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## COLLOCATION AND TELECOMMUNICATIONS POLICY: A FOSTERING OF COMPETITION ON THE MERITS?†

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### ABSTRACT

This article discusses the potential development of competition in the various local telephone service market segments. The Federal Communications Commission, in CC Docket 91-141, is considering requiring telephone companies to lease space inside (or alternatively provide interconnection facilities just outside) their local switching offices to accommodate the placement of competitors' telecommunications equipment, an arrangement known as collocation. An FCC policy decision favoring the collocation of competitors' equipment on telephone company premises will provide strong economic incentives for firms to enter the local telecommunications services market. However, whether increasing the number of firms supplying various local telephone services will automatically achieve either a more efficient industry structure or deliver benefits to consumers typically associated with actively competitive markets is not certain. Allowing all industry suppliers to participate in the competitive process, including incumbent telephone companies, will increase the likelihood that policies designed to foster competition will ultimately produce the full range of social benefits anticipated by regulators. Specifically, unless regulatory constraints prohibiting telephone companies from quickly lowering prices and negotiating individual service contracts with high volume customers are relaxed, implementation of a national collocation policy will probably encourage inefficient market entry while preventing market prices from declining to truly competitive levels.

### INTRODUCTION

The concept of competitive entry is not new to telecommunications.<sup>1</sup> For example, competition for interexchange services began in 1956, when the Federal Communications Commission (FCC) opened a proceeding to consider allocation of radio frequency bands above 890 megacycles. After the *Above 890* decision was rendered in 1959, entry into telecommunications

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1. In fact, competitive entry first appeared in the 1890s when the two fundamental Bell patents expired in 1893 and 1894. See GERALD R. FAULHABER, *TELECOMMUNICATIONS IN TURMOIL: TECHNOLOGY AND PUBLIC POLICY* 1-2 (1987); and GERALD W. BROCK, *THE TELECOMMUNICATIONS INDUSTRY: THE DYNAMICS OF MARKET STRUCTURE* 109-25 (1981).

markets by non-Bell companies continued when the FCC granted a license to Microwave Communications Incorporated (MCI) to construct and operate a microwave system between Chicago and St. Louis. The *Specialized Common Carriers* decision, and two crucial appeals court decisions, allowed MCI to offer a switched long distance service, known as *Execunet*, in competition with American Telephone and Telegraph Corporation's (AT&T's) direct-dial toll services. Finally, several other key FCC and court decisions have attempted to solidify the competitive nature of various telecommunications markets.<sup>2</sup> Thus, a great deal of FCC activity in the common carrier area has contributed to the evolution of a competitive market structure in the long distance and private line service markets. Moreover, fostering further competition in telecommunications is an important public policy objective of the current FCC chairman, Alfred Sikes.<sup>3</sup>

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2. *In re Allocation of Frequencies Above 890 Megacycles*, 27 F.C.C. 359 (1959) (allocation of radio spectrum in the frequency above 890 megacycles to private microwave users regardless of whether common carrier service was available to them) [hereinafter *Above 890*]; *In re Applications of Microwave Communications, Inc.*, 18 F.C.C.2d 953, 1008-09 (1969) (the granting of a license to MCI enabling it to construct a microwave network between St. Louis and Chicago to provide private line services on a common carrier basis) [hereinafter *MCI*]; *In re Establishment of Policies and Procedures for Consideration of Application to Provide Specialized Common Carrier Services in the Domestic Public Point-to-Point Microwave Radio Service and Proposed Amendments to Parts 21, 43, and 61 of the Commission's Rules*, 29 F.C.C.2d 870 (1971) (First Report and Order) (establishing an overall policy concerning new entry to the private line market by what were designated as "specialized common carriers" and ruling that the local exchange carriers must, upon request, permit these carriers to interconnect with their facilities) [hereinafter *Specialized Common Carriers*]; *MCI Telecommunications Corp. v. FCC*, 561 F.2d 365 (D.C. Cir. 1977) (ruling that MCI's *Execunet* service, though substantially equivalent to AT&T's MTS and WATS service, was lawful), *cert. denied*, 434 U.S. 1040 (1978); *MCI Telecommunications Corp. v. FCC*, 580 F.2d 590 (D.C. Cir. 1978) (reversing Petition of AT&T for a Declaratory Ruling and Expedited Relief, FCC 78-142, *Memorandum Opinion and Order*, released Feb. 28, 1978, which granted an AT&T petition for declaratory ruling that it was under no obligation to provide interconnection for *Execunet* service), *cert. denied*, 439 U.S. 980 (1978); *In re MTS and WATS Market Structure*, 81 F.C.C.2d 177 (1980) (Report and Third Supplemental Notice of Inquiry and Proposed Rulemaking) (formal adoption of an open entry policy for all interstate services, including MTS and WATS); *In re Regulatory Policies Concerning Resale and Shared Use of Common Carrier Domestic Public Switched Network Services*, 83 F.C.C.2d 167 (1980) (Report and Order) (prohibiting tariff restrictions on the resale and shared use of MTS and WATS services); *United States v. American Tel. & Tel. Co.*, 552 F. Supp. 131, 195-99 (D.D.C. 1982) (Modification of Final Judgment), *aff'd sub nom. Maryland v. U.S.*, 460 U.S. 101 (1983) (requiring the Bell Operating Companies and GTE to offer "1+" equal access, otherwise known as Feature Group D); *In re MTS and WATS Market Structure Phase III*, 100 F.C.C.2d 860 (1985) (Report and Order) (extension of equal access obligations to the non-GTE independent telephone companies). *And see generally*, BROCK, *supra* note 1; FAULHABER, *supra* note 1; William A. Brock & David S. Evans, *Creamskimming*, in *BREAKING UP BELL: ESSAYS ON INDUSTRIAL ORGANIZATION AND REGULATION* 61 (David S. Evans ed., 1983); LELAND L. JOHNSON, *COMPETITION AND CROSS-SUBSIDIZATION IN THE TELEPHONE INDUSTRY* (RAND Corporation Monograph R-2976-RC/NSF) (1982); and, Richard H.K. Vietor, *AT&T and the Public Good: Regulation and Competition in Telecommunications, 1910-1987*, in *FUTURE COMPETITION IN TELECOMMUNICATIONS* 27 (Stephen P. Bradley & Jerry A. Hausman eds., 1989).

3. *See, e.g.* Remarks of Alfred C. Sikes before the Federal Communications Bar Association, Chicago Chapter (Aug. 9, 1991). *See also, In re Competition in the Interstate Interexchange Marketplace*, 5 F.C.C.R. 2627 (1990) (Notice of Proposed Rulemaking); *In re Competition in the Interstate Interexchange Marketplace*, 69 Rad. Reg. 2d (P & F) 1135 (1991) (Report and Order); *In re Expanded Interconnection with Local Telephone Company Facilities*,

The need to integrate the local exchange carriers' (LECs') public network with various non-LEC telecommunications networks is an issue integrally related to the subject of competition and its potential benefits to telephone service customers.<sup>4</sup> Numerous competitive access providers (CAPs) have constructed and are operating such networks, offering telecommunications users an alternative to LEC access services for obtaining connections to Interexchange Carriers' (IXCs') nation-wide long distance transmission facilities.<sup>5</sup> The FCC's primary proposal for integrating these various networks involves a concept known in telecommunications as *collocation*, in which other firms' transmission equipment is allowed to be located inside or near telephone company local switching offices.<sup>6</sup> Proponents argue that only through this physical arrangement can interconnection terms and conditions be achieved in a way which stimulates competition in providing certain types of local telephone service. Another important element in this view of the evolution of competition in the interexchange access market is that LEC prices and services should be restructured such that CAPs seeking collocation arrangements would only have to use selected portions of what are currently offered as integrated LEC services. These principles were submitted for regulatory review when Metropolitan Fiber Systems, Inc. formally petitioned the FCC to establish rules and prices

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6 F.C.C.R. 3259 (1991) (Notice of Proposed Rulemaking and Notice of Inquiry) [hereinafter *Expanded Interconnection NPRM/NOI*]. Other recent Chairmen of the FCC have also considered this an important policy goal. See, e.g. Mark S. Fowler, et al., *Back to the Future: A Model for Telecommunications*, 38 FED. COMM. L.J. 145 (1986); and, Henry Geller, *The FCC Under Mark Fowler: A Mixed Bag*, 10 HASTINGS COMM. & ENT. L.J. (1988).

4. Among the largest LECs are the Bell telephone companies (also referred to as the Bell Operating Companies, or BOCs): Ameritech, Bell Atlantic, BellSouth, NYNEX, Pacific Telesis, Southwestern Bell, and US West.

5. IXCs are long distance companies, such as AT&T, MCI, and US Sprint. Two of the major CAPs are Metropolitan Fiber Systems, Inc. (MFS) and Teleport Communications Group. The typical path followed by a long distance call involves its transmission across LEC owned facilities (i.e., cables) connecting the originating residence or business location to a LEC local switching office. The call would then be transported (again typically via LEC owned facilities) to the appropriate IXC (as designated by the call's originator). CAPs have begun competing with LECs in the provision of dedicated connections between telecommunications users' locations (primarily large corporate customers occupying building space in the densely populated business districts of major cities) and IXC's long distance networks. After traversing the IXC's interstate toll network, the call would (usually) be delivered to a LEC central office in the terminating city. The LEC would then terminate the call (via its facilities linking end users to local switching offices) at the dialed telephone number. It is not uncommon for different LECs to handle the originating and terminating portions of an interstate toll call.

6. The concept of collocation is explained in more detail in Section III of this article. Collocation arrangements could soon be available to CAPs, IXCs, and large corporations that rely heavily upon telecommunications services (e.g., banks, brokerages, and other financial institutions). A local switching office is a building housing the switching equipment necessary to connect cables leading from customers' telephone sets to each other (both locally and long distance). The switching equipment can accept customers' dialing instructions and direct calls to their correct destinations. The terms "local switching office," "local serving office," and "central office" will be used interchangeably throughout this article.

governing the interconnection of CAP facilities and LEC local networks.<sup>7</sup>

On June 6, 1991, responding to the petition and taking another step toward the objective of fostering greater competition in telecommunications, the FCC released a Notice of Proposed Rulemaking and Notice of Inquiry (NPRM/NOI) to elicit comments from the telecommunications industry on the subject of competition in providing interstate access services.<sup>8</sup> The FCC's stated reason for beginning this proceeding was "to remove barriers that currently impede the development of greater competition in the provision of interstate access transmission facilities, and thereby unlock the potential for a substantially broadened scope of competition in interstate telecommunications."<sup>9</sup> The focus of the FCC, therefore, appears to be on encouraging the deployment of alternative transmission facilities (primarily fiber optic cable) linking LEC local switching offices to IXC interstate toll networks.

In moving toward its vision of a competitive local transport market, the FCC has requested comments regarding price structures most likely to create incentives for CAPs (and even IXCs themselves) to provide transmission capacity between local telephone company offices and long distance companies' networks as an alternative to existing LEC facilities. In particular, the FCC is seeking to establish reasonable and nondiscriminatory prices for interconnecting, non-LEC transmission equipment (e.g., fiber optic cable and all necessary electronic devices) located within, or near, LEC central offices.<sup>10</sup> In addition, the FCC has requested opinions regarding the appropriate terms, and conditions which should govern collocation arrangements.<sup>11</sup> Detailed solutions to such issues as the monitoring and control of transmission equipment, the maintenance and repair of that equipment, the rights of non-LEC personnel to access LEC property, the rental of LEC central office space, and numerous other administrative and technical aspects inherent in collocation arrangements are required for the practical application of "expanded interconnection rights" to successfully motivate interstate access competition.<sup>12</sup>

The FCC's intention to establish binding collocation guidelines, complete with formally tariffed prices, terms, and conditions, is apparently based on the FCC's firmly held view of the social benefits expected to flow from competitive markets.<sup>13</sup> From an economic perspective, merely encouraging

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7. Petitioner's Brief for the FCC, *In re* Interconnection of Exchange Access Carrier Facilities (RM-7249) (Petition for Rulemaking) (filed by Metropolitan Fiber Systems, Inc. on November 14, 1989) [hereinafter *Metropolitan Fiber Systems Petition*]. Similar petitions were filed by CAPs in the States of California, Illinois, Massachusetts, New York, and Texas.

8. *Expanded Interconnection NPRM/NOI*, 6 F.C.C.R. 3259. Interstate access services provide for the linkage between LEC local networks and IXC interstate long distance transmission facilities.

9. *Id.* ¶ 1.

10. *Id.* ¶¶ 37-43.

11. *Id.* ¶¶ 19-28.

12. *Id.* ¶ 31.

13. *Id.* ¶¶ 3, 13-14.

entry into the provision of IXC access services does not guarantee the development of an actively competitive market. The possibility that the full benefits promised by truly competitive markets will not accompany implementation of a national collocation policy cannot be dismissed. Indeed, before initiating a precedent-setting policy designed to foster greater competition in the IXC access market, the extent to which potential benefits are likely to be realized must be reasonably assessed. Such is the aim of both this article and (at least partially) the FCC's recent NPRM/NOI.

By affording CAPs favorable regulatory treatment, the FCC can almost guarantee an increased number of suppliers in the IXC access market. While IXCs rely upon LECs for the local distribution of most long distance traffic, CAPs have recently emerged as suppliers of dedicated circuits directly connecting selected large businesses to IXCs' networks. The effect of CAPs as competitors can be broadened by regulatory policies designed specifically to enhance the CAPs' market positions. However, the success of competitors does not always necessarily imply the success of competition. In other words, the widespread benefits typically expected to result from injecting competition into a regulated market need not automatically accompany the financial gains experienced by firms entering the market. Public policy decisions which restrict incumbent LECs' attempts to quickly change the prices of services offered in competitive markets could result in little more than a wealth transfer from telephone companies to new entrants without producing the benefits typically associated with vigorous price competition.

The advent of allowing new competitors to enter the tightly regulated local exchange market brings expectations of product and service innovation, rapid deployment of technological advances, telecommunications infrastructure enhancement, expanded output, and generally lower market prices. In addition to directly achieving these results themselves, the new CAP entrants might be expected to stimulate incumbent LECs to become more efficient, responsive, and creative suppliers determined to avoid or minimize financial losses to competitors.<sup>14</sup> These expectations, however, may be ambitious in light of the CAPs' current focus on competing only for the largest and most lucrative corporate accounts. While large businesses have, to some extent, reaped the benefits of competition in the IXC access market, it is not clear that the majority of telecommunications customers have benefitted from CAPs' activities.<sup>15</sup>

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14. These, or similar, expectations are held by the FCC. *See id.*

15. In fact, several telephone companies' maintain that their overall price structures seem to have been designed to encourage the consumption of a particular service (e.g., basic local telephone service) by ensuring relatively low prices for that service. Continuing relatively low local service prices depends, to some extent, upon an ability to maintain the prices of other telephone company services well in excess of the costs of providing those services. If LEC interexchange access revenues are contributing toward the maintenance of low local service prices and the future magnitude of those revenue streams becomes more uncertain as competition intensifies, upward pressure on local telephone service prices could ultimately arise. Most of the Bell telephone companies have filed arguments consistent with this description in their Comments

Thus, the emergence of the CAPs raises some rather troubling questions for future telecommunications public policy. First, will public policies designed to encourage the entry and financial success of the CAPs foster true competition on the merits, characterized by spirited price competition and lawful battles for market share (and hence lower prices to customers in general)? CAPs contend that fully integrating their networks with the LECs' is the only way to achieve meaningful competition, and its resultant benefits in the local exchange market. CAPs further maintain that the most effective way to accomplish this network integration and deliver the benefits of competition throughout the local access market is to adopt a regulatory policy permitting the collocation of CAP transmission equipment inside (or physically near) LEC local serving offices. However, giving CAPs collocation privileges will not necessarily increase customer benefits substantially beyond the level associated with their current activities.

Second, a corollary to this first troubling public policy question, is whether such policies could merely foster economically inefficient "creamskimmer" entry, which could effectively redistribute profits among firms in the industry, but will not really lead to the ultimate benefits that true competition can produce, such as lower prices to customers.<sup>16</sup> The most direct way to distinguish creamskimmer entry from entry by efficient firms is to examine the costs and prices of both the incumbent and entrant. This analysis is quite impractical as a regulatory exercise. Fortunately, however, another alternative exists. Regulators could allow unlimited downward pricing flexibility for the incumbent market suppliers in conjunction with allowing entry. The competitive response of the incumbent will cause inefficient entrants to exit the market eventually while efficient entrants would remain. Thus, if creamskimmer entry is a possibility, then public policies that deregulate *entry* but not *pricing* may produce the opposite of the desired result—economically inefficient investment and excess capacity, a lack of true price competition, and the inefficient extension of asymmetric regulation to the local exchange.<sup>17</sup>

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(dated August 6, 1991) responding to the FCC's *Expanded Interconnection NPRM/NOI*. See, e.g., Comments of the Ameritech Operating Companies, pp. 60-61; Comments of Bell Atlantic, pp. 9-12; Comments of the BellSouth Telephone Companies, p. 72-73; Comments of the NYNEX Telephone Companies, pp. 31-33; Comments of Pacific Bell and Nevada Bell, pp. 60-63; and Comments of Southwestern Bell Telephone Company, p. 21.

16. A creamskimmer is merely an economically inefficient entrant that can only enter a market, and survive, if regulation produces an incumbent market supplier that must charge prices that are too high, and that cannot lower its prices in response to competition.

17. These issues are not new to telecommunications law. In *Hawaiian Tel. Co. v. FCC*, 498 F.2d 771, 775-76 (1974), the court ruled that the FCC, in granting authority to RCA Global Communications, Inc. to provide private line voice-only telephone service between Hawaii and the mainland U.S., considered the factor of "competition" improperly; not in terms primarily as to its benefits to the public, but with the objective of *equalizing competition among competitors*.

## I. TO LEARN FROM HISTORY, OR TO REPEAT IT?

Let us rather welcome competition but face the issues it poses. The question then is to determine the proper response of the common carriers to the new situation. Are the existing prices and other policies of the common carriers in the communications industry appropriate in the regime of competition?<sup>18</sup>

When Sir Ronald Coase expressed this approach to public policy in 1970 in the first issue of the *Bell Journal of Economics and Management Science*, his comments referred to the FCC's *Above 890* decision and the AT&T *Telpak* tariffs, yet they would be equally applicable to the issue of collocation in 1992. In examining the policy of collocation to foster competition, Coase's question is the first one that an economist analyzing such public policies would wish to see answered. Thus, are we to learn from the history of entry into the telecommunications markets, and the way in which incumbent firm responses to it were handled with respect to public policy, or are we to continue in a *Twilight Zone* of regulation, endlessly living and reliving the same scenario over and over again, with minor variations but no resolution? Given history, one could reasonably expect the latter.

This article makes no attempt to provide a comprehensive history of the relevant past dockets before the FCC that have paralleled the issues that the *Expanded Interconnection NPRM/NOI* has raised. The scholarship necessary for a sound historical base from which to work has already been provided by a number of other authors.<sup>19</sup> Instead, this section will revisit some of this history and examine the relevant parallels with the *Expanded Interconnection NPRM/NOI* to draw on lessons that have been learned elsewhere.

Since 1959, beginning with the *Above 890* decision, the FCC's policies towards AT&T can generally be characterized as fostering entry by alternative suppliers, with little or no corresponding deregulation of AT&T's allowed pricing. Thus, asymmetric regulation of AT&T gradually became the regulatory status quo.<sup>20</sup> In particular, the FCC has been reluctant to

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18. Ronald H. Coase, *The Theory of Public Utility Pricing and Its Application*, 1 BELL J. ECON. & MGMT. SCI. 113, 125 (1970).

19. See BROCK, *supra* note 1, at 198-233; FAULHABER, *supra* note 1, at 23-57; Brock & Evans, *supra* note 2; JOHNSON, *supra* note 2; Vietor, *supra* note 2, at 60-80; and, CHARLES F. PHILLIPS, *THE REGULATION OF PUBLIC UTILITIES* 457-61 (1985).

20. The transition to asymmetric regulation in the long distance market was due primarily to the *Competitive Carrier Proceedings. In re Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorization Therefor*, 77 F.C.C.2d 308 (1979) (Notice of Inquiry and Proposed Rulemaking); *In re Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorization Therefor*, 85 F.C.C.2d 1 (1980) 215 (First Report and Order) (defining the "dominant" and "nondominant" classifications of firms subject to regulation); *In re Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorization Therefor*, 91 F.C.C.2d 59, 187 (1982) (Second Report and Order), *recon. denied*, 93 F.C.C.2d 54 (1983) (forbearance from regulation



grant AT&T downward pricing flexibility to any significant extent.

The proceedings from this period most parallel to the *Expanded Interconnection NPRM/NOI* are probably the *Above 890* decision, with the resulting strategic pricing behavior of AT&T via the *Telpak* tariffs, and the *Specialized Common Carriers* decision.<sup>21</sup> Both of these involved fostering competition via increased entry by alternate suppliers, and in both, the issues of cream-skimming and competitive pricing responses were discussed. Thus, the FCC activity begun in 1959 with the *Above 890* decision, and culminating in the 1970s with the *Specialized Common Carriers* docket, can be considered the private line and long distance analog to the current proceeding.<sup>22</sup>

When *Above 890* was being considered, AT&T argued that entry by alternative carriers would consist of inefficient, duplicative cream-skimmer entry. The FCC rejected this argument and allowed entry, but shortly after new entrants appeared, AT&T filed its famous *Telpak* tariffs as a competitive response. Thus, for quite some time, AT&T did have some measure of de facto downward pricing flexibility in engaging the specialized common carriers in spirited price competition, and did so, though this was not done with the approval of the FCC. The *Telpak* tariffs offered reduced rates for large bundles of private lines and were geared to users who might otherwise choose to build their own microwave systems. Hence, *Telpak* was a competitive response even though the FCC did not approve these tariffs and eventually rejected them as unlawful. These tariffs were declared unlawful

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of terrestrial services); *In re Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorization Therefor*, 47 Fed. Reg. 17,308 (1982) (Second Further Notice of Proposed Rulemaking); *In re Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorization Therefor*, 48 Fed. Reg. 46,791 (1983) (Third Report and Order) (extending scope of proceeding to include services provided to all domestic points outside the United States, including Hawaii, Guam, and Puerto Rico); *In re Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorization Therefor*, 47 Fed. Reg. 28,292 (1983) (Third Further Notice of Proposed Rulemaking); *In re Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorization Therefor*, 95 F.C.C.2d 554 (1983) (Fourth Report and Order) (ruling that domestic satellite carriers, companies owning satellite transponders, direct broadcast satellite common carriers, and various other carriers lacking market power should be characterized as nondominant); *In re Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorization Therefor*, 96 F.C.C.2d 922 (1984) (Fourth Further Notice of Proposed Rulemaking); *In re Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorization Therefor*, 98 F.C.C.2d 1191 (1984) (Fifth Report and Order) (extension of forbearance to domestic satellite carriers, all domestic, interstate, interexchange services of carriers affiliated with exchange telephone companies, miscellaneous common carriers, and digital electronic message service networks); *In re Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorization Therefor*, 99 F.C.C.2d 1020 (1985) (Sixth Report and Order), *rev'd and remanded sub. nom.*, *MCI Telecommunications Corp. v. FCC*, 765 F.2d 1186 (D.C. Cir. 1985) (FCC's attempt to require forborne carriers to withdraw tariffs on file and to prohibit them from filing tariffs altogether, struck down by U.S. Court of Appeals as being beyond the FCC's discretion in interpreting the Communications Act of 1934).

21. *Above 890*, 27 F.C.C. 359; *Specialized Common Carriers*, 29 F.C.C.2d 870.

22. *Above 890*, 27 F.C.C. 359; *MCI*, 18 F.C.C.2d 953; *Specialized Common Carriers*, 29 F.C.C.2d 870.

in 1976<sup>23</sup> after a protracted examination of AT&T's rate of return and its costs in a study known as the *Seven-Way Cost Study*, which sought to determine which services were subsidizing which, using rates of return for service categories. The resulting rates of return were computed using several different fully-distributed cost methodologies (hence the name of the study, which actually used nine different methodologies for allocating costs).<sup>24</sup> Ironically, users of *Telpak* had become so dependent on the bulk rate service that they protested its discontinuation! Thus, in 1980, twenty years after the *Telpak* tariffs were filed, they were withdrawn, even though AT&T had produced studies that indicated *Telpak* covered AT&T's incremental costs of service.

Essentially, *Telpak* was an involuntary FCC pricing experiment that worked, allowing AT&T to meet competition while satisfying AT&T's customers by giving them lower prices. As Coase pointed out, it amounted to a form of price discrimination that furthered the public interest.<sup>25</sup>

In *Specialized Common Carriers* the issue of creamskimming again was discussed. The FCC concluded that "there is sufficient ground for a reasonable expectation that new entry here will have some beneficial effects."<sup>26</sup> This conclusion was based on a finding that (1) revenue diversion would be unlikely to have a great effect given the markets being entered, and (2) any such adverse effect caused by revenue diversion would be exceeded by potential benefits of entry.<sup>27</sup> The FCC stated:

We do not see how there could be any diversion of revenues of a magnitude to have the impact claimed by AT&T, in view of the very small percentage of AT&T's existing total market that is vulnerable to competition of the kind proposed here, the growth rate of Bell's basic services, and the likelihood that AT&T would obtain a very substantial share of the potential market for specialized services.<sup>28</sup>

The FCC thus made the creamskimming argument of AT&T moot by finding that revenue diversion was unlikely to result from competitive entry.

As in the case of the *Above 890* decision and the *Telpak* tariffs which resulted, AT&T filed aggressive tariffs as a competitive response to entry after *Competitive Common Carriers*. The first of these, the *Hi-Lo* tariffs,

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23. *In re American Tel. & Tel. Co., Long Lines Department Revisions of Tariff* FCC No. 260 Private Line Services, Series 5000 (TELPAK), 61 F.C.C.2d 587 (1976) (ruling against TELPAK C and D). TELPAK A and B were rejected in 1964. *In re American Tel. & Tel. Co., Tariff* FCC No. 250, TELPAK Service and Channels, 38 F.C.C. 370 (1964).

24. FAULHABER, *supra* note 1, at 26.

25. Coase, *supra* note 18, at 126-127.

26. *Specialized Common Carriers*, 29 F.C.C.2d at 905.

27. *Id.*

28. *Id.* at 910.

which broke from national average pricing, were filed in 1973. These rates were, according to AT&T, justified on both an incremental cost basis and a fully-distributed cost basis. What followed was the same basic story as *Telpak*, with few substantive alterations.<sup>29</sup> After years of investigation, the FCC ruled that these tariffs were unlawful. When AT&T then filed its *Multi-Schedule Private Line* tariff, a modification of the *Hi-Lo* tariff, the FCC repeated the investigation scenario yet again, eventually declaring the tariff unlawful, though the tariff remained in effect for quite some time.

Subsequent FCC orders sought to afford the so-called "dominant" carriers such as AT&T downward pricing flexibility while maintaining safeguards against anticompetitive pricing practices. FCC orders consistent with these policies first appeared in 1985, fourteen years after *Specialized Common Carriers*, seven years after the court decisions enabling MCI to continue offering its *Execunet* service, and five years after formal adoption of an open entry policy for all interstate services, including MTS and WATS.<sup>30</sup>

While these regulatory proceedings were designed to promote competition, their effect on end user prices is still uncertain, even though lower end user prices is one of the primary benefits of competition. While long distance prices have fallen steadily in the years since divestiture, much of this can be attributed to the use of subscriber line charges and AT&T's simultaneous flow-through of the resultant access charge savings to its end users, via FCC mandate, through lower long distance prices.<sup>31</sup> Ironically, nineteen years after *Specialized Common Carriers*, fourteen years after the *Execunet* decisions in the courts, and ten years after entry was opened up to competitors for all interstate services (with resale and the shared use of MTS and WATS services allowed),<sup>32</sup> the FCC issued a Notice of Proposed Rulemaking

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29. As Coase has pointed out, however, "This does not mean that AT&T's own cost calculations were necessarily correct. But a critical examination of these calculations should have concentrated on whether they accurately measured the additional costs incurred by the system as a result of the TELPAK service." Coase, *supra* note 18, at 126.

30. *In re* Guidelines for Dominant Carriers' MTS Rates and Rate Restructure Plans, 50 FED. REG. 42,946 (1985) (Memorandum Opinion and Order) (proposing the net revenue test as a means of testing the lawfulness of price reductions in the form of optional calling plans).

31. *In re* MTS and WATS Market Structure and Amendment of Part 67 of the Commission Rules and Establishment of a Joint Board, 93 F.C.C.2d 241 (1983) (Third Report and Order). The SLC program substituted flat rate monthly charges per basic service access line for per minute access charges paid by IXC's to LEC's for the local distribution of interexchange toll traffic. In effect, telecommunications customers perceived an increase in flat rate telephone service (usually associated with local service) and a simultaneous reduction in long distance charges as the FCC shifted the mechanism for recovering the fixed costs of providing local service from usage sensitive prices paid by IXC's to flat rate charges paid directly by end users.

32. *In re* MTS and WATS Market Structure, 81 F.C.C.2d 177 (1980) (Report and Third Supplemental Notice of Inquiry and Proposed Rulemaking) (formal adoption of an open entry policy for all interstate services, including MTS and WATS); *In re* Regulatory Policies Concerning Resale and Shared Use of Common Carrier Domestic Public Switched Network Services, 83 F.C.C.2d 167 (1980) (Report and Order) (prohibiting tariff restrictions on the resale and shared use of MTS and WATS services).

ng to determine if the interstate long distance market truly was competitive.<sup>33</sup>

While AT&T was not granted explicit downward pricing flexibility by the FCC, it did have some *de facto* pricing flexibility in the form of the *Telpak*, *Hi-Lo*, and *Multi-Schedule Private Line* tariffs. Despite the FCC's eventual finding that these tariffs were unlawful (using the basic fully-distributed cost methodology and results of the *Seven-Way Cost Study*), an antitrust court applying the Areeda-Turner standard for predatory pricing would probably not have found for any plaintiff suing AT&T under Section 2 of the Sherman Act.<sup>34</sup> The Areeda-Turner standard was not devised until 1975, however, and hence was never applied to the AT&T tariffs cited here.<sup>35</sup> Though this standard served as the basis of a number of predatory pricing claims in the years after it was developed,<sup>36</sup> the pre-Areeda-Turner AT&T probably did not engage in pricing behavior that would have violated this standard. Further, in the post-Areeda-Turner period in which several cases have been filed on the basis of this standard, the cases involving AT&T as defendant did not find AT&T violative of Section 2 of the Sherman Act, which is the antitrust court analog to what the FCC was addressing with its *Seven-Way Cost Study*.<sup>37</sup>

In a related way, and as this article will point out, several court cases have indicated that *meeting competition* is an absolute defense to allegations of predatory pricing, apparently even if prices fall below average variable cost.<sup>38</sup> As it turned out, none of these cases involved AT&T.

Thus, in examining history, the courts have not found AT&T's price reductions or price competition with its rivals to be abusive or anticompetit-

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33. *In re Competition in the Interstate Interexchange Marketplace*, 5 F.C.C.R. 2627 (1990) (Notice of Proposed Rulemaking). The FCC eventually decided that a segment of the interstate toll market was sufficiently competitive to permit streamlining their regulation of most AT&T services in the "business services" price cap basket. *In re Competition in the Interstate Interexchange Marketplace*, 69 Rad. Reg. 2d (P & F) 1135 (1991) (Report and Order).

34. 15 U.S.C.A. § 2 (West Supp. 1992) (prohibiting the monopolization of interstate trade or commerce).

35. Phillip Areeda & Donald F. Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697 (1975). The Areeda-Turner test used short-run marginal cost as the cost-based brightline for determining predatory versus non-predatory pricing behavior. The cost standard of average variable cost was suggested as a proxy to short-run marginal cost if the computation of the latter cost standard was too difficult in practice. In their 1978 treatise, Areeda and Turner modified their 1975 standard by casting the presumption of legality for pricing at or above marginal cost as being rebuttable rather than conclusive. See 3 PHILLIP AREEDA & DONALD F. TURNER, ANTI-TRUST LAW ¶ 711d (1978).

36. See Wesley J. Liebler, *Whither Predatory Pricing? From Areeda and Turner to Matsushita*, 61 NOTRE DAME L. REV. 1052 (1986), for a history and critique of the application of the Areeda-Turner standard.

37. *Northeastern Telephone Co. v. American Tel. & Tel. Co.*, 651 F.2d 76 (2d Cir. 1981), *cert. denied*, 455 U.S. 943 (1982); *MCI Communications Corp. v. American Tel. & Tel. Co.*, 708 F.2d 1081 (7th Cir. 1982), *cert. denied*, 464 U.S. 891 (1983); *Southern Pac. Communications Co. v. American Tel. & Tel. Co.*, 740 F.2d 980 (D.C. Cir. 1984), *cert. denied*, 470 U.S. 1005 (1985).

38. See *infra* note 126 and accompanying text.

ive. The relatively small amount of pricing flexibility afforded AT&T by the FCC, and the de facto unsanctioned pricing flexibility AT&T had via *Telpak* and other tariffs, did not lead to antitrust damages or abuses that should preclude considerable pricing flexibility for incumbents in the current telecommunications marketplace.

In summary, the FCC need not allow its decision on interexchange access competition to become merely *Specialized Common Carriers* redux. It can avoid this by (1) examining the true value of allowing the CAPs to service the market, (2) allowing the LECs virtually unlimited pricing flexibility with no onerous regulatory requirements or showings of costs, and (3) designing a contribution element that will help to ensure market entry takes place only by efficient firms that can offer lower prices to customers while maintaining the revenue flows to benefitted services.

## II. CAPs EMERGE AS ACCESS PROVIDERS

CAPs initially focused on providing dedicated private line connections between corporate locations and IXC's long distance networks. For example, CAPS deployed high capacity fiber optic transmission facilities to connect business locations (such as two buildings occupied by a single corporation), to link IXC Points-of-Presence (POPs) (by either connecting several different POPs of the same carrier or tying together the POPs of different carriers), and to establish facility bypass arrangements between customers' locations and IXC POPs.<sup>39</sup>

Rapid construction activity over the past few years has produced CAP networks within the downtown core business districts of many of the largest cities in the country. Assuming the successful completion of announced construction plans, the CAP industry will have expanded from three networks in three cities in 1987 to about forty networks in more than twenty-five cities by the early 1990s.<sup>40</sup> The industry has invested over \$500 million to finance this proliferation of CAP networks.<sup>41</sup> Based on this network investment, CAP industry revenues were expected to reach \$220 million by 1991.<sup>42</sup>

CAPs strive to project an image of prompt suppliers of premium services at discount prices. For example, CAPs can negotiate contracts with different terms, conditions, and prices for providing specific services to different customers. Changes to the terms, conditions, and prices of LEC service

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39. "Facility bypass" refers to customers' ability to access IXC toll networks without using LEC transmission facilities.

40. John T. Mulqueen, *The Rise of the MAN Handlers*, DATA COMM., Oct. 1989, at 67, 67 (citing Kessler Marketing Intelligence, Inc. (a Newport, Rhode Island based research firm) as the source of this information).

41. *Id.*

42. Fred Knight & Robert Vinton, *Fiber Drives Competition in the Local Loop*, BUS. COMM. REV., Dec. 1989, at 31, 33 (quoting Richard Mack of Kessler Marketing Intelligence).

offerings, however, typically require formal regulatory proceedings. Thus, CAPs could be more likely than LECs to respond quickly and precisely to customers' unique demands.<sup>43</sup> In addition, CAPs can take full advantage of the most recent, most sophisticated technologies in designing and installing their networks.<sup>44</sup> Typically, fiber optic transmission facilities and advanced monitoring systems are included in CAP networks.<sup>45</sup> Finally, CAPs usually price their services about ten to twenty percent lower than the tariffed rates of the LECs serving the cities in which CAPs have chosen to construct networks.<sup>46</sup> Perhaps the most significant aspect of CAPs' operations in establishing competition in the local exchange is the perception that alternate networks effectively provide "insurance" against LEC network failures. A highly publicized 1988 fire that destroyed an LEC local switching office outside Chicago brought the issues of disaster recovery and telecommunications network protection to the attention of the entire U.S. business community.<sup>47</sup> Following this disaster, inferences were drawn that if a CAP network is present in an area affected by an LEC's inability to maintain continuous service, businesses would have the opportunity to avoid the loss of telecommunications links to the rest of the world.<sup>48</sup> However, to the extent that CAPs' networks contain a single hub or control point analogous to an LEC local switching office, they are susceptible to the same types of disasters that struck the LEC facilities in Illinois. As a result, businesses can not expect entirely to avoid the risk of losing telecommunications links to the IXCs' long distance networks by using CAP services exclusively. Rather, the value of CAPs' networks in satisfying the demand for disaster recovery appears to be as complements to, rather than complete substitutes for, LEC network services.<sup>49</sup>

Thus, corporations (and governmental entities) that rely on telecommuni-

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43. See Anita Taff, *Alternative Carriers Gaining User Favor*, NETWORK WORLD, July 17, 1989, at 11, 12.

44. It is more difficult for an LEC to follow the same investment and marketing strategies employed by CAPs. LECs must provide network ubiquity and maintain common carrier obligations. These two obligations require significant sunk costs to be incurred and recovered, making it potentially more difficult for an LEC simply to write off or scrap current investment for new, more efficient technology.

45. More detail is provided in Dawn Bushaus, *Weaving an Alternative*, TELEPHONY, Sept. 11, 1989, at 48, 54.

46. Mulqueen, *supra* note 40, at 67.

47. In May 1988 a fire destroyed an Illinois Bell central office in the Chicago suburb of Hinsdale. An estimated 35,000 to 45,000 customers were affected; many were without service for nearly a month. The major IXCs quickly connected large corporate customers directly to POPs using microwave radios. See Mary Lu Carnavale, *MCI, AT&T Acted to Plug in Business of Midwest Clients*, WALL ST. J., June 6, 1988, at 26 (Midwest ed.); and *Fire Shows Phone Net Vulnerable*, ST. LOUIS POST-DISPATCH, June 5, 1988, at 5C.

48. Mark A. Kellner, *MFS Rises From Chicago Ashes*, MIS WEEK, Nov. 28, 1988, at 21, 21; and Steven Titch, *Fire Sparked Business for Metropolitan Fiber*, COMM. WEEK, Feb. 13, 1989, at 54, 54.

49. This does not imply that CAP facilities will not displace current LEC services. However, businesses might be reluctant to disconnect all LEC circuits in favor of a CAP's services.

cations services as an important determinant of their financial health are actively implementing strategies to avoid loss of access to national telephone networks. In addition, high volume telecommunications users are seeking changes in the prices at which such technologically sophisticated network arrangements are supplied. Both CAPs and LECs are striving to meet these market expectations. CAPs, however, are further seeking regulatory support for a market structure which would require LECs to aggregate and deliver traffic to their competitors.

### III. THE CONCEPT OF COLLOCATION

Collocation is a special form of interconnection. Interconnection refers to the transmission facilities and software interfaces that reciprocally connect LEC networks with another provider's facilities (e.g., IXCs' networks). The interconnection facility is generally provided by the LEC, at a charge, and telecommunications traffic is delivered by the LEC to the interconnector's point-of-presence or network node. Under the FCC's Open Network Architecture (ONA) concept, for example, interconnection arrangements provided by a Bell Operating Company (BOC) to competing enhanced service providers must be (1) functionally equivalent to the network connections used by the BOC in providing its own service; (2) available to all prospective interconnectors on an equal, nondiscriminatory basis; and (3) provided at minimum transport costs.<sup>50</sup>

To reduce or eliminate the transmission costs of interconnection, some enhanced service providers and other telecommunications firms, have sought approval to place transmission facilities, such as fiber optic cable, inside or near LEC local serving offices, with the interconnector's termination equipment (e.g., multiplexers) located in close physical proximity to the relevant LEC network equipment (e.g., switches).<sup>51</sup> Therefore, existing LEC price levels and tariff structures are probably important elements in some CAPs' network deployment strategies.

#### *A. LEC Interexchange Access Pricing*

LEC interexchange access services and facilities currently provide a

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50. *In re* Amendment of Sections 64.702 of the Commission's Rules and Regulations (Third Computer Inquiry); Policy and Rules for Competitive Common Carrier Services and Facilities Authorizations Thereof; Communications Protocols under Section 64.702 of the Commission's Rules and Regulations, 104 F.C.C.2d 958, 1039, 1042 (1986) (Report and Order). Enhanced services combine telecommunications transmission services with computer processing applications. Examples of enhanced services include database inquiry services, electronic mail, and packet switching with protocol conversion. See Walter Saprnov, *A Primer on Telecommunications Law and Regulation*, in TELECOMMUNICATIONS AND THE LAW 12 (W. Saprnov ed., 1988).

51. For a concise description of what constitutes collocation from federal regulators' viewpoint, see *Expanded Interconnection NPRM/NOI*, 6 F.C.C.R. 3259 ¶¶ 19-27.

crucial link between telecommunications users and IXC's global long distance networks. Much of the toll traffic reaching IXC's transmission facilities relies upon network instructions provided by LEC switching equipment. In addition, heavy users of telecommunications services, primarily large businesses, that generate large volumes of long distance traffic can take advantage of service arrangements that bypass LEC switches and directly connect customer locations to IXC networks. Different pricing structures apply to the different methods by which end users access IXC facilities.<sup>52</sup>

LEC special access service provides a dedicated private line connection between a customer's location and either another end user location (usually a different location of the same customer) or an IXC POP. This dedicated circuit is typically routed through one or more LEC local serving offices before it is terminated. The service is priced as a recurring monthly flat rate. LEC special access service charges are based on two channel termination (CT) charges and a distance sensitive component (channel mileage—CM—charge). The CT charges are associated with (1) the portions of the private line that connect the customer location to the LEC local serving office on one end, and (2) the connection between the LEC central office and the termination point of the circuit (either a customer location or an IXC POP) on the other end. The channel mileage charges (CM) are assessed on the basis of the distance between the LEC office serving the customer and the office serving the IXC POP or other terminating point. If both the originating and terminating points of a special access circuit are served by the same LEC central office, no mileage charges apply.

On the following page, Figure 1 illustrates the charges that apply to a special access circuit. In Diagram A, mileage charges apply because more than one LEC local serving office is involved in the transmission path. In Diagram B, only one LEC local serving office is required to complete the transmission path and mileage charges do not apply.

LEC switched access service provides for both the delivery of a long distance message originating from a customer's location (e.g., individual residence or business) to an IXC POP, and the carriage of long distance traffic from an IXC switch to the terminating customer location. Switched access service is provided over the same transmission facilities used to connect customers to the LEC local switched network. Charges for switched access service which are both time and distance sensitive are assessed to

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52. Charges are assessed by LECs to recover the costs incurred in the local transport and switching of long distance messages requiring access to (or distribution from) IXC's toll networks. IXC's pay these switched access charges for each long distance minute of use originated (and terminated) over the LECs' local networks. Alternatively, dedicated circuits can be leased from LECs to establish direct connections between IXC networks and business locations that generate large volumes of toll usage. These flat rate monthly recurring special access charges are typically assessed to IXC's, but large corporations also lease special access circuits from LECs. In addition, such large corporations, IXC's, or third parties (such as CAPs) can construct and operate facilities linking business locations to IXC networks, thereby bypassing the LECs entirely.



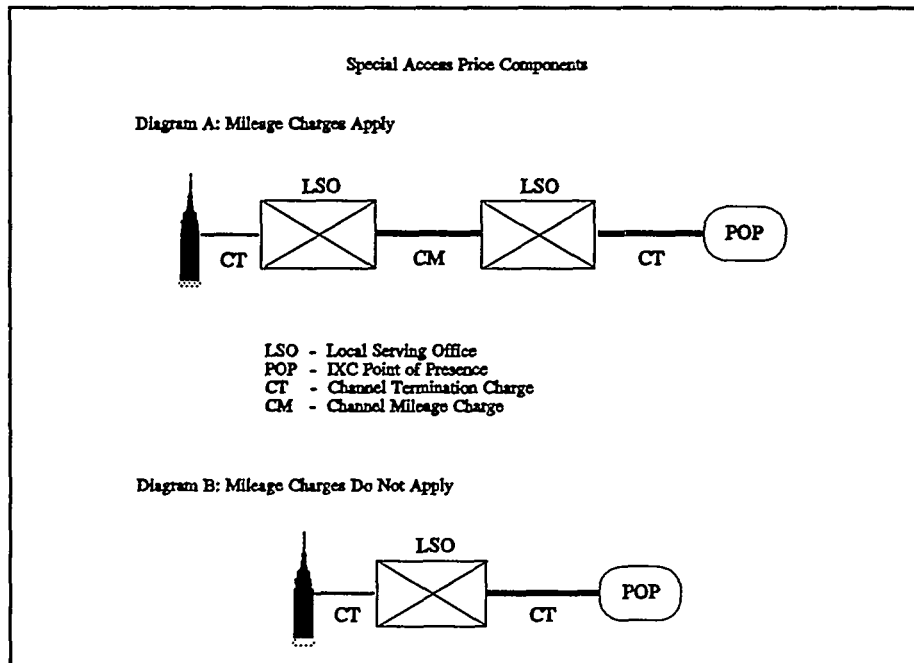


Figure 1

IXCs who, in turn, likely incorporate at least a portion of these charges into the long distance rates paid by end users. That is, the price for switched access service is specified per minute of use and contains a mileage component. The mileage component of the price, the local transport charge, is associated with the distance between the LEC central office that serves the customer location making or receiving long distance calls and the LEC central office serving the IXC POP.<sup>53</sup> Even in the event that both the end user location and the IXC POP are served by the same LEC central office, the LEC assesses a local transport charge per minute of switched access usage.<sup>54</sup>

In addition to the local transport (LT) element, prices for switched access service also reflect a charge for the local switching (LS) functions required of the LEC to ensure both that originating long distance calls are directed to each customer's chosen IXC and terminating toll calls are correctly delivered. Finally, a charge designed to recover a portion of the fixed costs

53. While the intent of the local transport rate element might be to recover the costs from the end user local serving office all the way to the POP, the distance used in computing the charge reflects the mileage between the end user serving LEC central office and the POP serving LEC central office.

54. Local transport mileage bands include a 0-1 mileage category.

associated with the provision of basic local telephone service, the carrier common line (CCL) charge, is included in the switched access price per minute paid by IXC. Figure 2 illustrates the charges that apply to a switched access call.

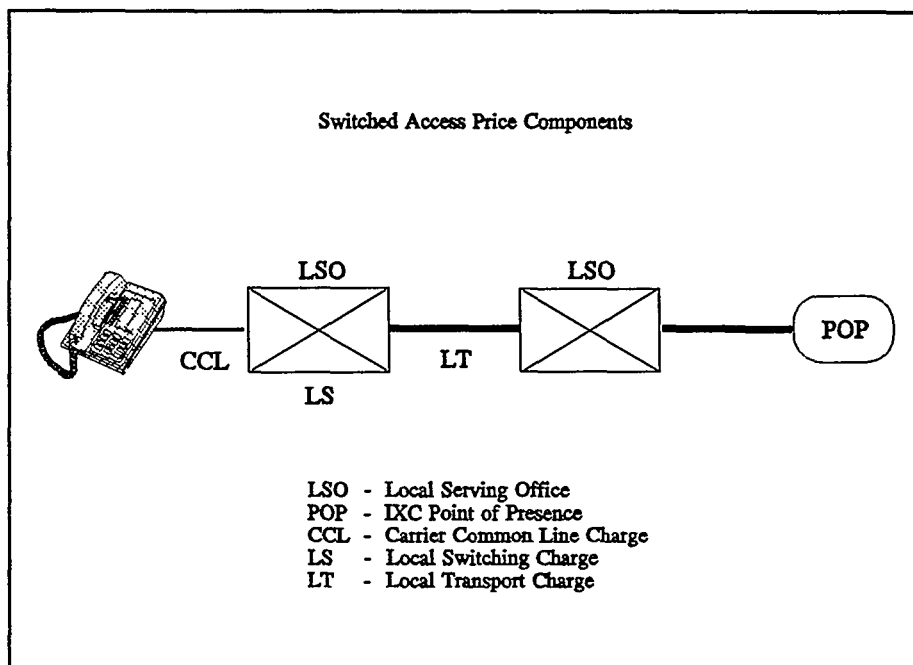


Figure 2

To the extent that LEC access charges, both switched and special, are based on the average cost of supplying these services throughout an LEC's entire operating territory, the same prices apply to all customers (IXCs and end users) regardless of geographic location and traffic volumes.<sup>55</sup> Volume discounts are currently not included in FCC regulatory treatment of LECs. Thus, in areas where the direct costs of supplying service are probably relatively low and traffic volumes are highly concentrated, as typically found in major urban areas, LEC access prices are likely significantly higher than relevant costs. This price-cost relationship is one factor motivating interexchange toll market participants' search for alternatives to LEC access service. Collocation arrangements could provide one such alternative.

55. The following descriptions of physical and virtual collocation are consistent with the FCC's views, appearing in the *Expanded Interconnection NPRM/NOI*, 6 F.C.C.R. 3259 ¶¶ 18-27.

### B. Collocation Arrangements

*Physical collocation* is an arrangement whereby an interconnector actually places its own transmission and termination equipment inside a LEC local serving office.<sup>56</sup> Physical collocation would not only eliminate any transport charges otherwise due an LEC, but also would permit the interconnector to retain complete control over, and responsibility for, the interconnection equipment. The interconnector would also be solely responsible for monitoring, testing, maintenance, and repair expenses associated with its collocated equipment. In addition, interconnectors would pay fees for floor space, electricity, and other expenses directly resulting from equipment being physically located on LEC premises. Thus, physical collocation arrangements would clearly distinguish between LEC and interconnectors' equipment and transmission facilities.

At least partially as a result of space availability inside LEC offices and the safety and security aspects of allowing competitors' employees access to LEC offices and facilities, an alternative to physical collocation has arisen. With a *virtual collocation* arrangement, interconnectors would not have access to LEC premises. Rather, the specific point of interconnection would be a location adjacent to LEC offices, such as the nearest manhole or a nearby office building. Despite the spatial separation of LEC and interconnectors' equipment, virtual collocation prices should, in the FCC's view, closely approximate those that would be applied to physical collocation arrangements including minimum, if any, transport charges.<sup>57</sup>

Although IXC's should be expected to take full advantage of collocation opportunities, CAPs have been the primary petitioners for regulatory rules to define collocation and to clarify the prices, terms, and conditions which would govern such arrangements.<sup>58</sup> On the following page, Figure 3 illustrates a CAP network configuration with collocation.

This diagram represents *physical* collocation since the CAP's equipment is located in the LEC's local serving office. A diagram of *virtual* collocation would be essentially identical, except that the box representing CAP equipment would be located just outside the LEC local serving office. Figure 3 depicts a situation in which LEC special access service is partially displaced by CAP collocation. For those customer locations (buildings) lying outside the scope of the CAP network (ring), special access circuits are routed through LEC local serving offices (LSOs). In the case where two LSOs are involved, the LEC would initially impose a CT charge to recover

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56. LEC prices therefore do not reflect the likelihood that the costs of providing access services in highly concentrated urban business districts are lower than the costs of serving more remote, sparsely populated, lower traffic volume rural areas. Furthermore, volume discounts are currently not included in FCC regulatory treatment of LECs.

57. *Expanded Interconnection NPRM/NOI*, 6 F.C.C.R. 3259 ¶ 20.

58. See, e.g., *Metropolitan Fiber Systems Petition*, *supra* note 7.



interconnection equipment and expenses associated with such equipment are less clearly defined than under physical collocation arrangements. For example, all interconnection equipment required for virtual collocation conceivably would be owned or leased by the LEC. The LEC would then be responsible for the installation and maintenance of this equipment and thus could potentially be held liable for transmission failures by interconnectors. Perhaps because it recognizes these issues, the FCC has tentatively concluded that interconnectors should be able to monitor and control the circuits that terminate in LEC offices subject to virtual collocation arrangements.<sup>59</sup> To accomplish this, interconnectors will be permitted to specify performance standards for interconnection equipment to detect service problems. Interconnectors will also be able to reconfigure circuits to avoid service degradation. Arriving at criteria to objectively assess whether performance standards and LEC responses to interconnectors' demands are reasonable promises to be a difficult regulatory or negotiating problem. Furthermore, the issue of which types and even models of interconnection equipment (if there is a difference in preference between LECs and interconnectors) will satisfy virtual collocation requests could be settled either by negotiation or regulatory mandate. Thus, the terms and conditions governing collocation arrangements, especially virtual collocation, are unlikely to be settled simply or straightforwardly.<sup>60</sup>

#### IV. CAPS' COLLOCATION INCENTIVES

To compete effectively in those segments of the interexchange access market that lie beyond the scope of their existing networks, CAPs are actively seeking authority to collocate their transmission equipment in LEC local switching offices. By collocating equipment in a LEC central office, a CAP can aggregate individual private lines coming into that central office from widely divergent customer locations and supply transport service from that central office to those customers' designated IXC long distance networks. Thus, collocation would presumably encourage CAPs to build facilities (e.g., fiber optic cable) connecting any or all LEC local switching offices in a city to IXCs' POPs. While their initial focus has been on providing dedicated, private line services, CAPs have strong economic incentives to provide transport services for all telecommunications traffic,

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59. *Expanded Interconnection NPRM/NOI*, 6 F.C.C.R. 3259 ¶ 23.

60. While virtual collocation arrangements exist in a few state jurisdictions, CAPs have generally presented arguments to the FCC that physical collocation is superior. In particular, MFS alleges that virtual collocation would provide opportunities for LECs to retard CAP network upgrades and improvements by delaying (and potentially increasing the cost of) equipment replacement. *See* Comments of Metropolitan Fiber Systems, Inc., *Expanded Interconnection NPRM/NOI*, 6 F.C.C.R. 3259, at 31-35 (filed August 6, 1991). In addition, Teleport claims that in its experience "actual [physical] collocation is much less complex than virtual collocation." Comments of Teleport Communications Group, *Expanded Interconnection NPRM/NOI*, 6 F.C.C.R. 3259, at 10 (filed August 6, 1991).

including switched toll calls as well as private lines, between LEC central offices where they are collocated and IXC POPs.

Thus, the CAPs desire entry into the local exchange market as suppliers of transport services for the portion of long distance calls that typically traverse the LECs' networks for origination or termination. The incentives motivating CAPs' desire to expand in the local transport market are derived to some extent from current regulatory methods for establishing LEC local transport service prices. Although CAPs' network deployment decisions can be based on numerous factors, the likelihood of financial success is a primary factor motivating any decision to invest in a new business venture. While CAPs claim their provision of "disaster recovery" service, immediate response to customer service requests, and constant monitoring to assure network quality give them a competitive advantage over LECs, CAPs' entry decisions are likely heavily influenced by a perception that economic profits are being captured by the incumbent LECs in the interexchange access market. Market entry appears particularly attractive when prevailing prices are recognized as substantially in excess of the direct costs of providing service.

LEC local transport prices are generally based on the average cost of providing access services throughout the LEC's franchised territory within each state. In addition, some portion of LEC fixed, joint, and common costs are allocated to the provision of IXC access services. Thus, LEC access prices are established to recover the average, fully distributed cost of providing IXC access services.<sup>61</sup> To the extent that the incremental or marginal costs of providing access to IXC toll networks in major metropolitan areas are lower than LECs' average, fully distributed costs, LEC access prices in large urban areas will be significantly above the relevant marginal cost of service. If CAPs collocate transmission equipment in LEC local serving offices, they will presumably be assessed an interconnection charge that is lower than prevailing LEC local transport and channel termination rates. As a result, CAPs would be able to offer transport services to IXCs to carry traffic between LEC central offices and POPs at prices below those in LEC tariffs, yet high enough to maintain profitable operations.<sup>62</sup>

Thus, a key element in the CAPs' strategy to enter the local transport market is a restructuring of LEC tariffs such that only parts of LEC access services need be purchased by CAPs. Collocation is perceived as a method by which interconnection to LEC central office equipment designed to aggregate private line circuits and switched access minutes can be achieved for a very low price. However, collocation does not seem to be driven

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61. The rules concerning the computation of LEC interstate access charges are detailed in 47 C.F.R. §§ 69.105-.113 (1991).

62. For example, suppose CAPs are less efficient suppliers of transport services than LECs. In this case, a CAP's marginal cost would be higher than an LEC's. However, if the LEC's tariffed price is sufficiently higher than its marginal cost, a CAP could set its price below the LEC's price but still significantly above its own marginal cost.

primarily by technological or network architecture concerns. LECs currently provide high capacity private line service between central offices and customer locations at tariffed prices. Such facilities are obviously in place to transport interexchange toll traffic to IXC's. Furthermore, central office equipment designed to aggregate numerous individual private lines or large volumes of switched access minutes and to transport these aggregated services over high capacity dedicated facilities to IXC POPs is in place and working today. Finally, two diversely routed dedicated circuits can be installed from each LEC local switching office to each IXC POP at prices determined by tariffs and/or special construction policies. Thus, collocation of CAP equipment in LEC central offices is not a technological prerequisite for IXC's obtaining the types of services offered by CAPs.

## V. COMPETITION ON THE MERITS AND CREAMSKIMMING DISTINGUISHED

Generally, competition between firms can produce several benefits, such as lower prices for consumers, product innovation, and improved product quality. However, enlarging the number of participants serving a market will not necessarily result in workable competition, lower prices to consumers, or improvements in economic efficiency. Whether these benefits will accrue depends largely on industry cost conditions, demand conditions, the existence of various regulatory public policy goals, and the methods regulatory agencies adopt to achieve their goals. Other important factors include the sunk costs incurred by incumbent firms that shoulder obligations to serve, markets characterized by rapid technological change, regulatory depreciation policies, and open entry policies that allow firms to take advantage of production methods that incorporate advanced technologies while choosing to enter only selected portions of the market. In short, policies designed to increase the number of suppliers in a market will not always result in fostering earnest price competition on the merits.

This section discusses the conditions under which workable competition can be achieved when regulated firms are faced with entry by alternative suppliers. This discussion includes the role of costs in the determination of optimal industry structure, the economic concept of creamskimming, and the related concept of sustainability in the context of the policy goal of fostering workable competition. This discussion also serves as background for Section VI, which presents an argument that the benefits of collocation policies are as yet unclear.

### A. *The Role of Costs in Industry Structure*

This section provides background material on the relationship between the cost structures of firms operating in the marketplace and the industry structure that would prevail if the market operated efficiently. These economic concepts are relevant for public policy because they provide a framework for determining what entry policies and pricing flexibility policies

will most be in the public interest. These topics are then discussed in more detail in the section that follows on creamskimmer entry and the important economic concept of sustainability of natural monopoly.

To completely understand market structure, one must understand that market structure, for the most part, results from the interactions between the determinants of *firm size* and the *size of the market*. The former is defined by the cost conditions of the firm(s) servicing the market, but the latter results from market demand conditions. The interaction of these determinants places bounds on the structure of the industry (i.e., limits the number and influences the size distribution of firms likely to be observed in the industry).<sup>63</sup>

Given technological cost characteristics and market demand conditions, a market is structurally competitive if a large number of firms servicing the market leads to a division of output that yields the lowest possible total industry costs. Similarly, a structural natural monopoly occurs if only one firm serving the market yields the lowest possible total industry costs. Between these extremes, possibly only an oligopoly can lead to total industry cost minimization.

The most basic economic rationale for the regulation of the prices of a multiproduct firm is the existence of *natural monopoly*. Natural monopoly occurs when a single firm is the most efficient provider of total output for an entire market. If this cost condition prevails, then a market consisting of only a single provider is the most efficient industry structure. Natural monopoly, in and of itself, is not necessarily objectionable on public policy grounds, because such an industry structure is the most efficient available. Such single firm supply, however, can result in monopolistic pricing. In that case, the role of regulation is to permit the most efficient industry structure, yet regulate prices in a way which simulates the economic outcome of a competitive market, if competition were feasible.<sup>64</sup> Thus, natural monopoly

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63. John C. Panzar, *Technological Determinants of Firm and Industry Structure*, in 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 3, 33 (Richard Schmalensee & Robert D. Willig eds., 1989).

64. This is essentially the public interest theory of regulation, which states that regulation should be based on the maxim of economic efficiency. Thus, under this standard, regulation should maximize social welfare through proper pricing and entry policies. Social welfare in this context refers to the joint maximization of consumer surplus and the profits of the firms servicing the market (i.e., producer surplus). In general, the public interest theory of regulation, synthesized by Stigler, is a normative standard—i.e., it describes what regulation ought to be rather than what it is. George J. Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. 3 (1971). See also MICHAEL WATERSON, REGULATION OF THE FIRM AND NATURAL MONOPOLY 6-7 (1988). Hence, though it is a valuable benchmark with which one can *prescribe* economic-based regulatory policies, it does little to *explain* the actual behavior of regulators in practice, who often have considerations besides economics. Essentially its primary goal is to protect consumers against the abuses of market power, which is defined here as the ability of a firm (or group of firms acting in concert) to increase prices above competitive levels for a significant period of time before either competitive entry or the actions of existing rivals require the increase in price to be rescinded. William M. Landes & Richard A. Posner, *Market Power in Antitrust Cases*, 94 HARV. L. REV. 937, 939 (1981). Similarly, the FCC defines market power as the ability to control price in the marketplace. *In re Policy and Rules Concerning Rates for*



cost conditions are not economically objectionable. It is monopoly pricing that is economically wasteful, not the cost conditions that permitted it.

Three other economic concepts are useful to this discussion. An *industry configuration* is a number of firms, and the associated levels of sales for each firm, which together totally supply market demand at the prevailing prices. For example, if there is just one firm which supplies all of the market demand for a given product, that industry configuration is natural monopoly. In contrast, if there are 100 firms that each supply a commensurately small share of the market, the industry configuration is competitive. An industry configuration is termed *feasible* if the firms involved in the industry can at least break even. An industry configuration is termed *efficient* if that configuration supplies the output the market demands at minimum cost.<sup>65</sup>

The key concept in using firm cost characteristics and market demand conditions to make inferences about the optimal market structure is *minimum efficient scale*. Essentially, minimum efficient scale (MES) is the smallest level of output at which an average cost curve attains its minimum. The relationship of MES with the overall industry demand curve is what defines the best market structure for a given industry.<sup>66</sup>

Thus, the standard economic practice of making inferences about industry structure from the relative positions of the market demand curve and the average cost curves of relevant firms provides analytic tools useful in evaluating policies designed to foster competition. Economic theory indicates that an industry may have feasible configurations that involve either just a few or a large number of suppliers. All this really says is that beyond a certain number of firms, any new entrants may have great difficulty in garnering positive profits. The market may only be large enough for a certain number of suppliers. This, of course, depends on many variables in real industrial markets, such as the ability of new entrants to alter the industry demand curve with their marketing plans, and the strategic interaction of firms in the way they compete via pricing. Economic theory also holds that of all the feasible industry configurations, some will be efficient but some will not. Thus, one cannot infer that having a very large number of firms serving the market will automatically engender efficiency, and hence lead to lower prices for customers. A feasible and efficient

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Competitive Common Carrier Services and Facilities Therefor, 85 F.C.C.2d 1, 10 (1980) (First Report and Order).

65. Panzar, *supra* note 63, at 33-38.

66. For example, if there was one firm for which MES were to coincide with total market demand, then the most efficient industry structure is natural monopoly, for no collection of two or more firms could supply the industry at lower cost. If, on the other hand, there were 100 firms, all of which exhibited MES of just one percent of total industry demand, and these firms collectively supplied the industry at least cost, then the most efficient market structure is a competitive market. It is possible, of course, that industry demand could be satisfied most efficiently by one large firm with a relatively large MES, combined with several smaller firms whose efficiencies are exhausted at much smaller levels of output. A detailed exposition of the complicated conditions required to produce these results is beyond the scope of this article. *Id.* at 35-38.

industry configuration may involve only a small number of firms. Further, an industry “shake-up,” in which several marginal firms exit the industry, is not automatically inimical to public policy. Again, that the feasible and efficient industry configuration involves just a few firms is entirely possible.

The relevance of these concepts to the FCC’s proposed plans regarding collocation and competition in the interexchange access market is that regulatory policies aimed at fostering competition should have as the underlying objective achieving the industry configuration that is not only feasible, but also efficient. A policy should seek to encourage competition only if the feasible efficient industry configuration is a competitive market and there are impediments to competition taking root. Public policy is not automatically improved by increasing the number of industry participants. If industry cost and demand conditions dictate that a competitive market is neither feasible nor efficient, seeking to create such a market structure can only reduce economic efficiency.

Clearly, going from the theoretical extreme of a single supplier to another, equally feasible industry configuration involving more firms is easier than going from a single supplier industry configuration to a feasible, efficient industry configuration.<sup>67</sup> Thus, if policymakers implicitly define a competitive industry simply as one in which there are many firms allowed to serve the market, it is quite possible that such policies could cause the industry configuration to go from a relatively efficient one (involving perhaps just one or a few firms) to an inefficient one that involves many more suppliers (who collectively do not cause a reduction in total industry costs). On the other hand, if all the relevant facts about market demand and costs were known, a feasible and efficient industry configuration for the interexchange access market could very possibly emerge from the integration of the LECs’ and the CAPs’ networks. Measuring or collecting the data needed to render a scientific determination of this is simply not possible, however. All one can infer at this time is that a greater number of firms in the interexchange access market may either reduce or improve economic efficiency. The former point is, of course, most important here, for policymakers appear to have largely assumed that only the latter can result.

### *B. Creamskimming*

Creamskimming is a valid issue whenever markets serviced by incumbent, regulated firms are made subject to entry by other suppliers.

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67. The former involves simply redistributing the monopolist’s market among several firms; the latter, however, involves redistributing the monopolist’s market among a group of firms which collectively supply the market at lower cost than the monopolist did. If this same monopolist is a natural monopoly (which by definition makes it the most efficient industry supplier), then clearly the former is possible, but the latter is not. Admittedly, this is an application of static analysis to a topic that may be quite dynamic in nature. The accurate application of a dynamic analysis to this topic is beyond the scope of this article, and paradoxically, may lack some of the important insights afforded by examining static concepts.

Creamskimming has been discussed in several FCC dockets<sup>68</sup> and in several state public utility commissions' orders.<sup>69</sup> Essentially, if regulatory policies

68. Fortunately, most FCC orders seem to have used this concept in an economically responsible manner. *See, e.g., In re Establishment of Policies and Procedures for Consideration of Application to Provide Specialized Common Carrier Services in the Domestic Public Point-to-Point Microwave Radio Service and Proposed Amendments to Parts 21, 43, and 61 of the Commission's Rules*, 24 F.C.C.2d 318, 332-34 (1970) (Notice of Inquiry to Formulate Policy, Notice of Proposed Rulemaking) (rejecting the creamskimming argument); *In re Establishment of Policies and Procedures for Consideration of Application to Provide Specialized Common Carrier Services in the Domestic Public Point-to-Point Microwave Radio Service and Proposed Amendments to Parts 21, 43, and 61 of the Commission's Rules*, 29 F.C.C.2d 870, 914-15 (1971) (First Report and Order) (again rejecting the creamskimming argument leveled against new entrants to the markets for point-to-point microwave radio service); *In re the Applications of Cities Service Oil Co. for Authority to Construct an Earth Station on a Drilling Platform in the Gulf of Mexico; Western Union Telegraph Co. for Section 214 Authority to Provide Domestic Satellite Communication Services to Offshore Drilling Platforms and for Authority to Construct Additional Transmitters at its Glenwood, N.J. and Cedar Hill, Tex. Earth Stations*, 51 F.C.C.2d 653, 664-67 (1975) (Memorandum Opinion, Order, and Authorization) (rejecting the creamskimmer argument raised by Offshore Telephone Company in its petition that prospective competitor Western Union be restricted from establishing channels of communication for the provision of domestic satellite communications services to offshore drilling platforms); *In re International Communications Policies Governing Designation of Recognized Private Operating Agencies, Grants of IRUs in International Facilities and Assignment of Data Network Identification Codes*, 95 F.C.C.2d 627, 646 n.27 (1983) (Notice of Inquiry) (rejecting the argument that non-carrier cable *indefeasible rights of users* (IRUs) are a form of creamskimming, arguing that incumbent carriers have downward pricing flexibility and do not have sunk costs, making them able to sell idled circuits). One order in which the concept seems to have been misused is *In re American Telephone & Telegraph Co., Long Lines Department, Revisions of Tariff F.C.C. No. 260, Private Line Services, Series 5000 (Telpak)*, 20 F.C.C.2d 383, 391 (1969) (Memorandum Opinion and Order) (N. Johnson, Comm'r, dissenting) (characterizing Bell's request to offer the lower *Telpak* tariffs in areas where there is entry by alternative suppliers as "creamskimming" its own market in terms of its selection of locations and facilities for providing service").

69. The use of the creamskimmer concept by the state PUCs appears not to have led to irresponsible regulatory decisions. *In re Investigation into Equal Access Exchange Areas, Toll Monopoly Areas, 1+ Restriction to the Local Exchange Companies and Elimination of the Access Discount*, 116 Pub. Util. Rep. 4th (PUR) 473, 486-87 (Fla. PSC 1990) (continuing to reserve 1+ intraLATA traffic for the LECs, arguing that IXC's could otherwise recruit high-volume toll users, those most suitable to WATS customers, via creamskimming); *In re Interstate Natural Gas Pipeline Supply and Capacity*, 110 Pub. Util. Rep. 4th (PUR) 486, 538 (Cal. PUC 1990) ("We continue to believe that unrestricted entry of interstate pipelines into California for the purpose of 'creamskimming' major industrial customers does significant harm to remaining captive customers."); *In re Customer-Specific Offerings of Indiana Telephone Companies Pursuant to I.C. 8-1-2.6, et seq.*, 107 Pub. Util. Rep. 4th (PUR) 366, 380 (Ind. URC 1989) (commenting on the prospect of creamskimming of the smaller LEC's CSO market by the larger LECs, but rejecting it); *In re Competition for Intrastate Interexchange Telecommunications Services*, 101 Pub. Util. Rep. 4th (PUR) 346, 373-74 (Conn. DPUC 1989) (rejecting that the deleterious effects of competition in the toll market, i.e., increases in the rates for basic local exchange service, are likely to take place, and proposing that "a contribution from carrier access services could be derived to replace most, if not all of that which would be lost with the advent of competition"); *In re Regulation of Pay Telephone Equipment*, 88 Pub. Util. Rep. 4th (PUR) 263, 283 (Ind. PSC 1987) (Commissioner O'Lessker, dissenting) (Creamskimming in the market for coin-operated pay telephone (COPT) service is inimical to the public interest: "The pricing advantage that COPT owners may gain from their freedom from certain regulatory constraints would not be of great concern if it were not for the fact that revenues lost to the LECs through unequal competition will have to be made up elsewhere in the rate structure. Once again, I am at a loss to understand how this can be helpful to the ratepayers."). Further, the Florida Public Service Commission used the prospect of creamskimming by IXC's to maintain entry restrictions for the intrastate intraLATA toll market, arguing in part that the abolition of

induce entry by creamskimmers, the public interest may be harmed substantially. If, however, suppliers that are at least as efficient as the incumbent regulated firms enter the market, public policies can be crafted so as to harness these efficiencies while not harming either the continuance of benefitted service provision or common carrier obligations with which the incumbent firm is charged.<sup>70</sup>

In general, creamskimming involves an incumbent regulated firm charged with servicing several markets and new entrants able to selectively choose entry into only the most lucrative market segments, leaving the largely unremunerative markets to the incumbent. Creamskimming is therefore relevant when the incumbent firm, due to common carrier obligations, must serve unremunerative markets (which may involve the receipt of cross-subsidies from other services) and markets in which prices are significantly above marginal costs (a price-cost relationship that is required to provide the cross-subsidies to the unremunerative, benefitted market). Hence, there is *cream* in the form of regulated prices that markedly exceed marginal costs and there is the process of *skimming*, consisting of the selective entry.

Not all entry is creamskimming. The creamskimmer is a firm that may actually be less efficient than the incumbent, but which can still earn profits from servicing the market in which prices significantly exceed marginal cost. The creamskimmer is allowed open, selective entry to the "cream" market, while the incumbent must adhere to exit barriers and obligations to serve, as well as maintain the cross-subsidies from the cream market to the benefitted market. In economic terms, creamskimming is more likely the less flexible

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so-called toll monopoly areas would allow the IXC's to creamskim the most profitable, high volume routes while leaving the LEC's with the obligation to provide uniform service to all customers and to average rates statewide in order to ensure relatively inexpensive local service to all customers. Florida PSC Order No. 16343, issued July 14, 1986. The maintenance of the toll monopoly areas, based on the creamskimmer argument and on the other arguments advanced, was affirmed by an appeals court in 1987. *U.S. Sprint Communications Company v. John R. Marks et al.*, 509 So. 2d 1107 (Fla. Dist. Ct. App. 1987).

70. The economics literature has not dealt extensively with this topic. However, the available writings offer much material valuable to the evaluation of public policy. See 2 ALFRED E. KAHN, *THE ECONOMICS OF REGULATION* 220-46 (2d ed. 1988); Jean-Jacques Laffont & Jean Tirole, *Optimal Bypass and Cream Skimming*, 80 AM. ECON. REV. 1042, 1055 (1990); Mark Zupan, *On Cream Skimming, Coase, and the Sustainability of Natural Monopolies*, 22 APPLIED ECON. 487 (1990); and Brock & Evans, *supra* note 2. More has been written on the related topic of *sustainability* of natural monopoly, which is defined and discussed subsequently in Section IV-C, *supra*. See William J. Baumol, et al., *Weak Invisible Hand Theorems on the Sustainability of Prices in a Multiproduct Monopoly*, 67 AM. ECON. REV. 350 (1977); John C. Panzar & Robert D. Willig, *Free Entry and the Sustainability of Natural Monopoly*, 8 BELL J. ECON. 1 (1977); John C. Panzar, *Sustainability, Efficiency, and Vertical Integration*, in *REGULATED INDUSTRIES AND PUBLIC ENTERPRISE* 171 (Paul Kleindorfer & Bridger M. Mitchell eds., 1980); William J. Baumol & Robert D. Willig, *Fixed Cost, Sunk Cost, Entry Barriers and Sustainability of Monopoly*, 96 Q. J. ECON. 405 (1981); Kenneth Baseman, *Sustainability and the Entry Process*, 71 AM. ECON. REV. 273 (Papers & Proceedings) (1981); WILLIAM J. BAUMOL, ET AL., *CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE* 192-221 (1982); Thijs ten Raa, *Resolution of Conjectures on the Sustainability of Natural Monopoly*, 15 RAND J. ECON. 135 (1984); Michael Einhorn, *Optimality and Sustainability: Regulation and Intermodal Competition in Telecommunications*, 18 RAND J. ECON. 550 (1987).

the incumbent firm's prices and the smaller the level of sunk costs necessary to enter the market.<sup>71</sup> Conversely, creamskimming is unlikely when the incumbent firm has considerable downward pricing flexibility, substantial sunk costs are necessary to enter the market, or there are many entrants who attempt to share in the fleeting profit opportunities created by any temporary rigidity of the incumbent's prices.<sup>72</sup>

Thus, creamskimmer entry must, for public policy purposes, be distinguished from earnest competition on the merits, which involves lawful battles for market share, and which, in turn, can involve the spirited offering of prices that are lower than one's competitors for a service of the same quality, the offering of greater quality of service for a given price, or both. This is the essence of competition: doing better than one's rivals by dint of skill, foresight, and industry. In competition, prices inform potential entrants about the profits and costs of the incumbent carrier. High prices signal excessive profits or excessive waste on the part of incumbents.

To help distinguish creamskimming from true competition, a useful classification of entrants into regulated markets follows.<sup>73</sup> *Hit-and-run entrants* appear in markets in which incumbent firms are saddled with a pricing rigidity requirement. These entrants take their profits and exit before the incumbent meets their prices. The lower the entrants' sunk costs, and the longer a competitive pricing response from the incumbent takes, the greater are hit-and-run profits. *Protected entrants*, though perhaps inefficient, earn profits because the incumbent firm has no downward pricing flexibility. In contrast to both of these classifications, *efficient entrants* earn profits because they truly are more efficient than the incumbent firm, hence the incumbent's competitive pricing responses, where possible, do not force the entrant to exit the market. This method of classifying entrants allows one to distinguish which types of entrants are inimical to the public interest, which are not, and how public policy can be crafted so as to address inefficient market entry.

First, the first two types of firms, the hit-and-run entrants and the protected entrants, are clearly the true creamskimmers. Entry into public utility markets by these two types of firms reduces social welfare because such entrants are prone to be less efficient than the incumbent, yet divert business from it due to regulatory pricing policies, such as the lack of downward pricing flexibility. Regulatory policies should discourage entry by these types of firms. In contrast, the efficient entrants can increase social welfare because they are as efficient or more efficient than the incumbent. Even so, this type of entry should not be encouraged via simple open entry policies, for such entry may still divert revenues the incumbent uses to

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71. Brock & Evans, *supra* note 2, at 63. Sunk costs are costs that cannot be avoided in the short- or intermediate-run, even with a total cessation of output. Hence, they are the unrecoverable portion of a given investment.

72. *Id.* at 68.

73. These three classifications are adapted from Brock & Evans, *supra* note 2, at 69; and KAHN, *supra* note 70, at 226.

subsidize other services by regulatory mandate.<sup>74</sup> Thus, regulatory activity cannot be confined simply to encouraging open entry if the maintenance of subsidies for benefitted services is a public policy goal. Instead, policy can require that the efficient entrant supply the subsidized service itself, or pay a *de facto* entry tax to help the incumbent replenish the lost subsidy revenues.

In the face of hit-and-run entry or entry by protected entrants, the role of downward pricing flexibility for the incumbent regulated firm cannot be ignored as a necessary economic ingredient of sound public policy. Indeed, cream-skimmer entry would be effectively precluded by downward pricing flexibility. Moreover, efficient entry can offer significant benefits to customers if the incumbent firm can engage in lawful price competition, contingent upon the availability of pricing flexibility.<sup>75</sup>

If, however, the regulated prices of the incumbent are kept too high and too rigid, the economic welfare consequences can be quite negative. Under these circumstances, the incumbent, despite the fact that it might be the most efficient supplier, could be displaced by less efficient competitors. In theory, the entire demand for the service in question could be diverted to less efficient competitors. In this extreme case, not only would consumer demand be driven below its economically efficient level, but this entire demand would be satisfied by inefficient alternative suppliers. Under a free entry regime, then, a regulated price that is rigidly held too high is especially damaging, making downward pricing flexibility for the incumbent firm especially important.<sup>76</sup> The importance of this downward pricing flexibility is emphasized in the next section, in which the economic concept of *sustainability* is discussed.

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74. Brock & Evans, *supra* note 2, at 69. If the maintenance of subsidies for benefitted services is not taking place, then open entry policies for efficient entrants will foster efficiency and not harm the public interest.

75. The importance of downward pricing flexibility in combination with expanded entry policies was recognized by the California Public Utilities Commission ("California Commission") in approving a settlement in the initial phase of an investigation into the need for modifications to the regulatory framework of local exchange carriers. The settlement permitted LECs flexibility in downward pricing of certain services used primarily by businesses, and allowed LECs and interexchange carriers to compete within LATAs in the provision of high speed digital private line services. The California Commission ruled that allowing LECs pricing flexibility while allowing IXCs to compete within LATAs for high speed digital private line services would further the public interest in two significant ways: (1) customers would experience rate reductions, and (2) greater pricing flexibility would enable the LECs to be more competitive and attractive to larger business customers. Significantly, the California Commission acknowledged that a LEC's loss of larger customers causes those customers who remain on the system to bear the burden of supporting the system through higher rates for all services. *See* Interim Opinion Adopting Modified Phase I Settlement in I.87-11-033, CPUC Decision I.87-11-033 (1988). *See* Brock & Evans, *supra* note 2, at 67-68.

76. *See* Bruce C. Greenwald & William W. Sharkey, *The Economics of Deregulation of Local Exchange Telecommunications*, 1 J. REG. ECON. 319, 333-34 (1989), for the basis of this discussion.

### C. *The Related Issue of Sustainability*

In general, sustainability will be present if average costs fall as output expands. If, however, average costs first fall and then rise with output (resulting in a standard U-shaped average cost curve), then a firm can be a natural monopoly yet not be sustainable.<sup>77</sup> Thus, sustainability theory paints the following picture. The market is being served by a monopolist that must choose a price and an output level such that (1) the chosen output is equal to total market demand at the chosen price, (2) the revenues collected are equal to the total cost of producing the chosen output, and (3) the monopolist is not allowed to deviate from the chosen price (i.e., it has no pricing flexibility except possibly with significant time lags) and is required to satisfy the residual demand for the product at that price. This is very close to what is observed in telecommunications markets for access services. Given this basic scenario, no other firm would wish to enter the market if the monopolist described here is sustainable.<sup>78</sup>

The economic concept of *sustainability* is related to the creamskimming issue. Sustainability analysis provides policymakers with additional tools for evaluating the role that competition by rival firms should play in an industry that is considered a natural monopoly. It assists in answering the question whether there should be open and unrestricted entry into some or all of a natural monopolist's markets.<sup>79</sup>

Does increasing the number of firms supplying a market guarantee that the market has somehow been improved? Does it ensure that the market will go from being a monopoly to being competitive? The answer to each of these questions is "no, not necessarily." Sustainability theory is what provides the basis for this response. Essentially, under the technical definitions of sustainability usually given in the economics literature, a natural monopoly is sustainable if there is a price and a corresponding level of output such that entry by rival firms is unattractive (i.e., prospective entrants cannot earn positive profits by entering the market), while all demand is satisfied and revenues cover total costs of production.<sup>80</sup> If a natural monopoly is not sustainable, however, then it cannot ward off uninnovative entry, even though total industry costs are at a minimum when

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77. *Id.* This describes the case in which the firm offers only one product. The multiproduct case is much more complicated and does not lend itself well to a general exposition of the concept. *And see* Brock & Evans, *supra* note 2, at 69-76.

78. WILLIAM W. SHARKEY, *THE THEORY OF NATURAL MONOPOLY* 86-87 (1982).

79. This statement is not meant to imply that telecommunications consists of a natural monopoly. The cost concept defining natural monopoly is that of *subadditivity*, which states that if a firm has a cost function that is subadditive, then it can produce at less cost than any other firm or collection of firms in the industry. The conditions that must be shown to exist to prove that subadditivity (and hence natural monopoly) exists are sufficiently complicated that no regulator can be entirely certain that the firm it regulates is a true natural monopoly.

80. SHARKEY, *supra* note 78, at 85.

only a single supplier exists. The resulting prices and levels of output may be inferior to the provision of industry output via natural monopoly.

Given the situation posed by the issue of collocation, introducing a slightly different view of sustainability may be more useful. Within the context of collocation and open entry policies, defining sustainability in terms of a price that allows entry if and only if such entry lowers total industry costs, rather than in terms of a price that deters entry, or that makes entry by rival firms unattractive, may be more useful.<sup>81</sup>

Regardless of the definition of sustainability employed, the concepts of *price sustainability* and *quantity sustainability* also need to be distinguished. A monopoly is not price sustainable if it is not sustainable given price rigidity. If a monopolist cannot easily and quickly revise its prices, other firms can enter the market profitably and the monopolist must either become insolvent because of revenue lost to the new entrants or somehow revise its prices. If a monopoly is quantity sustainable, then a monopolist can maintain the pre-entry level of output by changing its prices in the face of entry. This, of course, requires a great deal of pricing flexibility. Thus, a monopoly that is not price sustainable (i.e., will not continue long-term production without a price revision) can still be quantity sustainable (i.e., can maintain current production levels if its prices can move freely). In fact, in markets in which sunk costs are considerable and variable costs are small, the prospect of quantity sustainability is especially relevant for evaluating entry.<sup>82</sup>

Thus, sustainability theory offers general guidelines for public policy. First, a natural monopoly may not be sustainable. Hence, even if a firm can offer its product at least cost to the industry, the market may still be subject to entry.<sup>83</sup> Under these circumstances, entry is potentially inimical to the public interest, for it can encourage the appearance of inefficient firms while simultaneously jeopardizing the financial viability of the incumbent monopolist. Second, if a natural monopoly is sustainable, then entry will only be observed if the entrants possess a superior technology.<sup>84</sup> Third,

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81. This distinction was suggested by William Sharkey. See letter from William W. Sharkey to Alexander C. Larson (Oct. 9, 1991) (on file with the authors).

82. This is so because in telecommunications markets, suppliers may change prices, but due to common carrier obligation, are not usually allowed to adjust their quantities—they must serve any and all customers who want the service. Given this constraint, which cannot be lifted, a policymaker would want to examine if the market was quantity sustainable, whether an incumbent firm can ward off uninnovative entry by maintaining current quantity levels (honoring the common carrier obligation), but adjusting prices. See Brock & Evans, *supra* note 2, at 74. This analysis is developed in Brock & Evans, *supra* note 2, at 71-76.

83. The issues of price sustainability versus quantity sustainability have not been developed in the literature as far as competitive responses, and strategic pricing interactions of the firms involved. Note, too, that under quantity sustainability, a firm can earn positive profits while lawfully deterring entry.

84. This statement ignores considerations of a dynamically changing industry technology and the necessity that the incumbent natural monopolist incur large amounts of sunk costs. This scenario is extremely relevant to the discussion of CAP entry. The entry of CAPs may seem at first glance to conform to the case in which entrants are more efficient, when in fact it is a case



considerable pricing flexibility is required as a public policy tool if socially beneficial entry is to be encouraged, for a firm that is not price sustainable, due largely to a forced rigidity of prices, may, in fact, be quantity sustainable. Considerable pricing flexibility is required if quantity sustainability is to be achieved where price sustainability is likely not attainable.

Further, sustainability applies to the situation in which, by virtue of sunk costs,<sup>85</sup> monopoly suppliers may be vulnerable to opportunistic behavior on the part of other firms that do not have the same obligation to serve the entire market, and that have the ability to choose the latest technology. This can be particularly problematic if the industry experiences continuous technological advancement. If production requires a firm to incur relatively large sunk costs, and the industry is a growing market with economies of scale or continuous technological advancement, the threat of entry by competitors merely choosing the latest technology and selectively serving segments of the market may be particularly challenging for policymakers. To satisfy market demand, the incumbent monopoly firm must build enough capacity to serve total anticipated market demand. This requires a commitment to investment in plant of a given vintage or a given scale, which likely requires incurring sunk costs. Before this plant can be depreciated fully, however, pressure could arise from customers wishing to purchase services from vendors boasting the latest technology. Thus, in a dynamic market, in which technology is rapidly changing, a natural monopoly with sunk costs may be inherently unsustainable.<sup>86</sup>

At the heart of this issue is the asymmetry of the regulatory process in which the regulated incumbent firm might be required to invest sunk costs in a plant that cannot be fully depreciated in a technologically dynamic market. The usual story, from which these observations are taken, is one of opportunistic behavior by entrants when there are sunk costs. In an unregulated setting, this possibility gives an incentive for either vertical integration or the use of long term contracts.<sup>87</sup> In terms of public policy, a far sighted regulatory agency could offer the same advantages to an incumbent regulated firm.<sup>88</sup> Thus, a case of dynamic non-sustainability is properly considered a case of regulatory failure.<sup>89</sup>

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in which the incumbent firm has incurred significant sunk costs to provide its service, and entrants who use more advanced technologies (and are not obligated to serve the entire market) are able to enter and earn positive profits. This is the case of *dynamic nonsustainability*.

85. Sunk costs are costs that are unavoidable even with a total cessation of output, and hence constitute the proportion of costs that have no salvage value once incurred.

86. SHARKEY, *supra* note 78, at 149.

87. These devices reduce the risks of sunk costs. Long term contracts lock in customers whose revenue covers the sunk costs. Vertical integration allows for more diversified products given the same sunk costs.

88. Such advantages include methods by which sunk costs could reasonably be recovered, but efficient entry is encouraged.

89. These latter key points are due to Sharkey. See letter from William W. Sharkey to Alexander C. Larson, *supra* note 81.

#### *D. The Optimal Regulatory Handling of the Creamskimmer Problem*

The optimal regulation of entry to preclude the creamskimmer problem should (1) ensure that output is produced by the most efficient firm or firms and therefore at least cost to society, and (2) maintain a continuous supply of services deemed essential by society. Thus, one policy that has been suggested for handling creamskimmer entry is, in economic terms, the use of a de facto entry tax. In other words, regulatory policy could simultaneously encourage socially beneficial entry, discourage socially wasteful creamskimmer entry, and maintain subsidies to socially desirable but unprofitable services by requiring entrants to replenish the cream they skim from profitable public utility markets. Essentially, entrants would pay a surcharge serving the role of an entry tax, which would theoretically screen inefficient entrants (who by definition cannot post positive profits by entering when the tax is added to their costs), but allow efficient entrants (who can still post profits, and offer lower prices to consumers in the process) without eroding socially desirable subsidies.<sup>90</sup>

Given reliable estimates of the subsidies required from above-cost services, a surcharge could be straightforwardly devised that could simultaneously prevent creamskimming, ensure the availability of revenues that could be used to maintain desirable subsidies, and permit efficient innovative competitors into the market. Such a surcharge method would be better than entry restrictions if regulators thought that significant low-cost entrants exist.<sup>91</sup> The question is whether, in the context of the interexchange access market, the surcharge itself is feasible. The subsidy flow from LEC services also offered by the CAPs probably cannot be estimated with any reliability, and determining where these subsidy flows end up going is most certainly not possible. Thus, this method may be extremely difficult to use within the context of this market.

The literature has yielded other methods as well, and some may be as promising as the surcharge method. For example, Zupan has suggested that natural monopolies previously presumed to be nonsustainable can be invulnerable to creamskimmer entry if side payments and bargaining between

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90. This discussion and analysis is due to Brock & Evans, *supra* note 2, at 81-84. Brock and Evans cite Hunt as the originator of this idea, though other economists have built upon it. See Carl Ellis Hunt, Jr., *Competition in Telecommunications: A Surcharge as a Method to Promote Competition in Private Lines Services* (1980) (unpublished Ph.D. thesis, University of Colorado (Boulder)).

91. This was the approach of the Connecticut DPUC in a 1989 order addressing competition in the intrastate long distance market: "SNET is directed to include within its rate structure a proposed contribution element and should include an investigation into the feasibility of the application of a surcharge as a possible source of the contribution." *Id.* *In re Competition for Intrastate Interexchange Telecommunications Services*, 101 Pub. Util. Rep. 4th (PUR) 346, 380 (Conn. DPUC 1989). The DPUC proposed that "a contribution from carrier access services could be derived to replace most, if not all of that which would be lost with the advent of competition." *Id.* at 374.

firms and consumers are possible.<sup>92</sup> This method may be feasible in discussing the less technologically complicated cable television market, but is not a real option for a market as complicated as the interexchange access market. Other methods have been suggested by Einhorn and by Laffont and Tirole. These authors suggest, for example, the use of nonuniform tariffs (i.e., pricing schedules that do not necessarily offer the same marginal price for each unit of output, such as a volume discount) in which some of the usage of high-use customers is priced below marginal cost.<sup>93</sup> Thus, the economics literature has produced several theoretical ways in which entry can be handled besides entry proscriptions.

Still another consideration is the carrier-of-last-resort argument advanced originally by Kahn.<sup>94</sup> Essentially, this argument is that some entrants may only be viable because the incumbent firm must serve as the carrier-of-last-resort in the event that the entrant's facilities produce a service disruption. Stated another way, the incumbent's customers must recover, through the prices they pay, the additional network capacity required to provide such free back-up service to the entrant. Kahn characterized this situation as one in which entry may well constitute creamskimming, but creamskimming with the effect of introducing internal subsidization where none existed before—essentially the subsidization of the entrant's customers by the incumbent's captive customers being forced to carry a disproportionate share of the back-up capacity costs.<sup>95</sup> The economic remedy for this situation is known as a *default capacity tariff*, where the entrant pays fees to the incumbent based on the incremental cost of the back-up capacity required.<sup>96</sup>

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92. Zupan, *supra* note 70, at 490.

93. Laffont & Tirole, *supra* note 70; and Einhorn, *supra* note 70. Note that while there are several models in which optimal non-linear pricing involved prices below marginal costs for large users, all of these models involve somewhat special assumptions about the nature of bypass technology. In both the Laffont-Tirole model and the Einhorn model, bypass technology is assumed to be potentially more efficient for large users but that non-linear pricing can be used only for the regulated customers. Einhorn's model is based on full information, while the Laffont-Tirole model produces an incentive compatibility result with imperfect information. Also, note that standard incentive models, in which the same technology is used for both large and small customers, yield optimal prices equal to, but not below marginal cost for large customer types.

94. KAHN, *supra* note 70, at 236-39.

95. *Id.* at 239.

96. A detailed discussion is beyond the scope of this paper. See generally Dennis L. Weisman, *Default Capacity Tariffs: Smoothing the Transitional Regulatory Asymmetries in the Telecommunications Market*, 5 YALE J. ON REG. 149 (1988). A default capacity tariff is a tariff used to charge for the maintenance of back-up capacity required by companies that elect to bypass the local exchange carriers. Specifically, facility bypassers would pay flat rate default capacity charges to ensure the availability of back-up capacity in the event of system failure or overflow during periods of peak utilization. These tariffs could be levied on a flat rate basis, much like insurance premiums, because capacity costs are incurred independently of usage levels, though admittedly it is difficult to design such tariffs.

Default capacity tariffs have been used in other industries, and can offer several benefits if implemented properly. First, they can reduce cross-subsidies that flow from general customers to facility bypassers. Second, they can enhance universal service more consistently with the coming new environment, in which local service franchises may not necessarily guarantee the

### *E. Summary*

This section presented the economic theory relevant to examining the basic assumption implicit in the FCC's NPRM/NOI on expanded interconnection (i.e., that increasing the number of sellers in a market will automatically lead to the same benefits to consumers that competition on the merits does). While competition is in some circumstances theoretically possible in natural monopoly markets, there are limits to the viability of competition in such markets. Open entry policies cannot ignore the potential for cream-skimming and should not be blind to the particular combination of sunk costs, obligations to serve, and rapid technological change affecting the operations of incumbent firms. Further, such policies should also not be blind to the need for downward pricing flexibility on the part of incumbent firms if economic efficiency is to be fostered. And finally, industry cost conditions indicate that open entry policies may very possibly cause a transition to an industry structure in which there are several more suppliers, all of whom earn positive profits, but who collectively do not yield a decrease in total industry costs, and hence do not yield an increase in economic efficiency.

## VI. THE LONG TERM BENEFITS OF COLLOCATION ARE UNCLEAR

Collocation policies can generate expectations of accelerating the spread of competition throughout the entire local exchange market. The benefits usually cited as flowing from competitive markets are presumably expected to appear after implementing a collocation policy. However, it is not certain that widespread social and economic benefits will necessarily accompany a regulatory policy intended to strengthen CAPs' market position.

### *A. Collocation Might Increase the Number of Suppliers Without Increasing Competition*

Regulators should act to ensure that competition will emerge via the CAPs' participation in the interexchange access market, not merely entry. As presented in the preceding section, the two concepts must be distinguished for purposes of public policy. Earnest competition on the merits involves lawful battles for market share. In contrast to competition, creamskimming involves firms which have chosen to serve a specialized portion of a market by virtue of regulatory policies requiring prices based on average cost figures, the deregulation of entry but not pricing, and a lack of downward

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revenue streams observed in the past. Third, they can encourage efficient utilization of the network, since they allow for reciprocal sharing of network capacity between facility bypassers and residential and small business customers. *Id.* at 177-78.

pricing flexibility for the incumbent regulated firms.<sup>97</sup> Creamskimming is competition turned on its head. In creamskimming, prices misinform; high prices mean high cross subsidies for low priced services. In competition, entrants promote social welfare by expanding output, lowering costs, and eliminating excessive profits or excessive waste. In creamskimming, entrants promote social waste, because they are prone to be less efficient and less innovative than the incumbent, and can disrupt socially desirable pricing.<sup>98</sup>

The market for interexchange access is either a natural monopoly or it is not. If it is, then regulation on the upper limits of prices is required in conjunction with entry restrictions. If this market's cost characteristics make it a natural monopoly, then the market will only sustain one producer of optimum low-cost size. Stated another way, true competition within such a market is impossible, and allowing entrants to service the market leads to wasteful duplication. If, on the other hand, this market is not a natural monopoly, then competition within the market is possible, entry restrictions need not be maintained, curbs on the upper limits of prices are not needed, and unlimited downward pricing flexibility should be granted to all firms selling in the marketplace, including the LECs.

Nobody really knows if large LECs are true natural monopolies. Statistical studies in the economics literature test for this phenomenon, with extremely mixed results. All such studies necessarily use simplistic models which make the results questionable.<sup>99</sup> In general, it is not a simple matter to perform a study of whether a telephone company is a natural monopoly or not, as such studies require a large amount of data that are difficult or impossible to obtain, require expensive econometric models, and are rather restrictive in the structure that allows them to address the problem in the first place.

The fact that nobody really knows if the interexchange access market is a natural monopoly constitutes the well known "Catch-22" of economic regulation: telephone companies are regulated because it is feared that they are natural monopolies, yet the only practical test of whether they are natural monopolies is simply to deregulate them and see what happens to the industry

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97. Commissioner Duggan speaks of the eventuality of creamskimming in his Separate Statement. *Expanded Interconnection NPRM/NOI*, 6 F.C.C.R. 4359 (separate statement of Commissioner Ervin S. Duggan, at 1) [hereinafter Duggan]. If competition and its benefits to consumers are the Commission's public policy goals in this docket, then true competition should be encouraged and made possible, whereas creamskimmer entry should be avoided.

98. Brock & Evans, *supra* note 2, at 63.

99. An important survey of these studies may be found in Melvyn A. Fuss, *A Survey of Recent Results in the Analysis of Production Conditions in Telecommunications*, in *ECONOMIC ANALYSIS OF TELECOMMUNICATIONS: THEORY AND APPLICATIONS* (Léon Courville, et al. eds., 1983). A more recent survey may be found in Ferenc Kiss & Bernard Lefebvre, *Econometric Models of Telecommunications Firms: A Survey*, 38 *REVUE ECONOMIQUE* 307 (1987). And see SHARKEY, *supra* note 78, at 197-205; JAMES C. BONBRIGHT ET AL., *PRINCIPLES OF PUBLIC UTILITY RATES* 602-06 (1988); Panzar, *supra* note 62, at 51-55; and, Lars Röller, *Proper Quadratic Cost Functions with an Application to the Bell System*, 72 *REV. ECON. & STAT.* 202 (1990).

structure.<sup>100</sup>

The point being made here is this: it is not a foregone conclusion that the existence of CAPs constitutes true competition on the merits, hence it is not a foregone conclusion that consumers will necessarily receive the full benefits competition normally would produce for them. The FCC may have concluded too readily that the furtherance of the CAPs will automatically stimulate workable competition and lead to the benefits such competition normally would yield. If no downward pricing flexibility is afforded the LECs, the conclusion is beyond premature, it is a ticket to regulatory failure. True competition indeed is unlikely to be achieved by the removal of only one of the barriers to effective competition, that of entry. The barrier of regulatory pricing restrictions that prevents incumbents from pricing their services according to market demand conditions must also fall before true competition can arise.

Beyond rigidly set prices, the LECs also must shoulder the responsibility of being the "carrier of last resort," and in any case must offer network ubiquity.<sup>101</sup> These two responsibilities alone mean that not all components of the LECs' network can instantly incorporate the latest technology. Further, if rate of return regulation did, in fact, lead to distortions in investment behavior and technology choice, LECs might be expected, or even required, to maintain vintage network equipment. Given this and the lack of entry restrictions, CAPs may quite easily enter the market and employ technologies that are more advanced, and hence lower cost, than what the LECs employ in various parts of their networks (e.g., deploying fiber optic cable versus retaining copper wire to furnish special access service). CAPs need only wait for technological advances to supersede the current level of technology embedded in LEC operations, and then step in to offer their selected piece of the network, but nothing else, with no common carrier obligation or requirement of network ubiquity. Further, such new entrants have unlimited downward pricing flexibility, whereas the LECs thus far have none, making it relatively easy to use new technology to wangle a piece of the network pie.

The key question for public policy purposes then becomes whether the process just described above is true competition. Is this what the FCC seeks to promote? If the CAPs are using low cost technologies to offer only selected portions of the network (while displacing the LECs' productive capacity), then, by definition, their cost is the *stand-alone cost* of offering that piece of the network. Alternately, the stand-alone cost of a service

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100. See JOHN T. WENDERS, *THE ECONOMICS OF TELECOMMUNICATIONS: THEORY AND POLICY* 164-65 (1987); and, David Kaserman & John Mayo, *Market-Based Regulation of a Quasi-Monopoly: A Transition Policy for Telecommunications*, 15 POL'Y STUD. J. 395, 407 (1987).

101. However, subscribers demanding access to the public switched network from relatively remote locations are likely to encounter prices that reflect most (if not all) the costs incurred to reach those locations.

equates to the entry-inducing price (or entry-inducing revenues). Given this, the prices contained in LECs' access tariffs, by virtue of technological advances, probably exceed the stand-alone cost of that corresponding portion of the network. What then should public policymakers do to alleviate what is essentially a pricing problem caused by both deliberately cautious regulation and rapidly advancing technology? Regardless of the answer, be it collocation or other solutions, extremely liberal pricing flexibility for the LECs is inevitable for the emergence of true competition. In this regard, regulatory philosophy should emulate Judge Easterbrook's interpretation of government's role in overseeing the operations of American industries: "the antitrust laws are for the benefit of competition, not competitors."<sup>102</sup> Indeed, the FCC seems to recognize this principle, although it also appears reluctant to initiate major regulatory reform quickly. For example, FCC Commissioner Duggan clearly realizes that the regulatory practice of allowing "competitive" rates for new entrants, while requiring averaged rates for existing carriers' services, will probably prove to be unsustainable in the long run.<sup>103</sup>

While allowing true cream-skimmers into the interexchange access market, if, in fact, that is what the CAPs are, may lead to lower prices for some customers, the overall policy itself may still be inimical to the public interest. Asymmetric regulation, however, may obscure the overall flaws in such a public policy. Economic theory holds that if the LECs are the most efficient suppliers (and without downward pricing flexibility, the answer will likely remain unknown), then they should be presented the opportunity to retain those customers faced with alternate suppliers via the ability to set competitive prices.<sup>104</sup>

### *B. Collocation Does Not Guarantee Price Competition*

Although collocation policies can produce changes in the local access market that will unambiguously benefit both CAPs and IXC's, the potential for passing a significant portion of these benefits on to all telecommunica-

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102. See *Ball Memorial Hospital v. Mutual Hospital Insurance*, 784 F.2d 1325, 1338 (7th Cir. 1986) in which the court said that "Competition is a ruthless process. A firm that reduces cost and expands sales injures rivals, sometimes fatally. The firm that slashes costs the most captures the greatest sales and inflicts the greatest injury. The deeper the injury to rivals, the greater the potential benefit. These injuries to rivals are byproducts of vigorous competition, and the antitrust laws are not balm for rivals' wounds." *Id.* See also, *Microtel, Inc. v. Florida Public Service Commission*, 464 So. 2d 1189 (Fla. 1985), in which the appellate court rejected appellant Microtel's claim that it was entitled to be protected from competition in the long distance market until it had had a reasonable time to establish itself in the marketplace. *Id.* at 1191-92. The court ruled that the state statute on which Microtel relied, FLA. STAT. ANN. § 364.345(1) (West Supp. 1991), was intended to protect consumers, not telephone companies. Microtel had also argued that the public interest would be served by a protective period in which Microtel would be shielded from competition, but the court rejected this argument as well. *Microtel*, 464 So. 2d at 1192.

103. Duggan, *supra* note 97, at 2.

104. Laffont & Tirole, *supra* note 70, at 1055.

tions customers in general is not as readily apparent.<sup>105</sup> By allowing CAPs access to customers not located on their existing networks, collocation clearly expands CAPs' revenue (and presumably profit) potential. Likewise, if CAP prices are typically lower than those of the LECs, IXC's will realize access bill reductions by substituting CAP services for those provided by LECs. However, it is not clear that access prices will decline to the point dictated by vigorous competition in this market. Furthermore, it is not altogether certain that the full reduction in IXC's access payments will necessarily be reflected in lower interexchange toll prices paid by all end users.

If CAPs and LECs are equally efficient (or nearly so) providers of exchange access transport services in those narrow portions of the market in which CAPs choose to operate, then CAP and LEC marginal costs should be similar. Furthermore, both CAP and LEC prices are likely higher than marginal cost since both CAPs and LECs are profitably providing services to IXC's and end users. CAP prices, however, are generally lower than LEC prices.<sup>106</sup> Perhaps LEC's average access prices cannot be lowered sufficiently to meet the expectations of declining prices held by customers located in the relatively narrow geographic areas experiencing CAP construction activity and still recover the LECs company-wide costs of providing service. CAPs would then have no incentive to lower prices below the levels at which they successfully entered the market. Alternatively, if local access markets were allowed to function in a fully competitive fashion with LECs having the same pricing flexibility as displayed by CAPs, LEC prices could fall in those geographic markets where the cost of providing service is below the company-wide average cost (likely the same markets which appear attractive to CAPs). Given the assumption that LECs and CAPs are equally efficient providers of local transport services, both CAP and LEC prices could be expected to decline toward their respective marginal costs. This downward adjustment in prices would continue until economic profits disappeared and only the normal market return could be earned on access providers' investments. Absent a movement away from geographically averaged LEC prices, if CAP prices allow for economic profits and LECs cannot signifi-

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105. The distribution of benefits among IXC's, however, is unlikely to be uniform. In fact, smaller IXC's could be worse off. IXC's are expected to be presented with more appealing alternatives than the current LEC usage sensitive (i.e., per minute) switched access local transport charges. For instance, that CAPs will offer transmission capacity at a flat rate per circuit is anticipated. Furthermore, LECs conceivably will also be permitted to offer IXC's a flat rate local transport option. Such a flat rate alternative will be particularly attractive to larger IXC's with a substantial amount of traffic traveling over selected high volume routes. Conversely, smaller IXC's, lacking the financial resources to construct their own facilities and having traffic volumes insufficient to justify either LEC or CAP supplied dedicated transport circuits, will likely continue paying usage sensitive switched access transport charges. Thus, the effective price per minute of use will likely be substantially higher for smaller IXC's than for those IXC's able to take advantage of high volume flat rate alternatives.

106. CAPs typically maintain prices that are 10% to 20% lower than LEC tariffed rates. This price differential has been widely noted. For example, see Bushaus, *supra* note 45, at 50; Charles Siler, *How to Bypass Your Friendly Phone Company*, FORBES, Aug. 21, 1989, at 88, 89; Mulqueen, *supra* note 40, at 67.



cantly lower company-wide access prices, there is no incentive for access prices to move toward the direct costs of providing service within major metropolitan areas despite the apparent presence of CAP competition. With CAPs rationally maximizing profits and LECs trying to maintain contribution levels, IXC access payments will likely continue to include some (albeit diminished) contribution toward the recovery of LEC fixed and shared costs and support the maintenance of above normal CAP profit levels.

In addition, IXCs will not necessarily reduce toll rates paid by all customers whose traffic eventually is delivered to a POP via a CAP circuit as opposed to a LEC circuit. The intensity of competition in the interexchange toll market is perhaps the most powerful determinant of whether access savings derived from substituting CAP services, where available, for LEC offerings ultimately result in long distance price reductions.

Competition for the long distance business of large corporate and institutional customers (e.g., governmental agencies and universities) is clearly more vigorous than the weaker competitive environment that prevails in the small business and residence market segments.<sup>107</sup> Thus, the competitive nature of the long distance market indicates that toll price reductions can be anticipated for large business customers as a result of CAP and/or IXC collocation activities. For example, some interexchange access services, particularly special access circuits, are components of broader service configurations offered by IXCs to corporate customers subject to prices and provisions within separately negotiated contracts. Prices for such comprehensive service configurations, including the potential renegotiation of existing contracts, will likely reflect IXCs' access cost reductions resulting from collocation opportunities.

While price reductions for long distance packages tailored specifically for customers generating large calling volumes are likely to follow the implementation of a national collocation policy, significant price reductions can not clearly be expected for more casual toll service users. IXCs will probably recognize an opportunity to retain a, perhaps significant, portion of any switched access savings associated with the delivery of small volume customers' traffic that accompany collocation activities. To the extent that the small business and residence toll market segments (whose calls are more likely billed according to IXCs' general toll tariffs rather than special long distance package prices) are not as competitive as the large business segment, the general public could experience significantly smaller long distance price reductions than those anticipated for large corporate customers.

Perhaps referring to the potential for avoiding reductions in IXCs' general toll tariffs, as opposed to the likely increased discounts presented to

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107. For example, the FCC has decided, on the basis of the competitive nature of the market, to streamline its regulation of AT&T's large business customer services. See *Competition in the Interstate Interexchange Marketplace*, 5 F.C.C.R. 2627. See also Richard E. Simnett, *Contestable Markets and Telecommunications*, in *DEREGULATION AND DIVERSIFICATION OF UTILITIES* 127, 141 (Michael A. Crew ed., 1989).

large corporate customers, CAPs have expressly recognized that IXC access savings need not be completely eliminated by price decreases. Indeed, a CAP executive has pointed out that: "The interexchange carrier generally pays less for both installation and recurring charges for competitive [CAP] service. And unlike reductions in . . . charges made by the BOCs, these savings need not be flowed through to the end user. The long distance carrier may keep the savings for itself to improve its own bottom line."<sup>108</sup>

### C. Collocation Can Have Isolated Effects On Market Prices

Since CAP prices tend to be lower than corresponding LEC prices,<sup>109</sup> general downward pressure on access prices can be expected in those cities in which CAPs have deployed facilities. However, this downward pressure on prices is currently restricted to the urban areas targeted by CAP operations. Because LECs are constrained by regulation to establish average prices for their services, any LEC access price reductions affect revenues generated throughout a LEC's service territory. To the extent that such territory-wide price reductions influence a LEC's ability to achieve a "fair and reasonable" return from its interexchange access operations, declining LEC prices might not accompany the emergence of competitive pressures in metropolitan areas. If a LEC general price reduction does not occur, then it is unlikely that customers located beyond the scope of an existing CAP network will observe declining access charges. Thus, because CAPs are not attracted to smaller, rural population areas, price reductions can be expected to apply only to large corporate accounts located in or near the core business districts of major cities where CAP facilities are deployed.

Even if regulatory approval of LEC access tariff restructuring is obtained in conjunction with collocation, CAPs' view of the relative attractiveness of various geographic markets probably will not change markedly. Although collocation will likely spur increased construction activity, major metropolitan areas will surely attract most, if not all, additional CAP investments. Building fiber optic transmission facilities between suburban LEC local switching offices and IXC POPs located in the same city appears to be a more reasonable investment pattern than constructing backbone networks in rural areas. Thus, the benefits of lower IXC access prices will likely remain concentrated in major metropolitan areas following implementation of collocation policies.

In fact, even if collocation is achieved, CAPs might continue to offer lower access prices to only those business customers whose buildings are

108. MFS Senior Vice President Robert Douglas Bradbury confirmed that this quote was from his speech before the ACTA Conference on September 11, 1990, in his March 25, 1991 deposition (pp. 66-67) in Texas Public Utility Commission Docket No. 9796. The quote also appears in Comments of Southwestern Bell Telephone Company, *Expanded Interconnection NPRM/NOI*, 6 F.C.C.R. 3259 app. B, at 9-10 (filed August 6, 1991).

109. See, e.g., Bushaus, *supra* note 45, at 50.

located on a CAP backbone network. While a CAP might collocate its transmission facilities in a suburban LEC local switching office for the purpose of aggregating multiple customers' private lines and, potentially, switched access traffic, the CAP might intend to transport this aggregated traffic to IXCs' POPs without making direct contact with the customers whose traffic is being aggregated. This approach offers IXCs alternative transmission suppliers, diverse and redundant facility routes, and lower local transport prices for telecommunications traffic traversing the distance between suburban LEC central offices and IXCs' POPs. However, if their intention is to be an alternate transport provider for IXCs, CAPs would not necessarily offer the same alternatives to suburban customers desiring disaster recovery services at prices below those in LEC tariffs to secure the transmission path between their buildings and the LEC local switching office. Thus, collocation guarantees neither that suburban telecommunications customers will receive the direct benefits of CAP disaster recovery services nor that price discounts will be extended to customers whose locations lie beyond the scope of a CAP backbone network. The customers likely to benefit the most from CAP collocation arrangements with LECs are the IXCs. The benefits accruing to end users might remain restricted to those whose buildings are located within the narrow confines of the downtown core business districts of large cities where CAPs have already deployed networks. Therefore, collocation should not be expected to extend the benefits of CAP competition to business and residence customers throughout entire metropolitan areas. Additionally, collocation will likely provide even fewer benefits to customers in areas outside major urban population

#### *D. Collocation Will Not Necessarily Produce Technological Innovation*

Since CAPs construct entirely new facilities in the cities they choose to enter, they can deploy networks using the most technologically advanced components including both hardware and software. With the latest software and equipment, CAPs can be expected to provide sophisticated monitoring, testing, and network control functions.<sup>110</sup> Furthermore, since CAPs have neither an obligation nor any clear intention of offering service to all telecommunications users, they can place fiber optic network facilities only along lucrative routes and focus marketing and customer service efforts on a small number of highly strategic accounts. This ability to focus attention and investment on satisfying the demands of a small segment of customers could lead to a perception that CAPs have provided an impetus for accelerating the development and deployment of new services and technologies. However, perhaps CAPs have not been the primary driving force behind technological and service advances.

Incorporating the latest technology into the expansion of existing, or

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110. For a description of CAPs' network capabilities, see Bushaus, *supra* note 45, at 48-54.

construction of new, capacity is a rational business decision designed to enhance productivity and avoid short-term technological obsolescence. The CAPs' deployment of fiber optic telecommunications transmission facilities could have resulted from such a decision process. This, however, does not indicate that CAPs are the cause of recent telecommunications technology advances. In fact, if CAPs are directly engaged in research and development, their activities have not been well publicized.<sup>111</sup> LECs, on the other hand, expend both financial and human resources in searching for new telecommunications technologies. With the increasing sophistication of the marketplace, particularly the large business segment, LECs' financial strength, at least to some extent, has become dependent upon satisfying the demands of customers whose knowledge of networks and functions sometimes rivals that of the LECs themselves.<sup>112</sup> Such an environment demands that successful suppliers place a high value on promoting technological improvement.

LECs have continuously incorporated technological advances into their networks in order to develop new services both in response to and in anticipation of demands from increasingly sophisticated customers. For example, digital switches and fiber optic transmission facilities have been deployed by LECs throughout the country over the past several years.<sup>113</sup> By the end of 1988, for instance, the BOCs had installed more than 1.5 million fiber miles; in addition, IXC had installed over 1.8 million fiber miles.<sup>114</sup> This deployment of fiber optic cable was accomplished at a time when the CAP industry was in its infancy. Even following the rapid industry growth of the past few years, CAPs had installed less than 55,000 fiber miles by the end of 1990.<sup>115</sup> Obviously, CAPs were not the single motivating force behind the rapid incorporation of fiber optics into the U.S. telecommunications infrastructure.

Collocation opportunities will provide CAPs added incentives to increase the amount of fiber optic cable installed in the nation's telecommunications infrastructure. However, the capacity of existing fiber optic transmission facilities already represents a tenfold increase over the capacity of AT&T's predivestiture toll network.<sup>116</sup> Thus, the value added to the U.S. telecommunications infrastructure by any additional capacity resulting from increased

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111. This is not to suggest that CAPs do not pay for some portion of the research and development expenditures required to produce advanced technologies. Vendors presumably recover such costs in the prices of products incorporating new technologies.

112. For example, many large corporations have constructed, operate, and maintain national telecommunications networks.

113. For example, the implementation of Signalling System 7 will enable such services as "Caller ID," which allows for the identification of the originating telephone number at the site of the terminating telephone.

114. JONATHAN KRAUSHAAR, FEDERAL COMMUNICATIONS COMMISSION, FIBER DEPLOYMENT UPDATE: END OF YEAR, at 19, 21 (1989).

115. *Id.* at 32.

116. *See* KRAUSHAAR, *supra* note 114.

CAP fiber deployment motivated by collocation will likely be small. Furthermore, the regional distribution of fiber optic capacity will probably change little as a result of CAP collocation activities, with CAP investment remaining concentrated in major urban centers and little attention being given to rural customers. While CAP fiber optic transmission facilities might appear in cities which otherwise might not have attracted the interest of a CAP, networks in such second tier cities will likely be less intricate and significantly smaller than CAP networks in larger cities. In addition, collocation could produce a CAP investment pattern which might dictate the placement of fiber cable directly between LEC local switching offices and IXC POPs in metropolitan areas without requiring an expansion of existing, or installation of new, CAP backbone networks. To the extent that CAP networks add any value to the U.S. telecommunications infrastructure, the social value associated with an increased number of private lines directly connecting LEC central offices and IXC POPs is likely less than would be produced by more extensive network construction or expansion.

Attempts to reduce costs, improve operating efficiency, and effectively deliver new services by incorporating technological advances into existing LEC networks have provided strong demand for technology producing firms such as switch manufacturers and software developers. In addition, CAPs have taken advantage of the continuous innovation in telecommunications technology by incorporating such advances into their networks as any well-run business would. They have not, however, appeared particularly interested in invention. While CAPs might represent a new customer set for telecommunications technology producing firms (i.e., hardware and software manufacturers) and, hence, have perhaps increased the demand for existing technology, it is not clear that they have substantially accelerated the pace at which telecommunications technology is advancing.

### *E. Collocation Might Not Yield An Explosion Of New Services*

Beyond their deployment of fiber optic transmission facilities, perhaps the most widely discussed contribution of CAPs to the telecommunications market is "disaster recovery" or "network protection" service.<sup>117</sup> However, such services have also been provided by LECs, subject to tariff prices and restrictions or special construction policies or both. Thus, CAPs did not introduce an innovative new service which LECs were incapable of providing to the IXC access market.

The local switching office disaster in Illinois which focused national attention on the provision of telecommunications network protection evoked

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117. See, for example, Mulqueen, *supra* note 40, at 67; Taff, *supra* note 43, at 12; Bushaus, *supra* note 45, at 50; Knight & Vinton, *supra* note 42, at 33; Kellner, *supra* note 48, at 21; Titch, *supra* note 48, at 54; and Siler, *supra* note 106, at 89.

an immediate response from the affected IXC's.<sup>118</sup> Equipment to link large business customers directly to POPs was quickly installed.<sup>119</sup> This situation would likely have produced an increased demand for, and a resultant LEC supply of, disaster recovery/network protection type services, with the necessary LEC investment in network architecture changes, even in the complete absence of CAPs. Any attempted LEC refusal to supply such heavily demanded services would likely have motivated IXC's to incur the required investment themselves in order to assure their largest toll customers continuous, uninterrupted access to national long distance networks. Thus, the evolution of disaster recovery services probably did not hinge entirely on the activities of CAPs.

Collocation will provide CAPs an opportunity to expand their offerings of disaster recovery services to IXC's. However, network protection services covering the connections between POPs and suburban LEC central offices are not unique to CAPs. LEC network investment strategies and new service offerings include such disaster recovery alternatives not only for IXC links to local switching offices but also to assure end users uninterrupted access to the public switched network (both local central offices and IXC POPs).<sup>120</sup> These LEC services would undoubtedly have come about regardless of CAP operations. "AT&T was the driving force, at least in Texas, behind SWBT [Southwestern Bell Telephone] offering several new customer network protection options."<sup>121</sup> Thus, market responses to changing demand conditions could well have been, and likely will continue to be, at least as significant as, if not more significant than, CAP construction activities in determining the emergence of services that ensure access to IXC networks.

#### VII. LEC PRICING FLEXIBILITY WILL BE NECESSARY FOR EFFECTIVE COMPETITION

National telecommunications pricing policies have traditionally preserved the concept of average prices. The result has been to assure that the same price applies to an interstate telecommunications service regardless of the usage characteristics and geographic locations of purchasers. However, LEC and IXC costs of providing various telecommunications services likely vary between high usage urban areas and low volume rural locations. With a single price across all situations, prices are likely further above costs in urban areas than in rural areas. Perhaps costs even exceed prices in sparsely

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118. See Kellner, *supra* note 48; and Titch, *supra* note 48.

119. See Carnavale, *supra* note 47.

120. The availability of such LEC services is limited only by the speed at which prudent public utility investment can be accomplished to equip local central offices with the necessary technical capabilities. LEC disaster recovery services, like those of CAPs, are not currently universally available. For a discussion of Regional Bell Operating Company responses to market demands for network protection services, see Mark Mikolas, *RBOC Strategies for Local Loop Reliability*, BUS. COMM. REV., Oct. 1990, at 48, 48-53.

121. *Id.* at 50.

populated rural regions. Economically efficient pricing arguments suggest that, if these cost-price relationships hold, rural prices should rise while urban prices should fall. The implementation of a collocation policy could create market forces strong enough to reverse the application of average prices to LEC-provided access services.

Because CAP prices are typically below those of LECs, market prices in cities containing both LEC and CAP networks are probably lower than in metropolitan areas served only by LECs. Thus, at least to some extent, CAPs have affected the geographic deaveraging of special access market prices quite independently from apparent policy goals. The more successful CAPs become, perhaps by capturing some particular share of the interexchange access market, the more inconsistent a policy requiring LECs to adhere to average pricing techniques appears. Indeed, Commissioner Duggan points out, "our current regulatory practice—to allow 'competitive' rates for new entrants, while requiring averaged rates for existing carriers' services—will probably prove unsustainable in the long run."<sup>122</sup>

Perhaps collocation will accelerate the growth of CAPs and thereby hasten the demise of average pricing in the interexchange access market. The FCC is obviously aware of such a possibility, as it requested public comments on potential LEC special access rate structure changes such as "volume discounts, or distance-sensitive pricing of connection charges . . . or . . . proposals to increase channel termination charges for the connection from the customer premise to the end office and to reduce rates for the connection between the LEC end office and the IXC POP."<sup>123</sup>

The traditional rationale for volume discounts is predicated on the probability of declining marginal costs of installing additional special access circuits between two specific locations, given that a first circuit is to be installed. Such a LEC pricing position, with CAPs already having the ability to offer volume discounts at their discretion, would presumably result in special access market prices that more closely reflect the cost differences arising from providing various specified levels of service. The FCC also appears to envision a potential LEC access rate structure which distinguishes between originating and terminating services. One possible rationale for this approach involves a presumed desire to encourage active price competition in the interexchange access market. For example, if the portion of special access circuits connecting LEC local offices to IXC POPs is perceived as the immediate focus of competition (as opposed to the segments of circuits connecting widely divergent customer locations to LEC offices), then bifurcating the channel termination charges or connection charges could produce more frequent price adjustments than adhering to a single channel termination charge regardless of circumstances. Notwithstanding the particular form taken by LEC rate restructuring, vigorous competition in the

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<sup>122</sup>. Duggan, *supra*, note 97, at 2.

<sup>123</sup>. *Expanded Interconnection NOI/NPRM*, 6 F.C.C.R. 3259 ¶ 45.

access market will, in the long run, hinge on LECs possessing the same ability as CAPs in developing prices which reflect local market conditions—including customers' geographic locations, the quantities and configurations of services requested, and the costs of providing the specified services.

Essentially, the LECs should be afforded the same downward pricing flexibility that CAPs have, with price reductions being presumed lawful without any cumbersome showing of costs. While it is appealing and seemingly plausible to impose restrictions on the LECs' abilities to lower prices to compete with the CAPs, the regulatory status quo probably will not work. Regulatory cost studies are designed to address regulatory average pricing in the situation where the LEC must offer the same prices to all customers wanting a service, and must price its services to obtain a revenue requirement, which itself may have been determined by fully distributed costs. The situation in which the LECs must price so as to retain business in competition with the CAPs is different and thus should be treated differently. The LECs should be granted the type of pricing flexibility that large, unregulated multiproduct firms now have, and in fact use when competing with each other. The maintenance of price floors in conjunction with competition in the IXC access market can do nothing but impede legitimate and lawful competitive responses of the LECs. If a cost standard is required, then the cost standard of average variable cost could be used.<sup>124</sup> Yet even this cost brightline may lack usefulness in the context of meeting the competitive pressures of the CAPs.<sup>125</sup>

Some antitrust courts have in fact, indicated that meeting competition is an absolute defense to allegations of predatory pricing, apparently even if prices fall below average variable cost.<sup>126</sup> In the words of one court, "[a] company should not be guilty of predatory pricing, regardless of its costs, when it reduces prices to meet lower prices already being charged by its competitors."<sup>127</sup>

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124. This is the point at which contribution to overhead is zero, and below which any firm will simply shut down and exit the market voluntarily, if it thought revenues would dip below average variable cost for a significant period of time.

125. Economic arguments for questioning the benefits of price floors are contained in Alexander C. Larson & Mark P. Sievers, *On the Ineffectiveness of Price Floors in Telecommunications Regulation*, 25 WILLAMETTE L. REV. 89 (1989). And see Alexander C. Larson & William E. Kovacic, *Predatory Pricing Safeguards in Telecommunications Regulation: Removing Impediments to Competition*, 35 ST. LOUIS U.L. J. 1 (1990).

126. See Richard B. Rogers, *Predatory Pricing: A Practical Perspective*, 5 ANTITRUST 9 (1990) (citing *Xeta, Inc. v. Atex, Inc.*, 852 F.2d 1280 (Fed. Cir. 1988)); D.E. Rogers Assocs. v. Gardner-Denver Co., 718 F.2d 1431, 1435 (6th. Cir. 1983), cert. denied, 467 U.S. 1242 (1984); *Richter Concrete Corp. v. Hilltop Basis Resources*, 547 F. Supp. 893, 910 (S.D. Ohio 1981), aff'd, 691 F.2d 818, 826 (6th. Cir. 1982); *ILC Peripherals v. IBM Corp.*, 458 F. Supp. 423, 433 (N.D. Cal. 1978), aff'd sub nom. *Memorex Corp. v. IBM Corp.*, 636 F.2d 1188 (9th. Cir. 1980), cert. denied, 452 U.S. 972 (1981); *Lormar v. Korger Co.*, 1979-1 Trade Cas. (CCH) ¶ 62,498, at 76,911 (S.D. Ohio 1979). See also, *Olympia Equip. Leasing v. Western Union Tel. Co.*, 797 F.2d 370, 375 (7th. Cir. 1986).

127. *ILC Peripherals*, 458 F. Supp. at 433.



Indeed, from a social perspective, for the LECs to charge marginal prices below marginal cost for the services subject to competition from the CAPs may be optimal. Because the corresponding high-use customers must be granted advantageous terms to be retained by the LECs, low-use customers must be dissuaded from buying the high-use customers' bundle of services by charging a high fixed fee and a low marginal price.<sup>128</sup> If this is the case, then again, considerable downward pricing flexibility will be needed to promote true competition and not mere cream-skimmer entry at the expense of other customers.

### VIII. IXC'S INCENTIVES TO COLLOCATE

The implementation of collocation tariffs will present IXCs an attractive alternative to both LEC and CAP services. Substantial economic incentives for IXCs to collocate their own transmission equipment in LEC local switching offices will arise. There appears to be no restriction preventing IXCs from simply declaring themselves collocated by virtue of the fact that special access circuits (i.e., dedicated transmission facilities) currently link each POP to each LEC central office in major cities.

Because of variable LEC mileage charges, IXCs could realize significant access bill reductions by collocating transmission equipment in LEC offices located some distance away from downtown POPs and supplying their own transmission facilities. To the extent that IXCs might consider constructing transmission links that simply parallel existing LEC facilities connecting local switching offices to POPs, LECs could be presented with offers by IXCs to purchase installed cable (i.e., current transmission capacity). Alternatively, a situation could arise in which transmission capacity is duplicated with the result that LECs are left with substantial excess capacity. Depending upon the routes chosen by IXCs for independently tying POPs to LEC offices, infrastructure concerns might be irrelevant.<sup>129</sup> Less value would be added to the U.S. telecommunications infrastructure by a construction pattern that produces a second series of "straight line" connections between end user serving offices and IXC networks than would result from extensive construction of fiber optic connections reflecting ring network architectures, regardless of what firms (LECs or CAPs) incurred the necessary network investment. Given the incentives presented by a national collocation policy, IXCs should be expected to take full advantage of opportunities to reduce access payments to LECs, either by initiating their own construction

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128. Laffont & Tirole, *supra* note 70, at 1055.

129. The telecommunications infrastructure generally refers to the amount and technological sophistication of the transmission, switching, and other equipment deployed in telecommunications networks throughout the country. Policymakers' and others' concerns about ensuring the continuous enhancement of the U.S. telecommunications networks are discussed at length in U.S. DEPARTMENT OF COMMERCE, THE NTIA INFRASTRUCTURE REPORT: TELECOMMUNICATIONS IN THE AGE OF INFORMATION 201, 283 (1991).

programs or attempting to purchase existing LEC transmission facilities.

Although the FCC is currently considering the feasibility of collocation for only special access (i.e., private line) service, IXC's would still have incentives to take advantage of special access collocation because of the potential for reducing switched access payments to LEC's. Insofar as switched traffic is currently transported to IXC POP's via special access circuits, while switched and special access traffic can be (and sometimes is) transported over the same facility (e.g., fiber optic cable), the prices charged for transport service are significantly different. Switched access transport is assessed a charge per minute; special access is assessed a flat monthly charge per circuit, regardless of the number of minutes transported across that circuit. Once IXC's have collocated at LEC central offices for the purpose of supplying their own special access transport service, they should be expected to request switched access traffic be delivered to the same circuits. Indeed, to the extent that multi-year contracts for high capacity special access service between LEC central offices and IXC POP's already are in force and these longer-term lease commitments might be deemed to constitute IXC "ownership" of the transmission facility, then no additional investment need be incurred for IXC's to simply declare themselves collocated, with a POP effectively established inside the LEC local switching office at the point where the special access circuit terminates. The effect of such an arrangement would be to reduce the distance sensitive switched access local transport rate to the 0-1 mileage band for each minute of use originating from or terminating at a LEC local serving office in which an IXC had collocated. Thus, attempts to restrict the effects of collocation to the special access market will ultimately prove unsuccessful as IXC's strive to minimize total access payments to LEC's. That is IXC's will likely use collocated special access circuits to transport switched access traffic and thereby reduce—albeit not eliminate—switched access payments to LEC's.

### CONCLUSIONS

Advancing competition within the U.S. telecommunications industry is a key public policy goal of the FCC. An opportunity has arisen for the FCC to assess whether the evolving competitive nature of various telecommunications markets can be strengthened by integrating the private networks of CAP's with the local telephone companies' and long distance carriers' public networks. The FCC apparently views CAP's as the primary vehicle for introducing serious competition into certain portions of the market for local exchange telephone services. Regulatory authorities' restructuring of the industry, however, does not automatically guarantee true competition with all its attendant public benefits. Awareness of this uncertainty is essential to an objective assessment of the social value of national policy decisions designed to encourage firms to enter local telephone service markets.

CAP's are seeking regulatory approval to collocate transmission equipment inside or near LEC local serving offices. This arrangement is

perceived as necessary to establishing effective competition with LECs for transporting telecommunications traffic between customers' local serving offices and IXCs' long distance networks (i.e., the interexchange access market). Although LECs currently offer interconnection services, the regulatory process has produced tariffed prices high enough to preclude profitable operations if CAPs were to merely resell existing LEC services. Collocation is presented as a way to substantially reduce the price at which access to LECs' local networks can be secured. Favorable tariff treatment of collocation arrangements will afford CAPs, IXCs, and any other business entities the opportunity and incentive to construct transmission facilities between LECs' local serving offices and IXCs' networks. Thus, the FCC can almost certainly ensure an increase in the number of firms supplying interexchange access services by restructuring LEC tariffs to include minimal collocation prices.

However, a regulatory policy that produces an increased number of interexchange access suppliers does not necessarily also yield social welfare gains. If the interexchange access market is currently perceived as a monopoly with LECs, for all practical purposes, the sole suppliers, an improved market structure is possible only if the current monopoly industry configuration is inefficient. Although an addition of firms to the industry might be feasible, such that all new entrants might at least break even, it would be nearly impossible to ascertain *a priori* that the new entrants would produce the most efficient industry configuration such that the entrants in combination with incumbents would satisfy aggregate market demand at the lowest possible total industry cost of production. Thus, if regulatory actions are based upon the notions that a competitive industry is simply one in which many suppliers operate and such an industry configuration is somehow necessarily more efficient than any other configuration, creamskimmer entry, rather than true competition, could be the result of well-intentioned, but hastily analyzed, policy decisions.

For example, if CAPs would in fact function as creamskimmers in the interexchange access market, their entry would signal little more than the exploitation of regulators' application of average prices to LEC services. By focusing intently on narrowly defined geographic market segments containing dense concentrations of high volume long distance customers such as typically exist in the downtown core business districts of large cities, CAPs likely can maintain profitability, indicating the new industry configuration is feasible, without necessarily having to be more efficient producers than incumbent LECs. CAP entry need not necessarily produce a decline in total industry costs. If collocation simply attracts creamskimmer entry (the entrants who are less efficient, higher cost producers than incumbents), into the interexchange access market, few if any of the benefits typically attributed to competitive markets are likely to be realized.

Regulatory adherence to traditional average pricing of LEC services implies that price competition in the interexchange access market would remain unlikely, even subsequent to adoption of collocation policies intended

to spur such competition. CAPs could simply allow regulation to set an average price for LEC local transport and then offer nominal discounts relative to LEC price levels. Encouragement of true price competition requires LECs be extended the same pricing flexibility exercised by other suppliers. Geographically de-averaged prices, specific service contracts and prices for individual customers, volume discounts, and various promotional pricing campaigns are some of the pricing strategies available to CAPs but denied to LECs. Absent full LEC pricing flexibility, implementation of a collocation policy designed to encourage entry into the interexchange access market might accomplish little more than a wealth transfer from incumbent LECs to new entrants, primarily CAPs and IXC. Furthermore, maintenance of rigid LEC prices would prevent a collocation policy from even producing a valid, yet quite irreversible experiment to test whether the prevailing industry configuration is indeed inefficient.

