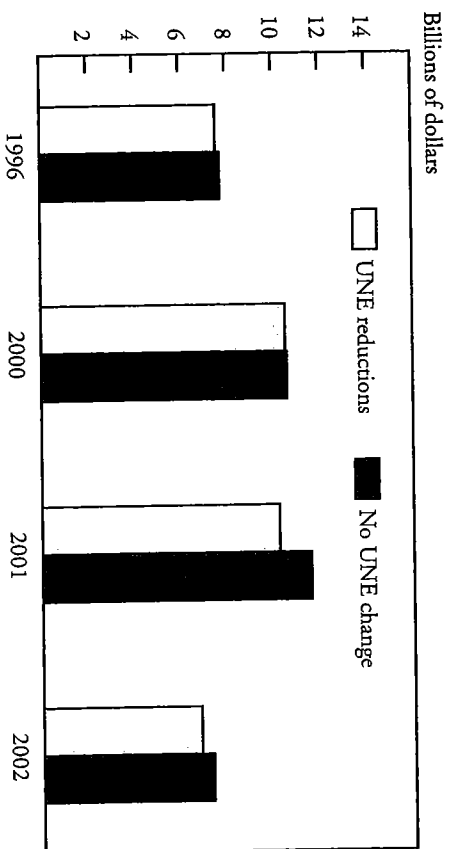


Source: Author's estimates from company annual reports to the SEC (www.sec.gov/cgi-bin/h-edgar); and CTIA, *Semi-annual Wireless Survey* (December 2003).

company invest more in facilities that it has to lease at lower rates? Furthermore, one cannot assume that investment responds to UNE-P rates if those rates are measured for a period *after* the capital expenditures take place. One could have to show that *subsequent* investment expenditures fall or rise with differences in UNE-P rates.

Given that twenty-one states reduced UNE rates between early 2001 and early 2002, it is useful to consider how the Bell companies adjusted capital spending in these states compared with other states.²⁵ Between 1996 and 2000 (that is, before the reductions), the Bell companies' capital spending 000 (that is, before the reductions), the Bell companies' capital spending in both groups of states grew at the same rate. In 2001, however, capital spending grew more rapidly in the states that did not change UNE rates than in those that lowered their UNE rates.²⁶ In 2002 Bell company capital spending fell dramatically in response to the economy and continuing regulatory uncertainty, but it declined more in states that were reducing UNE rates than in those that did not (see figure 5-3). This is hardly conclusive evidence of the adverse investment incentive effects of low UNE rates, but at least it correlates changes in investment spending with regulatory changes occurring before or during the period that the expenditures are occurring.

Figure 5-3. Capital Expenditures by Bell Companies: States with UNE Rate Reductions in 1996-2002 versus States with No UNE Changes



Source: FCC, Armitis data (<http://www.fcc.gov/web/armitis/>); Billy Jack Gregg, *A Survey of Network Unbundled Element Prices in the United States* (National Regulatory Research Institute), periodic issues.

When I attempted to replicate the regression analysis of Willig and his associates using various published estimates of UNE-P rates for 2000-03, I found that the inverse relationship between capital spending and the wholesale (UNE-P) rates they identified is much stronger in the 1996-99 period than in 2000-03 (see the appendix for details). This result suggests that Bell companies' investment decisions for 1996-99 responded more strongly to 2000-03 UNE-P rates than did their 2000-03 decisions, which is simply not plausible. A more reasonable inference would be that greater capital spending in 1996-99 led to lower wholesale rates in 2000-03 as regulators insisted that the Bell companies pass on the lower costs induced by such spending to their rivals in the form of lower wholesale rates. Indeed, a simple regression of the UNE-P rate in 2002 on the FCC's measure of costs, the state regulatory variables, and the Bell company's 1996-99 capital spending in that state provides a statistically significant negative coefficient on the 1996-99 capital spending.

If Bell companies adjust their investment plans to variations in the UNE-P rate because they think low UNE-P rates will lead to more competition, this effect could be modeled more directly by using the actual

ILEC share of lines rather than one of the contributors to it, the UNE-P are. When I use this measure of competition as a substitute for the various estimates of the UNE-P rate, I find that competition has no statistically significant effect on Bell company capital spending in 1996-99 or 2000-03.

Why had competition not yet stimulated a Bell company investment response by 2002? The answer must be that regulatory uncertainty offset the influence of rivalry and the threatened loss of retail customers. Moreover, if additional capital spending simply made the company's infrastructure more attractive for entrants to lease at low UNE-P rates, the benefits of additional capital expenditures would surely be attenuated. This latter threat has now been removed by the courts.

The Bell Companies in a More Competitive Market

The Bell companies had been trapped in a regulated, stagnant, and even declining market for the first six years under the new act. Banned from interLATA services in their own regions, they could not participate in long-distance services or in services delivered over the Internet. As they wrestled free from the vertical quarantine imposed by the 1996 act, the Bell companies became much more aggressive in competing with their new cable, wireless, and (to a lesser extent) CLEC rivals, offering a variety of bundled plans and lower-priced DSL services (see table 5-7).

Whether this more aggressive pricing strategy has succeeded in stemming the Bell companies' losses in revenues is far from clear. These companies certainly have garnered a substantial share of residential long-distance customers and are now able to compete for the larger business customers. By early 2004 the courts had all but stopped the growth of the UNE platform, and the FCC had reversed its position on mandating line sharing for broadband connections. Nevertheless, the prospects for Bell company revenue growth from their fixed-wire networks are not very good. At best, they are likely to maintain their current level of nominal revenues. At worst, if VoIP begins to grow rapidly, revenues may continue to decline.

The Bell Companies versus Other Incumbents

When the Bell companies were divested from AT&T in 1984, the incumbents consisted of the Bell group, a number of other independent telephone companies, and the partly owned Cincinnati Bell and Southern

New England Telephone Company. These latter companies were not constrained by the line-of-business restrictions in the AT&T consent decree or by the subsequent competitive "checklist" requirements in Section 271 of the 1996 Telecommunications Act. By the late 1990s, there were only three large publicly listed independents left: Cincinnati Bell, ALLTEL, and Citizens. The others had become part of much larger companies or were too small to be listed on the national stock exchanges.²⁷

These three independent companies were free to pursue expansion strategies in the new telecom world unlocked by the 1996 act since they were not limited to providing intralATA services. In fact, two of them, ALLTEL and Citizens, remained local carriers that did not change their *modus operandi* significantly, but Cincinnati Bell changed its name to Broadwing, acquired a new national carrier, IXG, and launched an ambitious expansion strategy. In 2000-01 Broadwing spent more than \$1 billion on fiber-optic transmission facilities, despite the fact that its national broadband transmission division had annual revenues of just \$860 million in those years.²⁸ Its total capital expenditure budget had only been \$143 million in 1998, but it spent \$844 million on capital facilities in 2000 alone. Like many of the long-distance companies and CLECs, Broadwing plunged into the new Internet age with abandon. The results were predictable.

A comparison of the stock market performance of the Bell companies and the three large, unconstrained ILECs reveals a surge in Broadwing's (Cincinnati Bell's) common stock value in 1999 and then its collapse in 2000-02 alongside more stable prices for the other ILECs, ALLTEL and Citizens (figure 5-4). ALLTEL and the Bell companies recorded a similar performance, but Citizens—which owns mostly low-growth rural companies—saw its stock price barely change at all during this tumultuous period. It is notable that an incumbent can be almost unaffected by the 1996 act, particularly if it operates in areas where there is little entrant activity.

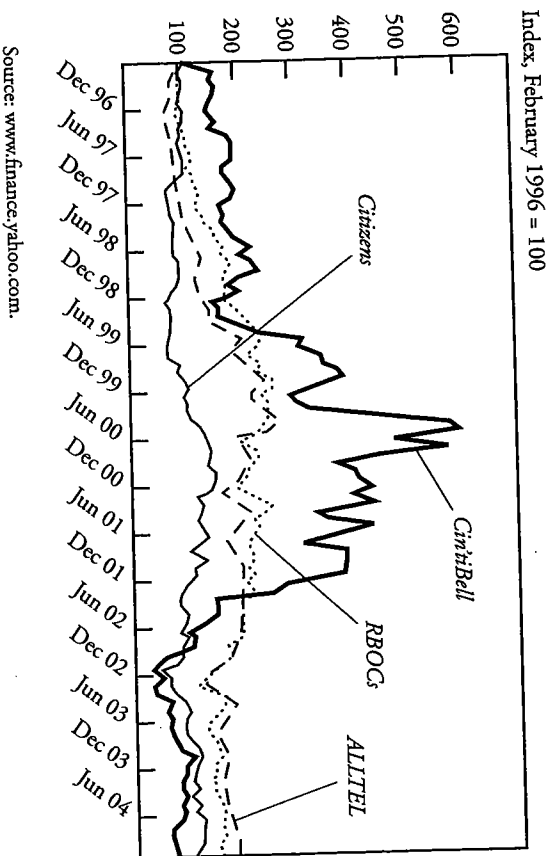
Outlook for the Incumbent Carriers

Despite the regulatory constraints under which they have operated since 1996, or even since 1984, the Bell companies are still relatively healthy. At the end of 1996, the predecessors to the current Bell companies had a combined market capitalization of \$231 billion. By the end of 2003, the four companies had a combined market cap of \$241 billion.²⁹ This is obviously

Table 5-7. *Bundled Pricing Plans Offered by the Bell Companies, July 2004*

<i>Name</i>	<i>Bundled services</i>	<i>Monthly price (dollars)</i>
<i>Verizon</i>		
Verizon Freedom	Unlimited local and long-distance calling, other features	49.95–59.95
Verizon Freedom with DSL	Unlimited local and long-distance calling, unlimited DSL	Varies; 84.90 in Massachusetts
Verizon Freedom with Internet	Unlimited local and long-distance calling, choice of internet dial-up plan	Varies; 79.95 in Connecticut
Verizon Freedom with Wireless	Unlimited local and long-distance calling, choice of national wireless plan	Varies; 86.44 in Massachusetts
Verizon Freedom All	Unlimited local and long-distance calling, unlimited DSL, choice of national wireless plan	Varies; 116.39 in Massachusetts
<i>SBC</i>		
ALLDISTANCE Connections	Local, long-distance, and other features	48.95
Total Connections DSL	Local, long-distance, DSL, and other features	75.90
Total Connections DIAL	Local, long-distance, internet, and other features	61.90
<i>Bell South</i>		
Value Answers Premier	Local, long-distance, and other features; unlimited minutes	54.99–59.99
DSL Bundle	Local, long-distance, and high-speed Internet	Fixed rate: 78.90–82.90 + 0.05/minute; unlimited rate: 94.94–99.94
Wireless Bundle	Local, long-distance, wireless, and other features	Fixed rate: 68.94–72.94 + 0.05/minute; unlimited rate: 84.98–89.98
Dial + Wireless Bundle	Local, long-distance, Internet, wireless, and other features	Fixed rate: 78.89–82.89 + 0.05/minute; unlimited rate: 89.93–94.93
DSL + Wireless Bundle	Local, long-distance, high-speed Internet, wireless, and other features	Fixed rate: 113.89–117.89 + 0.05/minute; unlimited rate: 124.93–129.93
<i>Qwest</i>		
Unlimited Long- Distance Plan	Unlimited long-distance with monthly fee (for use with non-Qwest local provider)	30.00 first year; after that, 34.95
Preferred Unlimited	Unlimited local and long-distance calling with Qwest	45.99 first year; after that, 50.99
Qwest Choice DSL	Unlimited local and long-distance calling, unlimited DSL	72.98 first year; after that, 77.98
Qwest Choice Wireless	Unlimited local and long-distance calling, choice of wireless plan	80.98 first year; after that, 85.98
Qwest Choice DSL + Wireless	Unlimited local and long-distance calling, unlimited DSL, choice of national wireless plan	107.97 first year; after that, 112.97

Source: Company websites, July 26, 2004.

Figure 5-4. *RBOC Stock Prices versus Other ILECs*

not a very good performance when the S&P 500 has risen by 50 percent, but it is better than that of most other participants in the world's telecommunications sector over the past few years. The value of many of those incumbents has declined sharply since 2000, after the meteoric rise of the late 1990s (see chapter 9). The U.S. incumbents—other than Broadwing—did not enjoy the sharp increase, but they have not suffered a shattering decline, either. Given their regulatory quarantine, the Bell companies could not engage in the merger spree pursued by the other large U.S. telecommunications carriers, namely, WorldCom, Qwest, AT&T, Global Crossing, and Broadwing.³⁰ Instead, they consolidated as local carriers, invested in wireless (cellular) service, and slowly built out their broadband capability. With the exception of Qwest, they have now become the most stable firms in the industry.

The Bell companies continue to account for about 85 percent of the country's switched access lines, half of the country's cellular subscribers, and about 30 percent of mass-market broadband Internet lines.³¹ Of the other participants in the U.S. telecom sector, only Sprint has a similar breadth of facilities, but its local division is small (only about 8 million lines) and dispersed about the country. No other wireless, long-distance, or

new local carrier has the capacity to offer a bundled package of its own services to residences and small businesses.

Although the cable television companies have no wireless assets and only limited local telephony capacity at present, they stand poised to become the most important competitors of the Bell companies because they can offer telephony, broadband Internet service, and video services. The Bell companies have not been able to develop video services over their networks but may begin to do so once they extend fiber-optic lines closer to the home.

As of December 2004, the cable companies are preparing to launch their VoIP services on a wide scale because independent companies, such as Vonage, are beginning to market their own VoIP services to the cable companies' cable modem subscribers. Given the potential cost advantages of VoIP that could be created by current regulatory policy, as already pointed out, these services could grow rapidly in the next few years.

Industry participants other than the cable companies and the incumbent Bell companies lack the facilities and services to offer a bundled product whose dimensions are constantly changing. Carriers with limited facilities, such as the new local entrants (CLECs), are by and large resellers and arbitrageurs that have a limited array of services and cannot develop innovative ones. Long-distance carriers or independent wireless companies may own their own transmission and switching facilities, but—other than Sprint—they cannot match the diverse service offerings of the Bell companies or the cable companies. Without this breadth, marketing costs are likely to be prohibitive. Whereas the Bell and cable companies can advertise and promote a large number of services simultaneously, less diverse carriers may pay just as much to promote a single service. Unless it is an innovative service not available from the Bell companies or the cable companies, the marketing cost per actual enrollee makes the service uneconomical. All in all, in the aftermath of the major shakeout of new local carriers and long-distance companies, the Bell companies are now in a position to offer residences and small businesses an array of communications services, other than video, that only Sprint can match.