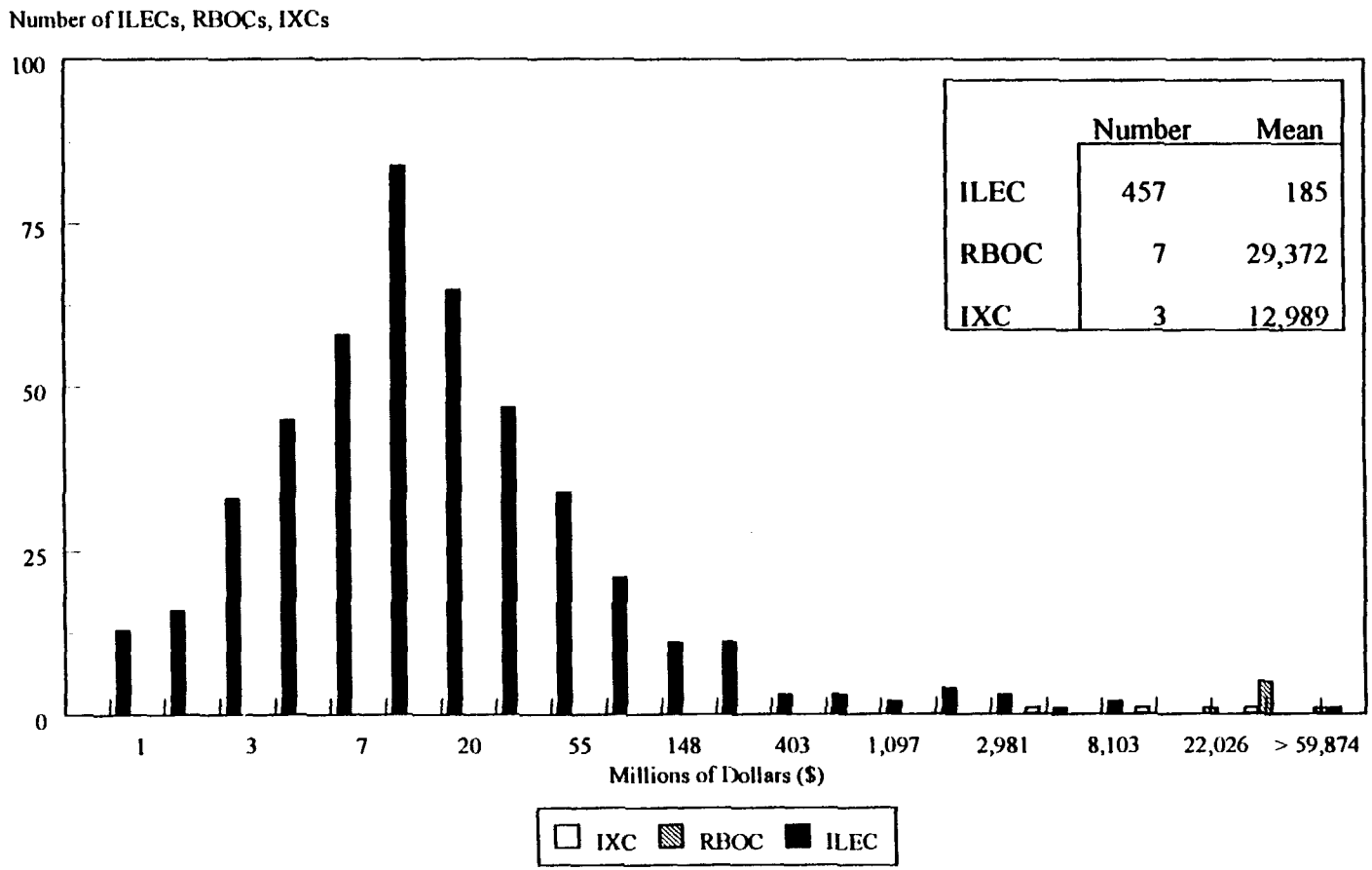
will they become so in the near future. While the independent LECs collectively may pose a competitive challenge to the major interstate carriers, it is impossible to conclude that any of these companies dominate the interexchange market in any way.

Table 4 presents the investment in plant for 1994 of the independent LECs, the RBOCs, and the three major IXCs. The ILEC's mean of the distribution is approximately $185 million. Again this is minuscule in comparison with the investment of the three major interstate carriers. For example, AT&T has plant investment of over $26.5 billion in 1994. Here, the size of the largest ILEC, GTE, exceeds that of the other carriers, although much of GTE's capacity is in high cost rural areas. The comparison of investments in plant is meant to indicate the relative size, cost structure and resources of the independent LECs. The comparison is not exact since the independent LECs investment is in local networks and they have practically no investment in interexchange facilities, as they rely primarily on resale of interexchange carrier services.

Although the interexchange carriers primarily have interexchange facilities, (and the independent LECs have virtually no interexchange facilities as I have noted), *the IXCs do have existing and planned local access facilities*. As I show in the next section, the IXCs should be considered as significant local access providers. The Commission should not form its market analysis on the basis of which market a telecommunications carriers initially serves. A market analysis should be based on an objective evaluation of existing and planned facilities in local and interexchange markets. Thus, independent LEC facilities should be viewed in the context of competing facilities of the IXCs and the many other entrants into the local exchange.

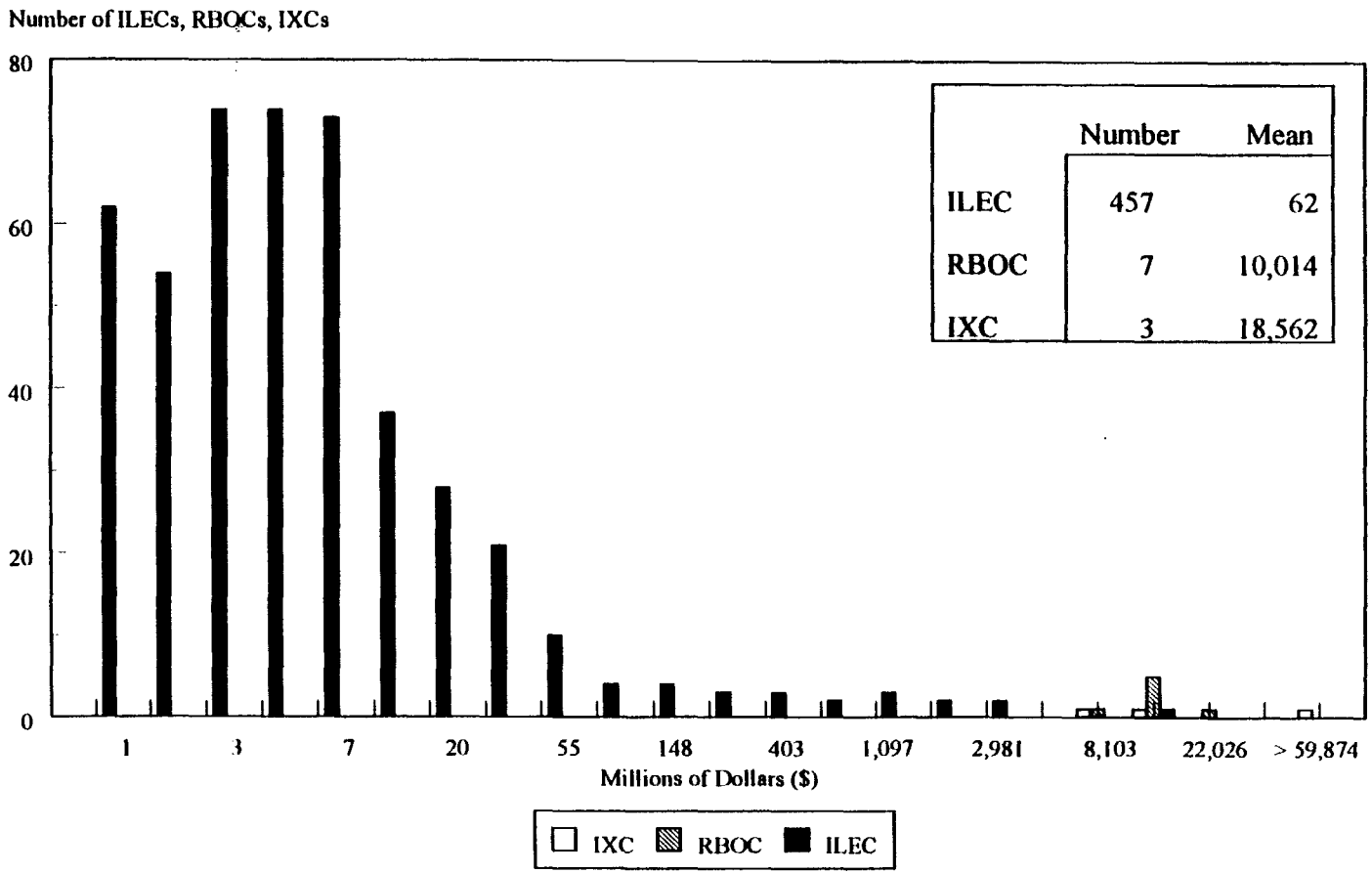
TABLE 4
INVESTMENT IN PLANT OF INDEPENDENT LECs, IN COMPARISON TO RBOCs AND IXCs (1994)



	Number	Mean
ILEC	457	185
RBOC	7	29,372
IXC	3	12,989

Notes: Total Operating Revenues includes Local Network Services, Network Access Services, Long Distance Network Services and Miscellaneous.
Source: USTA, *Statistics of the Local Exchange Carriers*, 1995

TABLE 3
TOTAL OPERATING REVENUES OF INDEPENDENT LECS,
IN COMPARISON TO RBOCS AND IXCS
(1994)



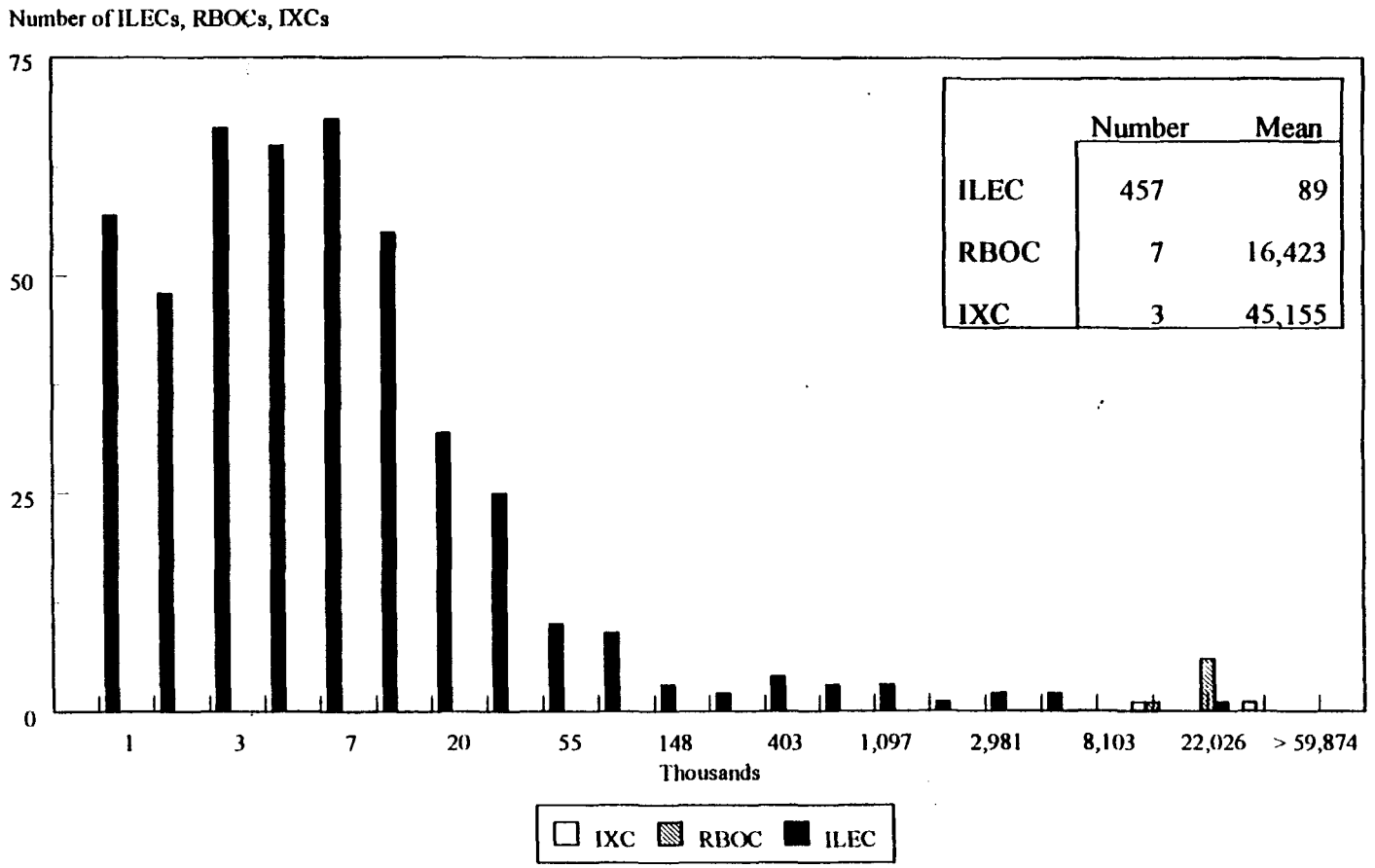
	Number	Mean
ILEC	457	62
RBOC	7	10,014
IXC	3	18,562

Notes: Total Operating Revenues includes Local Network Services, Network Access Services, Long Distance Network Services and Miscellaneous.
Source: USTA, *Statistics of the Local Exchange Carriers*, 1995

The independent LECs will rely primarily on resale of interexchange services. They have minimal interexchange facilities, while interexchange carriers have substantial interexchange facilities. Thus, the facilities of the independent LECs cannot provide a basis for classifying them as dominant. Moreover, since the facilities of AT&T and the other major interexchange carriers have not warranted dominant-carrier classification, the facilities of the independent LECs cannot indicate dominance in the interexchange market either.

Table 5 presents the number of access lines for the independent LECs and the RBOCs, and the number of pre-subscribed lines for the three major IXCs (AT&T, MCI, and Sprint). The distribution for the ILECs centers around 10,000 access lines with a mean of about 89 thousand access lines, substantially less than that of the RBOCs and IXCs. The largest ILEC, GTE, has fewer access lines than AT&T's presubscribed lines.

TABLE 5
ACCESS LINES OF INDEPENDENT LECS,
IN COMPARISON TO RBOCS AND IXCS (PRESUBSCRIBED LINES)
(1994)



	Number	Mean
ILEC	457	89
RBOC	7	16,423
IXC	3	45,155

Notes: Total Operating Revenues includes Local Network Services, Network Access Services, Long Distance Network Services and Miscellaneous.
Source: USTA, *Statistics of the Local Exchange Carriers*, 1995

The interexchange carriers have access to the local exchange and thus to potential interexchange customers in a variety of ways. First and foremost, because of the FCC's equal access rules, customers can select any long distance carrier that offers them service. Thus, as shown in Table 2, AT&T has over 101 million presubscribed lines, which MCI has almost 24 million and Sprint has over 9.7 million. The access through presubscriptions is national and dwarfs the independent LEC numbers of access lines. Second, pursuant to the 1996 Telecommunications Act, the interexchange carriers and other prospective entrants into the local exchange will be able to resale local exchange services and to employ the unbundled network services of the LECs at regulated rates. Thus, the interexchange carriers have mandated access to practically all of the LEC access lines. Finally, the interexchange carriers alternative means of obtaining local exchange access through wireless providers, such as AT&T's McCaw Cellular, and competitive access providers, offering access to millions of customers.

Therefore, the facilities of the independent LECs in the local exchange are minimal in comparison with the many different types of access owned by or available to the interexchange carriers. The interexchange carriers, with both types of facilities, are not classified as dominant carriers. The facilities owned by the independent LECs do not provide any economic basis for classifying any of these companies as dominant.

E. Conclusion

The current market share of the independent LECs in interexchange telecommunications is negligible so that changes in the amount supplied would have little effect on market prices. This situation is unlikely to change for any reasonable predictions about market share growth. Based

on FCC analysis and other considerations, the supply elasticity and demand elasticities in interexchange telecommunications appear to be substantial. Moreover, the cost structure, size, facilities and resources of the independent LECs show them to be far from dominant in interexchange telecommunications in comparison with the big three interexchange carriers. These economic considerations do not support classification of independent LECs as dominant carriers nor do they support continuation of the separations regulations.

II. Impact of Competition in the Local Exchange

The previous section established that the independent LECs have little or not market power in the interexchange telecommunications market. Based on my analysis of market shares, and market demand and supply elasticities, as well as the cost structure, size and resources of the independent LECs, it is evident that they cannot possess any market power in interexchange telecommunications, that is, they cannot profitably raise their prices above competitive levels.

In this section, I address the question of whether the independent LECs have any market power in local exchange telecommunications, and whether or not such market power could translate into future market power in interexchange telecommunications. I first demonstrate that technological, market developments show that the local exchange no longer can be said to be a natural monopoly. Moreover, technological, market and regulatory changes have eliminated or significantly reduced barriers to entry into the local exchange. The increased competition in the local exchange brought about by the 1996 Telecommunications Act can only reduce further any presumed market power of the independent LECs in the local exchange.

As I demonstrate below, the local exchange is no longer a natural monopoly and barriers to entry into the local exchange have been effectively eliminated. Thus, I show that there is no possibility that the LECs can "leverage" a monopoly that they do not have in the local exchange to gain market power in interexchange telecommunications, whether by tying services or "raising rivals' costs." Moreover, even if the LECs have market power in the local exchange, my economic analysis establishes that there is no economic incentive to engage in such leverage. Further, I show that there is no economic incentive to cross subsidize interexchange services from local exchange services.

A. Local Exchange Telecommunications No Longer is a Natural Monopoly

Technological and market changes indicate that local exchange telecommunications no longer is a natural monopoly, thus easing the concerns about market power in local exchange and the possibility of leverage of market power into long distance.

A given production technology is said to exhibit the property of *natural monopoly* if a single firm can supply the market at lower cost than can two or more firms.[14] The need to avoid *duplication of facilities*, particularly duplication of the fixed costs of the network system, is an important component of the natural-monopoly argument for regulation of the local exchange. The standard definition of natural monopoly is based on a cost function that assigns total costs

[14] The concept of natural monopoly is generally credited to John Stuart Mill, *Principles of Political Economy*, (Augustus M. Kelly, 1848, reprinted 1961), vol. 1, chapter 9. Mill emphasizes the problem of wasteful duplication of transmission facilities that can occur in utility services. The connection between natural monopoly ad regulation is developed by Leon Walras with reference to the construction and operation of railroads, see Leon Walras, *Etudes d'Economie Politique Appliquee: Theories de la Production de la Richesse Socialle* (F. Rouge, 1936).

to outputs. The cost function has the natural monopoly property if a firm with that cost function has lower costs than would an allocation of output among two or more firms *using the same cost function.*[15]

The standard definition of natural monopoly begins with a *known technology*, as represented by the natural-monopoly cost function. To assert that an industry is characterized by natural monopoly assumes that there is a single "best" technology that is commonly known, that all firms would have access to that technology, and that all firms operating that technology would be at the efficient production-possibility frontier.[16] The efficient use of the technology includes the presumption that the productive inputs can all be adjusted to reach the efficient production-possibility frontier. In particular, the natural-monopoly cost function is a long-run cost function, so that investment can be adjusted to achieve the efficient level of capital investment required for operating at minimum cost for each output level. In evaluating the applicability of the natural-monopoly argument, it is necessary to consider the extent to which these aspects of the definition of natural monopoly are indeed appropriate to today's telecommunications industry.

Technological and market developments in the telecommunications industry since the AT&T divestiture, support the conclusion that the local exchange no longer is a natural monopoly. There are a number of reasons why it is no longer meaningful to treat the local exchange as a natural monopoly. First, there is no single "best" technology for telecommunications transmission. Second, the "best" technology or mixture of technologies is not

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[15] *See* for example William J. Baumol, John C. Panzar & Robert D. Willig, *Contestable Markets and the Theory of Industry Structure* (Harcourt Brace Jovanovich 1982; rev. ed. 1988) at 17. In their text, the definition of natural monopoly refers to an industry in which all of the firms have the same cost function.

[16] *See* Daniel F. Spulber, *Regulation and Markets* 138 (MIT Press 1989).

yet known, as there continues to be substantial technological change in this area. Third, the connectivity of networks invalidates natural monopoly, because multiple carriers can provide interconnecting networks. Fourth, the goal of avoiding duplicative facilities is not applicable as an aspect of natural monopoly in local telecommunications, because substantial duplication of facilities has already occurred.

As I have already pointed out elsewhere, the LECs, including RBOCs and independent LECs, *already* face competition from a variety of companies employing diverse types of transmission technology including coaxial cable, fiber optics, and wireless.[17] Customers care about the price and quality of the communication services, and are relatively indifferent as to the manner of transmission. The entry that has already taken place and the additional entry that has been projected into the local exchange conclusively demonstrates that multiple technologies are economically viable and many will play an important role in constructing competing networks. Competitive access providers (CAPs) provide fiber optic connections to interexchange carriers. The mobility of wireless services is an advantage over wireline systems. Moreover, digital technology will be used in PCS transmission and cellular providers are upgrading their analog transmission systems to improve transmission quality. The coaxial cable technology of cable television service providers has important applications in data transmission and telephony. These technologies serve to eliminate any potential for a local "bottleneck" that would result from natural monopoly technology.

Moreover, natural-monopoly technology does not act as a barrier to entry. Firms can enter an industry and compete with incumbents even if production by a single firm is efficient. Natural

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[17] *See* Daniel F. Spulber, "Deregulating Telecommunications," *Yale Journal on Regulation*, 12, Winter, 1995, pp. 25-67.

monopoly technology does not prevent the entrant from investing in new facilities, announcing prices, recruiting customers, and otherwise competing with the incumbent. To deter entry effectively, the incumbent firm must be able to set prices and retain its customers such that entry is no longer profitable. It is important to emphasize that, even if a single firm could serve the market more efficiently than could two or more firms, this state of affairs does not mean that firms cannot compete continually to serve the market. Furthermore, natural-monopoly technology does not rule out the presence of multiple competitors entering simultaneously to serve the market.

The presence of multiple technologies for telecommunication transmission, ongoing technological change, and the interconnectivity of networks indicate the technology of natural monopoly is no longer characteristic of the local exchange. The natural monopoly argument cannot be used to justify separations regulations or classification of the independent LECs as dominant carriers.

B. Barriers to Entry into Local Telecommunications

The local exchange technology is often argued to be a "bottleneck" because the local exchange companies have sunk substantial amounts of costs in building their transmission system. The need to sink costs by new entrants is said to be a barrier to entry that confers monopoly power on incumbents. Therefore, concern has been expressed that the incumbent can use this monopoly power over the local exchange to gain an advantage in interexchange telecommunications. In this section, I explain why such concern is misplaced. Barriers to entry into local exchange telecommunications have been reduced or eliminated by technological, market and regulatory

developments. Therefore, the barriers to entry argument cannot be used to support separations regulations or classification of the LECs are dominant carriers.

1. Local Exchange Telecommunications and the 1996 Telecommunications Act

Any regulatory barriers to entry that may have existed have been dismantled by the Telecommunications Act of 1996. The FCC and state regulatory commissions have opened or are opening the local exchange to competitive entry pursuant to the Act. The resale and unbundled network services provisions of Sections 251 and 252 eliminate any alleged barriers to entry that could have been attributed to the need to construct facilities, since entrants can resale LEC services or use the unbundled network services to provide their own services to customers. Also, the continuation of pricing restrictions, geographic rate averaging, and obligations to serve placed on the incumbent LECs create "incumbent burdens" that encourage and effectively subsidize entry.

The entry of many companies as resellers, including the major interexchange carriers, demonstrates the strength of competition without construction of additional facilities. For example, in a petition for local exchange service authority filed in California, AT&T has sought permission to provide such service on both a resale and facilities-based. AT&T's strategy in California

> will emphasize resale as "the most immediate way to get into the market" there. But it will also will look for ways to combine its existing "network elements" in the state with facilities obtained from other companies . . . . With modification, AT&T switching equipment could be used in combination with unbundled local loop facilities leased from others.[18]

[18] *Telecommunications Reports* (Sept. 11, 1995).

In an empirical analysis of competition, I showed that there are a large number of companies that are seeking or have received certification as resellers, including many large, established firms such as the largest interexchange carriers.[19] In addition, the sale of unbundled network services is further opening entry into the local exchange.

2. Multiple Technologies Enhance Entry Opportunities into the Local Exchange

Data on actual and projected entry into the local exchange strongly indicate that barriers to entry into local exchange telecommunications markets are far from prohibitive.[20] Actual and potential entry into telecommunications using coaxial cable for telephony, fiber optic transmission, and wireless transmission, including both cellular and PCS, suggest the variety of technological solutions to providing telecommunications services. Technological change, particularly in wireless and fiber optics, has reduced the sunk cost requirements for constructing local exchange facilities. The strongest evidence that barriers to entry are not substantial, is the large installed capacity of competitors. Facilities-based competition is already in progress and continuing to expand.

Facilities-based competition can take many forms. There may be stand-alone facilities that provide both transmission and switching and interconnect with the LEC network, such as those of the Competitive Access Providers or wireless companies. There may also be add-on facilities, such as those proposed by AT&T, in which the competitor's switching equipment is used in

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[19] Michael Doane, J. Gregory Sidak, and Daniel F. Spulber, *An Empirical Analysis of Pricing Under Sections 251 and 252 of the Telecommunications Act of 1996*, submitted in FCC Docket No. 96-98.

[20] *See* Daniel F. Spulber, Deregulating Telecommunications, *Id.* and Michael Doane, J. Gregory Sidak, and Daniel F. Spulber, *An Empirical Analysis of Pricing Under Sections 251 and 252 of the Telecommunications Act of 1996*, submitted in FCC Docket No. 96-98.

combination with unbundled local loop facilities leased from others."[21] There will be competitors that combine in more complicated ways their transmission facilities with purchases of the LECs' unbundled network services. Because entrants need not duplicate the facilities of incumbents, and can target the high margin, low-cost customers, any possible barriers to entry are mitigated.

The investment plans of the IXCs and other entrants into the local exchange can be illustrated with state-level data from California. There, the Alternative Local Exchange Carriers (ALECs) petitions received by the CPUC by September 1, 1995 indicates whether they are proposing to provide facilities-based services or resale services or both.[22] The data establish that 63 companies are requesting authority from the CPUC to enter as facilities-based competitors, including Interexchange Carriers (IXCs), Competitive Access Providers (CAPs), cable companies, wireless providers, and shared tenant services providers. MCI Metro plans to deploy switching equipment initially in Los Angeles, San Francisco, San Diego, and Sacramento, and then to offer services throughout the state.[23] The entry and investment picture for California applies to many other states.

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[21] *Telecommunications Reports* (Sept. 11, 1995).

[22] Facilities-based competition with those two LEC carriers will begin January 1, 1996 under interim rules adopted last week by commission; bundled resale-based competition will begin March 1, 1996. The CPUC asked CLC providers to submit applications by September 1 for authority to compete against PacBell and GTEC in the state's local exchange markets, *see Telecommunications Reports* (August 11, 1995).

[23] William Harrelson, Senior Counsel for MCI Telecommunications Corp.'s Western Region operations, as reported in *Telecommunications Reports* (September 4, 1995), states that "[i]t makes sense to start where the demand is likely to be the largest at first."

3. The Interexchange Carriers Have a Significant Facilities-Based Presence in the Local Exchange

The IXCs are becoming increasingly important as *facilities-based* access providers in the local exchange. Their significance become particularly pronounced in comparison with the facilities of the independent LECs. An addition to the reasons cited previously, this implies that the local exchange should not be viewed as a bottleneck facility. In combination with equal access regulations, and the resale and unbundling provisions of the 1996 Telecommunications Act, greatly diminishes any grounds for concern over access of customers to interexchange service.

The following data about the top four interexchange carriers clearly demonstrates that they have facilities-based access and in some cases a presence as local exchange carriers.

1. **AT&T:** AT&T paid $12.6 billion in stock for McCaw Cellular.[24] As noted previously, AT&T plans to use its switching equipment in combination with unbundled local loop facilities leased from other local exchange providers.

2. **MCI:** The investment plans of the interexchange carriers include for example, MCI's entry into local service through its subsidiary MCI Metro, which will construct facilities to serve the local exchange beginning with the business market and then focusing on the residential market.[25] In addition MCI Communications Corp. has entered into an agreement with Nextwave Telecomm Inc., a Personal Communications Services (PCS) provider which bid $4.7 billion in the FCC's auctions to acquire wireless licenses for the provision of service covering areas with 110 million people.[26] MCI has agreed to purchase 10 billion minutes from Nextwave, and reportedly has similar agreements with major cellular carriers in 17

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[24] Andrew Kupfer, "AT&T's $12 Billion Cellular Dream," *Fortune*, December 12, 1994, at 100.

[25] "MCI Widens Local Effort," *New York Times*, December 12, 1994, at C5.

[26] Lawrence W. Fisher, MCI Joins Nextwave in Wireless Communications Venture, *New York Times*, Tuesday, August 27, 1996, at C3.

other areas. MCI is considering offering the PCS services "as an alternative to regular local telephone service."[27]

3. **Sprint:** Sprint Corp. is the 9th largest local exchange company with 6,425,330 access lines and operating revenues of over $3.8 billion.[28] Sprint has joint venture agreements with the cable companies that control Teleport Communications Group(including Brooks Fiber Properties, McLeod, and ICG Communications).[29]

4. **Worldcom Inc.:** WorldCom Inc. has agreed to buy the largest competitive access provider, MFS Communications, for approximately $12 billion.[30] Thus, Worldcom will become a fully vertically integrated local exchange and long distance carrier. The merger demonstrates the importance of "one-stop shopping," with one company providing a package of local and long distance services, as well as data transmission and Internet connections. Moreover, the company will provide end-to-end transmission using both local transmission facilities and long distance transmission facilities. The combined company will have local exchange facilities in 45 major metropolitan areas.

4. Barriers to Entry are Eliminated by Technological, Market and Regulatory Change

Although individual LECs generally retain a high market share over some narrowly defined geographic market portion of household telecommunications, facilities-based entry using a range of technologies presents substantial competition. A variety of telecommunications carriers have carried out or are continuing to implement facilities-based entry into the local exchange including

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[27] *Id.* Fisher, *New York Times*, Tuesday, August 27, 1996, at C3.

[28] United States Telephone Association for the year 1994, *Phone Facts 1995*, at 10.

[29] E. S. Browning, Worldcom Deal Gives 'Local Access' a Buzz, *Wall Street Journal*, August 27, 1996, at C1.

[30] Mark Landler, Worldcom to Buy MFS for $12 Billion, Creating a Phone Giant, *New York Times*, Tuesday, August 27, 1996, at C1.

interexchange carriers, wireless service providers (cellular and PCS), cable television companies providing telecommunications, and competitive access providers.

As Judge Greene noted in 1982 with regard to concerns over AT&T's market share in the market for interexchange services, the presence of low entry barriers and the "trend of increasing competition" there imply a lack of market power.[31] The same argument applies to the local exchange market. Any concern over the market share of the LECs in local exchange service should be similarly offset by the presence of easily surmountable entry barriers and the clear trend of increasing competition. Low entry barriers into are evidenced by market entry and technological change.

Moreover, the entry made possible by the 1996 Telecommunications Act including the resale and network unbundling provisions further facilitates entry. These developments are sufficient to abate concerns about market power in local exchange telecommunications and the possibility of leverage of market power into long distance. As a result, the separations regulations or classification of the LECs as dominant carriers becomes unnecessary.

C. The LECs Do Not Have Market Power to Leverage Nor Would They Have Any Incentive to Leverage Market Power or to Raise Rivals' Costs

Based on the analysis discussed in the two previous sections, it follows that the independent LECs cannot leverage a monopoly that they do not possess. Technological changes and industry developments show that local exchanges are lacking in monopoly power. The local loop is not an essential facility since many alternatives are available to the existing local exchange network.

[31] United States v. American Tel. & Tel. Co., 552 F. Supp. 131, 172 (D.D.C. 1982).

Alternative technologies available include coaxial cable, fiber optics, and wireless technologies such as cellular and microwave. It is clearly feasible to construct alternative transmission facilities to compete with local exchange networks. Successful entry into the local loop has already occurred, showing that it is both technically and economically feasible to compete with the local exchange network. In addition, equal-access provisions and regulation undercut arguments that an incumbent could use an essential facility to leverage monopoly power into competitive services.

However, suppose for purposes of argument that the LECs had market power in the local exchange, which as I have shown is no longer the case. Even so, leveraging and raising rivals' costs should not be a concern since the LECs do not have any economic incentive to engage in leveraging, price squeezes, quality degradation, raising rival's costs and other practices. Thus, the possibility of leveraging or raising rivals' costs does not justify the separations regulations or classification of the LECs as dominant carriers.

The leverage argument in telecommunications is a holdover from the Modified Final Judgement settlement with AT&T. The argument used to justify the line-of-business restrictions on the RBOCs was that, if permitted entry into the manufacturing and interLATA markets, the RBOCs could *leverage* their monopoly position in the local exchange to obtain an unfair competitive advantage over potential competitors. In 1982, Judge Greene stated with regard to interLATA services: "The complexity of the telecommunications network would make it possible for [the RBOCs] to establish and maintain an access plan that would provide to their own inter-exchange service more favorable treatment than that granted to other carriers."[32] In creating the line of business restrictions, the DOJ stated that "[t]he reorganization of AT&T ... is intended to

[32] United States v. American Tel. & Tel. Co., 552 F. Supp. 131, 188 (D.D.C. 1982).

eliminate the present incentives of the BOCs ... to discriminate against AT&T's competitors in the markets for interexchange services, information services, customer premises equipment, and the procurement of equipment used to provide local exchange services."[33] However, even for the proponents of the leverage argument, the problem was viewed as a temporary: "It is probable that, over time, the Operating Companies will lose the ability to leverage their monopoly power into the competitive markets from which they must now be barred."[34]

The leverage argument has been applied in two ways. First, it is argued that the LEC could use its monopoly to sell its own long-distance services to itself or to its existing customers. Second, it is asserted that the LEC could use its control over its "essential facilities" or local bottleneck to extract monopoly rents by rationing its customers' access to long-distance services. As I have already shown, the second statement is inconsistent with technological changes and industry developments that have occurred since the early 1980s. I will now show that the first leverage argument is invalidated by economic analysis.

1. The Flawed Logic of Leverage

Antitrust law has played a crucial role in the organization of the telecommunications industry.[35] One of the major concerns of antitrust in telecommunications has been in the area of vertical

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[33] Competitive Impact Statement at 24, United States v. AT&T, No. 74-1698 (D.D.C. Feb. 10, 1982) (footnote omitted). The Decree's injunctive provisions "limit the functions of the divested BOCs to preclude the possibility of a recurrence of the type of monopolizing conduct that the United States alleges to have resulted from AT&T's ownership of regulated local exchange carriers and its simultaneous participation in competitive, or potentially competitive, markets." *Id.* at 24.

[34] United States v. AT&T, 552 F. Supp. 131, 194 (D.D.C. 1982).

[35] According to Michael K. Kellogg, John Thorne, and Peter W. Huber, *Federal Telecommunications Law* (Little Brown & Co., 1992) at 137 "The U.S. telephone industry has been shaped more by antitrust law than by any aspect of federal or state regulation."

restraints, particularly exclusionary practices. Vertical restraints denote a company's actions that restrict its buyer or seller relationships with other companies. Exclusionary practices is a general pejorative label covering a host of competitive and contractual activities that are alleged to create barriers to competition and increase a company's market power.[36] The present discussion focuses on the local exchange carrier who is alleged to have the power to exclude suppliers of long distance services from all or part of its market.

Leverage is defined in antitrust as the use of monopoly power in one market to extract additional monopoly rents and to secure competitive advantages in a second market.[37] This is an example of an exclusionary practice since it is designed to exclude competitors from all or part of the market. The exclusion of competitors from the second market is referred to as "foreclosure." Leverage is asserted to be exercised in a variety of ways. These include tying, restricting access to essential facilities, and refusals to deal. The tying and essential facilities doctrines have often been applied in antitrust cases in telecommunications.[38] The leverage argument is generally flawed because the monopolist is able to extract monopoly rents in the market that it controls and cannot increase its rents by expansion into a second market.

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[36] Richard A. Posner, *Antitrust Law: An Economic Perspective* (University of Chicago Press, 1976) at 28 defines an exclusionary practice as occurring when a firm "trades a part of its monopoly profits, at least temporarily, for a large market share, by making it unprofitable for other sellers to compete with it."

[37] The Second Circuit Court, in *Berkey Photo* 603 F. 2d 263, stated that "the use of monopoly power attained in one market to gain a competitive advantage in another is a violation of section 2 [of the Sherman Act], even if there has not been an attempt to monopolize the second market." This monopoly leverage argument has been rejected in *Air Passenger Computer Reservation Systems Antitrust Litigation*, 694 F. Supp. 1443, 1472 (C.D. Cal. 1988).

[38] Kellogg, Thorne, and Huber *supra* note 35 at 142.

A *tying contract* refers to a situation in which the seller of a good requires the buyer to purchase as second good, thus selling the two as a product bundle.[39] For example, a tying contract offered by an LEC would require the buyer of its local service to purchase its long-distance service as well. The company is then said to "leverage" its market power in the tying product market over to the market for the tied product. The courts are concerned with the restriction of competition in the tied product market. The reasoning behind the law and court decisions on tying has been subject to significant criticism.[40] As Judge Richard A. Posner has observed "One striking deficiency of the traditional, 'leverage' theory of tie-ins, as the courts have applied it, is the failure to require any proof that a monopoly of the tied product is even a remotely plausible consequence of the tie-in."[41] The problem is that the monopolist has little incentive to do so since it generally obtains no additional profits from the tie-in sale and rarely obtains market power in the market for the tied good.[42]

The firm may obtain benefits from tie-ins if the tied good allows metering of usage of the tying good for pricing purposes. However, as Posner observes, this does not imply that there is an incentive to exclude competition. In the telecommunications context, the LEC certainly is

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[39] In *Times -Picayune Publishing Co. v. United States*, 345 U.S. 594 (1953) the Court held that tying violates the Sherman Act if the seller has both a monopoly in the tying product and if competitors are foreclosed in the tied product, while the Clayton Act applies if *either* of these conditions holds.

[40] Robert H. Bork, *The Antitrust Paradox* (Basic Books, 1978) at 366 calls the transfer of market power theory behind the antitrust law on tying, and the Supreme Court's enforcement of it, "fallacious." See also Ward S. Bowman, "Tying Arrangements and the Leverage Problem," 67, *Yale Law Journal* 19 (1957). George J. Stigler criticizes the application of the tying in "United States v. Loew's, Inc.: A Note on Block Booking," *Supreme Court Review*, 152 (1963).

[41] Richard A. Posner, *Antitrust Law: An Economic Perspective* (Chicago University Press, 1976) at 172.

[42] *Id.* at 173.

capable of monitoring usage of its local service without the sale of additional long distance services.

An *essential facility* refers to productive inputs that cannot be duplicated feasibly or economically by others.[43] The concept has been applied rather broadly in antitrust. It has elements of both natural monopoly and barriers to entry. As in the case of natural monopoly technology, the essential facility should not be duplicated since the market is served at least cost with one facility. The idea that a competitor cannot feasibly or economically duplicate a facility in a market suggests the presence of barriers to entry. Thus, the argument goes, an existing facility will not be duplicated because an entrant would incur irreversible investment costs. Alternatively, it is suggested that the costs of duplicating the facility are higher for an entrant than an incumbent.

The essential facility doctrine goes beyond the natural monopoly and barriers to entry ideas since it incorporates vertical elements. The owner of the essential facility not only has monopoly power in one market but is presumed to deny equitable access to competing firms in another market. In *United States v. Terminal Railroad Association*, the Court found a railroad switching junction to be an essential facility.[44] In Otter Tail Power Co. v. United States, the Court found that the electric power transmission lines of the utility were an essential facility.[45] The standard antitrust remedy for the essential facilities problem is to mandate equal access.[46]

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[43] *See United States v. Terminal R.R. Ass'n*, 224 U.S. 383 (1912); *Otter Tail Power Co. v. United States*, 410 U.S. 366 (1973).

[44] 224 U.S. 383 (1912);

[45] 410 U.S. 366 (1973)

[46] Kellogg *et al*, *supra* note 35, at 140.

The view that the local exchange is an essential facility is reflected in the MFJ's mandate of equal access for long distance carriers.

Even if it could be established that local competition was insufficient, the mere possibility of some amount of "market power" in the local exchange cannot justify placing onerous dominant carrier and separations regulations on the independent LECs. Market power gives a firm some ability to increase or lower its sales by varying its price, rather than taking as given an external market price. In markets where there are not a very large number of firms, or where products are differentiated, each firm has some market power, limited only by the types of actual and potential competition that it faces. Most companies have market power in the sense that they can vary some of their prices and face price-responsive customer demand (that is, downward-sloping demand functions). No one would seriously suggest that pricing and unbundling regulations should be applied to all such companies. Given the alternatives available and the unbundling and resale obligations, market power in the local exchange (if any) will not be significant enough to justify creating new forms of regulation that asymmetrically impact incumbents and entrants.

The concern with monopoly leveraging has no basis. If there is no monopoly position to begin with, then there can be no monopoly leveraging. Moreover, the leverage scenario is inconsistent with incentives that have been created by competition in the local exchange. Even assuming that a monopoly position exists, there remains the question of whether firms have an economic incentive to engage in monopoly leveraging. Under general conditions, firms do not have an incentive to engage in "leveraging" market power whether through vertical foreclosure or tying products.

The long-established view in economics on tie-in sales as a form of monopoly leveraging is that firms do not have an incentive to use tying arrangements to extend or leverage monopoly power from one market to another. Economic analysis has established that for a firm selling complementary goods in fixed proportion, with a monopoly in the tying good and a competitive market in the tied good, monopoly profits cannot be increased beyond those already available in selling the tying good. Creating a second monopoly in the tied good will not increase profits, since earnings are constrained by competitive alternatives in the market for the tied good.[47]

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[47] This classic result is confirmed and extended in an article by Michael Whinston on the theoretical basis for monopoly leveraging. See Michael Whinston, "Tying, Foreclosure, and Exclusion," 80 *American Economic Review* (March 1990) at 837-859. Whinston shows that the monopolist does not have an incentive to leverage even with differentiated products in the tied-goods market, with economies of scale in production, and with oligopolistic, rather than a competitive, market structure in the tied-goods market. As he observes:

> The key point is that with complementary products used in fixed proportions, the monopolist can actually derive *greater* profits when its rival is in the market than when it is not because it can benefit through sales of its monopolized product from the additional surplus that its rival's presence generates (due to product differentiation).(*Id.*, at 850, emphasis in original.)

Thus, when Whinston assumes that the tying good is an essential facility, and there are two firms in the tied good market, he finds that it is not profitable for firm 1 to drive firm 2 out of business in the tied good market, consistent with the conventional result that monopoly leveraging is not possible. To place this result in the context of telecommunications, whether monopolist or not, the LEC's sales of local exchange services could benefit from increased demand for the services that are complementary to those offered by its competitors.

The basic argument that a monopoly cannot increase its profits by creating a second monopoly in a complementary good when the goods are sold in fixed proportion continues to hold. What critics of the argument have done is create highly stylized conditions to show that starting from a non-monopoly position, in the tying and tied-goods markets, profits can be increased by forcing rivals out until a monopoly position is obtained. For example, when Whinston assumes that there is monopoly in the tying good and there is a single rival in the tied-goods market, and that rival produces an inferior good, he finds that the firm offering bundled service could drive the producer of the inferior product out of business. This result is not applicable to telecommunications. It only would apply if one believed that (1) the LEC faced no facilities-based competitors for unbundled network services, (2) the LEC faced only one competitor in the market for resale services, local toll, or long distance, and (3) the sole competitor produced an inferior product. These conditions do not hold for local telecommunications markets.

The leverage argument is incorrect *whether or not any limits on the access charges exist.* The LEC can capture no more monopoly rents on direct sales of interexchange service than it can through increases in the access charges. Suppose the LEC increases its access charges by a dollar. This increases its revenues from providing access. Suppose that the LEC also supplies interexchange service. Raising the access charges by a dollar will allow at most a corresponding increase of one dollar in the price of the interexchange service, otherwise, if the increase were any higher, customers would still continue to use the service of the competing interexchange carrier. Therefore, the LEC is indifferent as to whether it earns the extra dollar on access charges or on the calls to its interexchange service. Monopoly pricing of access captures all of the available monopoly rents. Again, when regulation places a ceiling on access charges, the LEC can not expect to raise interexchange prices any further than the increase in the access charge. This last point bears emphasis, since it also invalidates the argument that regulation motivates discriminatory access charges.

2. Regulation and Competition Prevent Cost Shifting from Long Distance to the Local Exchange

The argument that a rate-of-return regulated firm with market power has an incentive to lever this power from one market to another fails to apply to the LECs. Absent regulatory failure, supplying both long distance and local service does not increase the firm's regulated capital base. If the firm invests in facilities for the provision of long distance service, the regulated rate base is unaffected. Regulators will not allow the costs of providing the competitive service to be included in the regulated rate base. The regulated-firm leverage scenario is also inconsistent with incentives that have been created by competition in the local exchange. Competition in the local exchange prevents the LEC from pricing access based on misallocated costs since any resulting