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8 Deregulation After Divestiture: The Effect of the AT&T Settlement on Competition

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Deregulation After Divestiture:

The Effect of the AT&T Settlement on Competition

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Dr. Kelley is Senior Staff Economist in the Office of Plans and Policy. The opinions expressed in this paper are those of the author. They do not necessarily reflect policies or views of the Federal Comunications Commission or any other organization or individual. Speçial thanks are due to Jerry Duvall, Roy Morris and Robert Preece who read several drafts and made numerous comments. James Brown, David Nicoll, Peter Pitsch and Douglas Webbink also made helpful suggestions. Any remaining errors are the responsibility of the author.

EXECUTIVE SUMMARY

Deregulation has enjoyed a great deal of popularity in recent years. Airlines, energy and trucking have all been partially deregulated. Telecommunications markets have been opened to entry and steps have been taken to deregulate the new entrants and important new services. But the largest firm in the economy, AT&T, remains subject to tariff and rate of return controls on its interstate transmission and switching services.

The public policy rationale for deregulation of transportation, energy and airline markets was much simpler than that for telecommunications; the former industries display competitive market structures, i.e., large numbers of competitors and absence of dominant firms. Since interexchange telecommunications markets have all of the external appearances of classic monopoly, the rationale for deregulation will have to be extended.

Although competitors have challenged AT&T in virtually all of its markets, the vertical integration of bottleneck local exchange facilities with long distance services has prevented a market test of competition. The settlement of the Justice Department's 1974 antitrust case, however, fundamentally alters AT&T's market position.

Equal access to local facilities for all competitors, which is the cornerstone of the settlement agreement, will, for the first time, allow competition to act as a complete substitute for regulation of interstate services. A level of access sufficient to allow deregulation to begin could be achieved within five years. Economies of scale in network transmission and distribution are not insurmountable hurdles for interexchange competititors. Arguments that competitors cannot succeed in a cost-based world are incorrect. "Cream-skimming" is not a complete explanation for interexchange competition. After restructuring, competitive forces will constrain AT&T's pricing.

In the short-run, however, large initial market share and inevitable delays in competitor expansion are likely to provide AT&T with degrees of pricing freedom that may lead to above-cost pricing, albeit with gradually diminishing market share. Phased deregulation whereby AT&T is gradually given pricing flexibility may be necessary. Price discrimination can be controlled by maintaining the Commission's resale policies.

Monopoly pricing of equipment and the new enhanced services is unlikely since both markets will develop along competitive lines. Interexchange competitors, local exchange companies and individuals purchasing terminal equipment all have access to equipment produced by independent manufacturers. A restructured AT&T will have no great initial advantage in the enhanced services area. Moreover, this market will develop with a number of highly differentiated services based on individual customer needs. A high degree of product differentiation, together with low barriers to entry, will allow a multi-firm market structure to evolve as long as competitors have equal access to AT&T's interexchange network.

Improved terms of interconnection for competitors will develop immediately with restructuring. There will, however, be a period after restructuring during which AT&T may have a continuing interconnection advantage. During this transition period, as now, a true market test of the long term viability of competition is not possible. The evolution of competition can be slowed or even eliminated for a time if the existing competitors are discriminated against.

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DEREGULATION AFTER DIVESTITURE:
THE EFFECT OF THE AT&T SETTLEMENT ON COMPETITION

The settlement of the Justice Department's 1974 monopolization suit against the American Telephone and Telegraph Co. will allow substantial deregulation of interexchange telecommunications markets.[1] The settlement requires AT&T to restructure itself into two separate businesses. AT&T will own Western Electric, Bell Telephone Laboratories, and the entire long distance business now provided by the AT&T long lines division and the Bell Operating Companies (BOCs). The BOCs will offer local telephone service only. Deregulation of interexchange services becomes feasible after restructuring because AT&T control of bottleneck local distribution facilities is now the primary barrier to increased competition in telecommunications markets.

After restructuring, however, AT&T will continue to control over 90 percent of the interexchange telecommunications market. Therefore, the telecommunications industry differs substantially from other recent candidates for deregulation such as airlines, trucking and energy. Consequently, the paper discusses the economics of the industry and places the issues in the

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[1] Modification of Final Judgement entered in United States v. Western Electric Co., et al., CA no. 17-49, D.N.J. United States v. Western Electric was transferred to the U.S. District Court for the District of Columbia on January 14, 1982. As of this writing the number of new BOCs that would be established has not been determined. AT&T has tentatively established seven operating company groups for planning purposes.

context of the general deregulatory trend of the 1970s and early 1980s before the costs and benefits of deregulation are discussed.

Section I discusses the deregulation debate in general. Section II provides a detailed description of existing telecommunications markets; a discussion of the current nature of regulation and a review of the steps that have already been taken to deregulate telecommunications follow in Section III. Section IV is a review of economic models that can be used to evaluate telecommunications competition. Section V assesses the costs and benefits of deregulating restructured telecommunications markets. The conclusions are in Section VI. Readers familiar with the institutional characteristics of the industry and recent regulatory changes can easily skip Sections II and III. Readers familiar with the predatory pricing and entry barrier economics literature may wish to skip Section IV.

I. THE THEORY AND PRACTICE OF DEREGULATION

The theory of economic regulation in much of the economics literature of the 1950s and 1960s was uncomplicated: market failure to provide an economically efficient outcome could be countered by government intervention designed to limit market power or externalities.[2] The criticism of the practice of economic regulation developed in the 1970s was also straightforward: regulation has been applied where market mechanisms can approximate the economically efficient solution unassisted by government command and control, and even where markets may not lead to efficient solutions, government intervention may not help.[3] Indeed, regulation may introduce new distortions or delay the technological forces that would eliminate the market failures.[4]

Application of this view of economic regulation leads to straightforward policy prescriptions: if the choice is between regulating or not regulating,

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[2] See Alfred E. Kahn, The Economics of Regulation, Vol. I (1970), for a discussion of the theory and practice of monopoly regulation and E.J. Mishan, The Postwar Literature on Externalities: An Interpretative Essay, 9 Journal of Economic Literature 1 (1971) for a survey of the externality issue.

[3] See George V. Stigler and Claire Friedland, What Can Regulators Regulate? The Case of Electricity, 5 Journal of Law and Economics 1 (1962) and Charles Wolf Jr., A Theory of Nonmarket Failure, 22 Journal of Law and Economics 107 (1979).

[4] See the studies in William M. Capron, ed., Technological Change in Regulated Industries (1971).

then do not regulate; if the choice is between deregulating or continuing to regulate, then deregulate. The choice in favor of not regulating a market is simple; removing existing regulatory schemes can be far more complicated.[5] Deregulation may be constrained in several important ways. First, the end of cross subsidies induced by regulation may force losses or create other hardships for favored customer groups. In addition to the political problems, real efficiency questions are presented. For example, accumulated customer investments based on a given price structure may be lost if subsidies in the price structure are ended. The benefits of deregulation must exceed the costs of the lost investments. If nothing else, there are adjustment costs associated with making changes.

Second, regulatory protection may be responsible for market power that might not have existed otherwise. It would be surprising if this were not the case since the establishment of entry barriers is the sine qua non of most economic regulation schemes. The presence of market power may make the politics of deregulation more difficult. Finally, the industry may be regulated by more than one jurisdiction. The beneficial effects of deregulation by one jurisdiction may be lost by the responses of other regulators, or may actually lead to less efficient price structures as the regulated firms induce captured regulators to restore lost profits. The second-best solution may require continued regulation by both jurisdictions.

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[5] Alfred E. Kahn, Applications of Economics to an Imperfect World, 69 American Economic Review 1 (1979) and Darius W. Gaskins, Jr. and James M. Voytko, Managing the Transition to Deregulation, 44 Law and Contemporary Problems 9 (1981) both address transition issues with examples from industries other than telecommunications.

These constraints complicate deregulation. Flash cut deregulation must often be replaced by a phased in transition that allows gradual adjustments. In some cases the transition may not result in total deregulation, either because of the dual jurisdiction problem or because political problems do not allow deregulation of certain firms or services. Deregulation in these transition periods must be carefully designed. In addition to causing efficiency losses, poorly designed transitions may even result in an erosion of the coalition in favor of deregulation, leading to the reimposition of controls.

Deregulation has been successfully applied in the airline and energy markets.[6] Important steps have been taken to deregulate surface transportation.[7] The economic constraints on deregulating these markets were relatively minor, yet compromises were necessary to forge the necessary political coalitions. The small market subsidy scheme was maintained for airlines, albeit in a different form.[8] Elaborate mechanisms for phased

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6 Airline Deregulation Act, Pub. L. No. 95-504, 92 Stat. 1705 (1978); President Reagan removed all controls from crude petroleum shortly after taking office.

7 The Motor Carrier Act of 1980, Pub. L. 96-296, 94 Stat. 793 (1980) and Staggers Rail Act of 1980, Pub. L. 96-448, 594 Stat. 1895 (1980).

8 Gaskins and Voytko, supra note 5, at 21.

deregulation have been created for both airlines and surface transportation.[9] Natural gas controls are to be phased out over a number of years,[10] while the end of price controls on domestic crude petroleum was conditioned on the "windfall profits" tax (allegedly designed to transfer the rents on "old" oil to the treasury).[11] If experience with other industries is an indication, further telecommunications deregulation will require transition mechanisms.

The remainder of this paper focuses on the problems inherent in deregulating post-divestiture telecommunications markets. The institutional characteristics of the telephone industry are less well known than the institutional characteristics of other industries that have been the subject of deregulation. Therefore, the next two sections provide some background information on the markets in question and on the recent history of regulation.

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9 Id. at 11-12.

10 Natural Gas Policy Act of 1978, Pub. L. No. 95-621, 15 U.S.C. 3301 (Supp. II 1978).

11 The windfall profits tax was authorized in Pub. L. No. 96-223. 94 Stat. 229 (1980).

II. TELECOMMUNICATIONS INDUSTRY STRUCTURE

Telecommunications is the movement of information between or among distant points by electronic means. The broadly defined telecommunications industry contains four markets: local service, interexchange service, customer premises equipment, and enhanced services.[12] Local telephone service is the provision of communications among points in a limited area, usually a city or town plus adjacent areas. Every subscriber is connected by a wire pair, called the local loop, to a switching machine in a telephone company "central office." Central offices are connected to one another by trunk lines and switches that aggregate and distribute traffic.[13] Local telephone service is almost always a franchise monopoly. The franchises allow the use of local rights-of-way to string wire or bury cable.

In the interexchange or long-distance market, microwave radio facilities, satellites, or large capacity cables are used to connect local service areas to one another through a hierarchical system of switches. In the case of microwave and cable transmission, rights-of-way must be obtained from local

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12 See Telecommunications in Transition: The Status of Competition in the Telecommunications Industry, A Report by the Majority staff of the Subcommittee on Telecommunications, Consumer Protection and Finance of the Committee on Energy and Commerce, U.S. House of Representatives, November 3, 1981 (the "Wirth Report"), for an extensive discussion of Telecommunications Markets, including market share data. Note that the definition used here does not exclude cable television. The implication of cable television competition with telephone companies, however, is primarily in local exchange markets and will not be treated explicitly here. International telephone markets are not discussed here either.

13 See Bell Telephone Laboratories, Engineering and Operations in the Bell System (1977), for a description of traditional telephone technology.

governments and private land owners, while in the case of satellites, orbital locations are granted by the Commission. The radio frequencies used for microwave or satellite transmission are allocated to individual users by the Federal Communications Commission.

Examples of interexchange services provided by the AT&T are message telephone service (MTS), wide area telephone service (WATS) and private line services. MTS, which is ordinary long distance service, is available to every local service subscriber simply by dialing an area code and the seven digit telephone number in the distant city. AT&T's competitors provide partial MTS substitutes that do not reach all areas and require dialing extra digits. WATS is an MTS-like service that is discounted for large users, while private lines are dedicated communication facilities purchased by the large users.

The customer premises telecommunications equipment market consists of sale or lease of telephones and more sophisticated equipment such as PABXs and data modems. In the enhanced services market, sophisticated customer premises or network equipment is combined with local or interexchange transmission to provide a variety of data processing related communications, ranging from electronic funds transfer to voice storage. This last market category is very broad, but is bounded by the traditional data processing industry.

It is not possible to define real world markets precisely. There are, for example, many ways in which customer premises equipment and exchange or interexchange equipment can substitute for one another. AT&T's Centrex service is a means of providing large businesses with internal switching capability that often utilizes switches in the central office rather than customer provided PABXs. In addition, many submarkets can be defined within

each of the four broad markets. Within the interexchange service market there are several identifiable user groups. They include residential customers and small businesses, medium sized businesses able to take advantage of discounted services such as WATS or the similar services offered by AT&T's competitors, and very large business and government customers that can take advantage of customized private line networks.

AT&T is, of course, the dominant seller of telecommunications equipment and service in the United States. Restructuring will not immediately affect AT&T's position in any single market because no horizontal divestiture is contemplated. The 23 operating telephone companies to be divested provide local telephone service to 78 percent of the nation's telephone subscribers.[14] The long lines division and the BOCs provide over 90 percent of the interexchange telecommunications market in partnership with the nation's 1500 independent telephone companies.[15] AT&T's share of the customer premises equipment market has fallen since competition was introduced in 1967, but is still over 60 percent.[16] Most of AT&T's equipment and research and development is provided through its Western Electric and Bell Telephone Laboratory subsidiaries. The Bell Telephone Laboratories are financed by

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14 AT&T, Bell System Statistical Manual 503 (1981).

15 Compiled from data in FCC, Statistics of Common Carriers (1979).

16 See the Wirth Report, supra note 12, at 186.

Western Electric and by "license contract" payments from the BOCs and long lines. The settlement requires an end to both license contract payments by the BOCs and the "standard supply contracts" that now link Western Electric and the BOCs.

The other participants in these markets are a varied group ranging from tiny component manufacturers to industry giants. They can be subdivided into several groups. First are the "other common carriers" (OCCs). The OCCs, as the name suggests, offer transmission and switching services in competition with AT&T's interstate services. The OCCs consist of the specialized common carriers (SCCs), the domestic satellite carriers (domsats) and the miscellaneous common carriers (MCCs). The SCCs provide traditional long distance telephone services. They are at present MCI, Southern Pacific Communications Corp. (SPCC), United States Transmission Services (USTS), a subsidiary of ITT, Satellite Business Systems (SBS), a subsidiary of IBM, Comsat and Aetna, and Western Union, which is branching out from its traditional message services. The present Domsat carriers are AT&T, GTE, RCA, American Satellite and Western Union; these carriers will soon be joined by SPCC and Hughes Communications. Although SBS is typically categorized as an SCC because its services are primarily designed to compete with SCC services, most of its transmission will be by satellite. The MCCs typically provide terrestrial microwave video services in the western states.

The major equipment vendors (after AT&T) are GTE, Northern Telecom, ITT, Stromberg-Carlson, Nippon Electric, LM Ericsson and Rolm. A number of smaller companies also provide terminal equipment and network equipment. At present there are few enhanced service vendors but the number can be expected to grow

rapidly in coming years. The existing competitors are GTE's Telenet subsidiary and Tymenet. They will soon be joined by AT&T's ACS (advanced communications service). ITT and IBM are rumored to be contemplating enhanced service ventures.

III. TELECOMMUNICATIONS INDUSTRY REGULATION

Telecommunications regulation has undergone a great deal of change in the past 25 years. New technologies in both the communications and data processing industries have led to changes in entry policy. Entry, in turn, has required revision of traditional rate of return and tariff regulation. These developments are discussed briefly in this section.

The Communications Act of 1934 gives the Commission responsibility for all interstate telecommunications services. State commissions regulate intrastate telecommunications, which includes both local exchange service and interexchange service within a state. Some authority is shared. Shared jurisdiction is discussed first and matters primarily within Commission jurisdiction are discussed second. Issues of primary concern to the states alone will not be discussed here. The AT&T settlement does not affect the jurisdiction of the Commission or the states, although it does contemplate some accommodative changes in regulatory practices.

A. Shared Jurisdiction

A current goal of both state and federal regulation is to limit the rate of return on invested capital to a competitive level. Local exchange facilities are used in the provision of both local and interstate services so a portion of the expenses and capital invested in local exchange facilities are allocated to the federal jurisdiction for ratemaking purposes. Therefore, both state and federal regulators have an interest in the size of local

facilities investment and its allocation between state and federal jurisdiction.[17]

Depreciation rates play an important part in determining the absolute size of investment. For the larger telephone companies, depreciation rates are prescribed by the Commission after negotiations among state regulators, the Commission, and the companies.[18] These negotiations are obviously important given the capital intensity of the telephone industry. The procedures used to allocate local exchange investment between the two jurisdictions for rate of return calculations are determined by a "Federal-State Joint Board," a deliberative body consisting of four state utility commissioners, appointed by the National Association of Regulatory Utility Commissioners (NARUC), and three FCC commissioners.[19]

The expenses of individual telephone companies allocated to the federal jurisdiction are determined by the "separations" process. The primary methods used to reimburse local companies for expenses allocated to the interstate jurisdiction through the separations process are "settlements" and "division of revenue." AT&T distributes a portion of its interstate revenues to the independent telephone companies through the settlements process while the

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17 Prior to 1936, the states allowed all of the expenses of providing local exchange facilities to be recovered through charges to local service subscribers even though the facilities are jointly used to provide both long distance and local services. In 1936 the Supreme Court in Smith v. Illinois Bell 282 U.S. 133 (1930) ruled that long distance users should pay a portion of the expenses.

18 Section 220 of the Communications Act gives the commission authority to prescribe depreciation rates.

19 See Section 410(c) of the Communications Act.

AT&T affiliates are reimbursed through division of revenues. The settlement requires major changes in these processes, although the specifics have not been worked out.

Allocation of local exchange investment between jurisdictions can theoretically be made in a number of ways. For example, allocating larger shares of common costs to markets with the least elastic demands has desirable efficiency properties.[20] This pricing technique would result in relatively higher prices for local exchange because the demand for local exchange service is less elastic than interexchange demand.[21] But it can also be argued that the externality properties of networks require reduced cost allocations to local services to encourage subscription to the network.[22] Other allocators might be based on relative use concepts such as gross minutes of use or message minute miles.[23] In general, however, regulators select allocation techniques that satisfy their own economic or noneconomic objectives. The actual method chosen for telecommunications, and embodied in the separations

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[20] See William J. Baumol and David F. Bradford, Optimal Departures from Marginal Cost Pricing, 60 American Economic Review 265 (1970).

[21] Lester D. Taylor, Telecommunications Demand: A Survey and Critique (1979), estimates an elasticity of demand for local calls of -0.20 and an elasticity of demand for interstate calls of -0.90, at 227.

[22] See Robert D. Willig, The Theory of Network Access Pricing, in Harry M. Trebing ed., Issues in Public Utility Regulation 153 (1979). Robert Preece, however, argues that externalities are likely to be internalized without this inducement. See Equity and Externalities, unpublished FCC memorandum.

[23] See Ronald R. Braeutigam, An Analysis of Fully Distributed Cost Pricing in Regulated Industries, 11 The Bell Journal of Economics 182 (1980).

process, has generally been based on the desire of state regulators to avoid rate increases for intrastate services.[24]

In the 1950s and 1960s, long distance technology enjoyed large productivity increases due to the introduction of microwave transmission and direct distance dialing. A disproportionate share of the benefits of these productivity increases was, in effect, used by various Joint Boards to hold down intrastate rates. The Commission acquiesced, perhaps because the productivity increases were large enough to allow interstate price reductions in spite of the cost misallocation.[25]

Nothing in the decree affects allowable depreciation or jurisdictional separations. The mechanics of collecting and distributing interexchange revenues earned by local exchange carriers will, however, change in ways that are not yet fully known. The decree requires the BOCs to charge for local access by non-discriminatory tariffs instead of through settlements and division of revenues. Since there are thousands of local exchanges, averaging techniques may have to be created to make the number of tariff filings the Commission must review manageable. In addition, since independent telephone companies are not directly affected by the decree, the Commission may wish to require them to follow the same principles that are to be used by BOCs.

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24 See Richard Gabel, Development of Separations Principles in the Telephone Industry 99 (1967).

25 Id. This transfer has been accomplished by allocating non-traffic sensitive plant by the so-called subscriber plant factor, or SPF. SPF is a measure of relative use weighted by an arbitrary factor negotiated by the states and the Commission. Since relative use by interstate toll users has been growing over time, a growing proportion of plant has been allocated to the interstate jurisdiction.

B. Federal Jurisdiction

Federal regulation has focused on five broad areas: rate of return regulation, tariff regulation of individual services, entry policies, efforts to define the boundary between regulated and unregulated activities and deregulation of competitive carriers. Most of these concerns are recent. As noted below, traditional rate of return regulation is a product of the 1960s; competitive carrier deregulation was first investigated by the Commission in 1979.

1. Rate of Return Regulation

The Communications Act does not specifically provide for "textbook" rate of return regulation. In its first forty years, the Commisssion regulated AT&T profits through a technique known as "continuing surveillance," which consisted of monitoring earnings on an informal basis.[26] This process worked to the satisfaction of both AT&T and the Commission in an era when telephone rates were declining due to large productivity gains. In the late 1960s, however, the Commission prescribed a maximum allowed rate of return.[27] Prescription of a rate of return led the Commission into a series of proceedings designed to establish ratemaking principles such as the method of computing cost of capital, identification of allowable expenditures, and

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26 See Manley Irwin, The Telecommunications Industry 135-136 (1971).

27 See Docket Nos. 16258, 15011, 9 FCC 2d 30 (1967).

treatment of Western Electric earnings.[28] Some of these issues were still being thrashed out as late as 1978. Moreover, every rate of return modification request by AT&T leads to full evidentiary hearing before an Administrative Law Judge and often Commission and Court review.[29]

2. Tariff Regulation

The Communications Act bars "unreasonable discrimination." Prior to the advent of competition, however, AT&T was, in practice, free to set prices for individual services in ways that maximized its own self interest, subject to the overall (implicit or explicit) rate of return constraint.[30] Monitoring the rates for individual services became necessary with the introduction of competition. This became obvious after the Commission allowed the construction of private microwave systems in the 1959 Above 890 decision.[31] AT&T's response to the threat of self supply by its largest corporate telecommunications customers was to institute a bulk discount service called Telpak. Several plans for private microwave systems were abandoned as a

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28 See Docket No. 19129, 38 FCC 2d 213 (1972).

29 See Petition for Modification of Prescribed Rate of Return, Docket No. CC 79-63, 86 FCC 2d 221 (1981).

30 In technical economic terms such practices amount to price discrimination. See, e.g., Frederick M. Scherer, Industrial Economic Structure and Economic Performance 315-334, 2nd ed. (1980). Such practices may or may not be "unreasonable" in the eyes of the judiciary, using standards developed from legislation.

31 Allocation of Frequencies in the Bands Above 890 Mc, 27 FCC 359 (1959), recon. 29 FCC 825 (1960).

result.[32] Consequently, the Commission instituted an investigation of AT&T's rate structure. This investigation, which has had a long history, continues to this day.[33] The tariff itself remained in effect for almost two decades, in part because of legal appeals by the favored users (including agencies of the U.S. Government).[34]

The duration of this controversy is not suprising because the basic question involves the allocation of common costs, which are not directly attributable to any particular service.[35] In Docket 18128, AT&T proposed a forward looking incremental cost approach for pricing "competitive services." This would have allowed most common costs to be allocated to its basic monopoly services. This would have justified pricing competitive services at the level of variable costs only, and thus substantially reduced or eliminated competitors. The Commission staff proposed a fully distributed cost test that would require each service to bear a portion of historical costs. The

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32 On a fully distributed cost basis, an AT&T study showed that Telpak earned .3 percent in 1964 while the return for all interstate services was 7.5 percent. See Kahn, supra, note 2, at 156.

33 For the history up to 1977 see Walter G. Bolter, The FCC's Selection of a "Proper" Costing Standard after Fifteen Years--What Can We Learn from Docket 18128?, in Harry M. Trebing, Ed., Assessing New Pricing Concepts in Public Utilities 333-372 (1978).

34 See Aeronautical Radio, Inc., et al. v. FCC, no. 17-1333, D.C. Cir., 1980.

35 Common costs are incurred when a facility can be used to produce two or more outputs in variable proportions.

Commission ultimately decided to compromise by adopting cost standard known as FDC-7.[36]

The Commission has recently moved away from FDC-7, but has not eliminated fully distributed costing as a requirement. In the Cost Manual proceeding, one of the progeny of the original investigation into discriminatory rates, the Commission has decided to abandon a priori rules for allocating costs among private line services.[37] The interim cost manual aggregates AT&T's interstate services into three major categories: MTS, WATS, and private line services (access costs for OCCs are treated separately). Costs common to these three services are to be allocated by relative minutes of use. Within the private line category, AT&T is allowed to justify prices on the basis of any reasonable fully allocated cost method, including but not limited to FDC-7.

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[36] FDC-7 allocates historical costs based on forecasts of facility use. Docket 18128, 12 FCC 2d 1028 (1968). The Commission's adoption of a fully distributed cost test has been severely criticized by some economists. See William J. Baumol and Alfred G. Walton, Full Costing, Competition and Regulatory Practice, 82 Yale L.J. 639 (1973). For a reply see Roger G. Noll and Lewis A. Rivlin, Regulating Prices in Competitive Markets, 82 Yale L.J. 1426 (1973).

The Commission noted the theoretical efficiency properties of incremental costs in Docket 18128. For a firm subject to entry in all of the markets it serves, incremental pricing is optimal since prices would reflect costs. When some services are not subject to entry, incremental pricing can be used for strategic purposes. This was arguably the case with the Telpak tariff, which eliminated private microwave competition. In addition, incremental pricing depends on forecasts of future demands and costs. Given lack of resources, the Commission would necessarily be dependent upon the carrier for information on these variables. Fully distributed historical costs are more easily verified and subject to a greater degree of control. If a company is to be regulated in the first place, then this degree of control is necessary. The Commission can be faulted in attempting to modify fully distributed cost pricing by adopting a forward looking element, at the cost of reduced carrier accountability.

[37] See AT&T Manual and Procedures for the Allocation of Costs, Docket CC-245, 84 FCC 2d 384 (1980), recon., ___ FCC 2d ___ (1981).

The net effect of all this is that tariff regulation of AT&T interstate services has not been very successful. Discriminatory tariffs have remained in effect for years because of Commission inability to prescribe anything better. As Commission Administrative Law Judge Walter Miller pointed out in his decision on an AT&T private line tariff:

> ...if the historical backround and evidentiary record in this case do nothing else, they deliver one message clearly. It is this: Small as it is in terms of its budget and number of personnel, and even if it had no other communications responsibilities, the FCC does not have the resources to regulate the Bell System in any meaningful fashion.[38]

An extension of this hypothesis is that effective regulation would not be possible even with unlimited resources: the nature of the common cost problem together with the sophisticated and rapidly changing technology simply make the textbook process of rate of return regulation infeasible.

3. Entry Restrictions

The 1967 Carterphone decision opened the customer premises equipment market to entry.[39] Effective competition, however, was not possible until the Commission's equipment registration program, instituted in 1976, put an end to the use of telephone company provided coupling equipment and required all

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38 Initial Decision in Phase I of Docket No. 20814, at note 57 (unpublished).

39 13 FCC 2d 420, recon., 14 FCC 2d 571 (1968). This decision allowed interconnection of privately supplied terminal equipment directly to the network. Earlier, in Hush-a-Phone Corp. v. U.S., 238 F.2d 266 (D.C. Cir. 1956) indirect interconnection via foreign attachments was allowed.

equipment to meet minimum electrical standards for protection of the network.[40]

Residential equipment competition remains restricted, however, because the telephone companies bundle equipment with service. Some telephone companies may not reduce charges sufficiently to reflect reduced costs when customers provide their own equipment. This situation will end when the Commission's Second Computer Inquiry goes into effect because terminal equipment will be removed from telephone company rate bases and sold separately.[41] The settlement forbids the BOCs from providing terminal equipment, which is consistent with the Second Computer Inquiry.

Entry restrictions in the interstate transmission market were first reduced with the Above 890 decision. The next step was taken in 1967 when MCI was allowed to provide private line service between Chicago and St. Louis.[42] The Commission opened the private line market to competition generally in the 1971 Specialized Common Carrier decision.[43] The Commission believed that the new entrants would fill a gap in the existing market by providing innovative services to submarkets of specialized users. In perhaps the most important

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[40] See Second Report and Order, Docket 19528, 58 FCC 2d 736 (1976) and Telephone Equipment Registration, Docket No. 21182, 67 FCC 2d 1343 (1978).

[41] See Docket 20828, 77 FCC 2d 384 (1980), recon., 84 FCC 2d 50 (1980), further recon. __ FCC 2d __, appeal pending, D.C. Cir.

[42] See Microwave Communications, Inc., 18 FCC 2d 953 (1969), recon., 21 FCC 2d 190 (1970).

[43] See Specialized Common Carrier Services, 29 FCC 2d 870 (1971), recon., 31 FCC 2d 1106 (1971), Aff'd sub nom., Washington Utilities and Transportation Commission v. FCC, 513 F.2d 1142 (9th Cir. 1975), cert. denied, 423 U.S. 836 (1975).

decision of this line open entry was declared to be the norm for new satellite communication services in the 1972 Domsat decision.[44] Intrastate markets, however, have not been opened to entry.

In a series of D.C. Circuit Court of Appeals decisions in 1976 and 1977, the new entrants were given authority to provide the full spectrum of interstate, interexchange services, including a shared private line service that closely resembles AT&T's MTS/WATS services. These decisions were based both on the technicality that the original certificates granting entry authority to the competitors were not conditioned on the provision of private line services only and the fact that the Commission had never granted AT&T a de jure monopoly over MTS/WATS services.[45]

The Commission's resale policies involve both entry questions and rate regulation questions. Prior to 1976 all of AT&T's tariffs contained provisions barring its customers from reselling service. Resale prohibitions are obviously a necessary strategy to prevent arbitrage of discriminatory tariffs. In 1976 the restrictions on the resale of private line services were

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[44] Domestic Communications Satellite Facilities, 35 FCC 2d 844 (1972), recon., 38 FCC 2d 665 (1972).

[45] See MCI Telecommunications Corp. v. FCC, 561 F.2d 365 (D.C. Cir. 1977), cert. denied, 434 U.S. 1040 (1978), which overturned a Commission decision. Subsequently, in its MTS/WATS inquiry the Commission found that open entry in all interexchange markets is in the public interest. See MTS and WATS Market Structure, Docket 78-72, 81 FCC 2d 177 (1980).

removed; the similar provisions applied to the MTS/WATS tariffs were removed in 1981.[46]

The Commission's entry decisions have not been without controversy. Some believe that allowing entry without designing alternative mechanisms to fund alleged subsidies to intrastate services may require rate increases at the state level. In Docket 20003 the Commission studied these allegations and decided that no harmful effects had been noted to that point.[47] Following the Execunet decisions, however, the Commission convened negotiations between AT&T and the competitors to determine a level of compensation for OCC use of local facilities; the negotiated agreement includes a subsidy component.[48] AT&T has recently requested that a large portion of this subsidy component be eliminated for all carriers.[49]

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46 Resale and Shared Use, 60 FCC 2d 261 (1976), recon., 62 FCC 2d 588 (1977), aff'd sub nom., AT&T v. FCC, 572 F.2d 17 (2d Cir. 1978), cert. denied, 995 Ct. 213 (1978). Regulatory Policies Concerning Resale and Shared Use of Common Carrier Domestic Public Switched Network Services, Docket No. CC 80-54, 83 FCC 2d 167 (1981), recon. denied, 84 FCC 2d 158 (1981).

47 See "Economic Implications and Interrelationships Arising From Policies and Practices Relating to Customer Interconnection, Jurisdictional Separation and Rate Structures," Docket 20003, Second Report, 75 FCC 2d 506 (1980).

48 See Exchange Network Facilities for Interstate Access (ENFIA), CC Docket No. 78-371, 71 FCC 2d 440 (1979). The OCCs refuse to recognize that long lines pays a subsidy. They argue that the BOCs subsidize long lines through prices paid for Western Electric equipment and the license contract payments.

49 This change would require approval of a Federal-State joint board. See Proposal of American Telephone and Telegraph Company and the Associated Bell System Companies for a Revision to the Jurisdictional Separations Process to the Federal/State Joint Board, CC Docket No. 80-286, June 2, 1981.

The Commission has been considering a permanent access charge mechanism to replace the negotiated agreement.[50] The Commission's access charge proposal, however, is not necessarily consistent with the AT&T case settlement and may be modified. The Commission was contemplating independent treatment of the physical and financial aspects of interconnection while the decree requires the BOCs to file tariffs based on non-discriminatory physical and financial access.

4. Jurisdiction

The development of the data processing industry confronted the Commission with the problem of defining its jurisdictional boundaries. The convergence of computer and communications technology became apparent when transmission of data over telephone lines to large CPU host computers became significant in the 1960s. Later developments included distributed processing and the application of computer technology to communications terminals.

In the First Computer Inquiry, decided in 1968, definitions based on existing technology were used to classify services and equipment as communications, data processing or hybrids between the two.[51] Hybrid data processing was "mostly data processing" and would not be regulated while hybrid communications would be regulated. There were at least two problems with this approach. First, technology generated many new products and

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50 See the Second Supplemental Notice, Docket CC 78-72, 77 FCC 2d 224 (1980).

51 Regulatory and Policy Problems Presented by the Interdependence of Computer and Communications Services and Facilities, 28 FCC 2d 267 (1971), aff'd in part sub. nom, GTE Service Corp. v. FCC, 474 F.2d (2d Cir. 1973), decision on remand, 40 FCC 2d 293 (1973).

services that were hybrid, thus forcing the Commission to make many decisions on a case-by-case basis; the result was market uncertainty.

Second, due to a unique set of institutional circumstances, there was a bias in favor of deciding that new AT&T products or services should be regulated. This bias was caused by the decree that settled the Justice Department's 1949 antitrust suit.[52] That decree limited AT&T to regulated markets. A Commission finding that a new product or service was hybrid data processing rather than hybrid communications meant that the product could not be offered by AT&T.[53] The new decree solves this problem for AT&T but a potential problem remains for the BOCs, which are still precluded from offering unregulated services.[54]

In addition, after the Resale decision, a new category of carrier providing value-added network services arose. These carriers add value to pure transmission services. Sophisticated computing technology applied to existing transmission can be used to transmit data more efficiently. These carriers can also change the code and protocol of the data to allow communication between otherwise incompatible computer terminals. The

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52 U.S. v. Western Electric, 1956 Trade Cas. 71 (D.N.J. 1956)

53 Roger Noll, Regulation and Computer Services, undated paper prepared for the study on the Future Impact of Computers and Information Processing, Laboratory for Computer Science, Massachusetts Institute of Technology.

54 Specifically, the BOCs may not "1. provide interexchange telecommunications services or information services; 2. manufacture or provide telecommunication products or customer premises equipment...or, 3. provide any other product or service, except exchange telecommunications and exchange excess service, that is not a natural monopoly service actually regulated by tariff." Modification of Final Judgement, supra note 1, at 5.

regulatory status of these carriers was in question before the Second Computer Inquiry.

The Second Computer Inquiry decision divided all communications and communications related services into "basic" communications, for which traditional public utility type regulation would continue, and "enhanced communications," for which a form of nontraditional regulation would be imposed if necessary. In practice, only carriers that provide both basic service and enhanced services are subject to the nontraditional regulation, and the only carrier affected a priori is AT&T. It is required to form a fully separated subsidiary to offer enhanced products or services. In effect, all enhanced services are deregulated insofar as prior entry approval, tariff requirements, and rate of return constraints are concerned. The 1956 consent decree problem was finessed by a Commission interpretation of the decree that allows AT&T to participate as long as nontraditional regulation in the form of the separate subsidiary requirement and oversight are present.[55]

Initial versions of the decision proposed deregulating only the sophisticated equipment, but the Commission recognized that distinguishing between simple and sophisticated equipment was conceptually the same problem as that confronted in services. Therefore, terminal equipment was deregulated whether sophisticated electronic functions are present or not. The Commission concluded that manufacture and distribution of such equipment is inherently a competitive activity.

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55 Supra note 41. This interpretation of the Decree was sustained by the New Jersey Court. C.A. no. 17-49 (September 4, 1981). The settlement moots this issue since the 1956 Consent Decree provisions are eliminated.

The Second Computer Inquiry decision is not greatly affected by the AT&T case settlement. The regulatory line that has been drawn between enhanced and basic service is still necessary because, by terms of the settlement, the AT&T operating companies can only provide regulated services. Similarly, terminal equipment deregulation will go forward; the decision to place terminal equipment in AT&T rather than in the operating companies implicitly assumes that terminal equipment will be deregulated. The separation of bottlenecks from the unregulated services, however, eliminates much of the rationale for the separate subsidiary. There will be no opportunity to cross-subsidize from local monopoly services and local exchange access will be guaranteed for all services. In Section V below, it is argued that the requirement that AT&T's enhanced service subsidiary purchase basic interexchange switching and transmission services on an arms length basis be maintained for a transition period. This is necessary to prevent AT&T from using its large interexchange market share to compete unfairly in the enhanced services market.

5. Deregulation of Competitive Carriers

The Second Computer Inquiry effectively deregulates the entire enhanced services and terminal equipment markets. At the same time that the Second Computer Inquiry initiative was going forward the Commission began the process of deregulating the new interexchange carriers. The Commission concluded that applying the tools of public utility regulation to nondominant firms not only wastes resources, it can inhibit competition. Thus, in 1980 the Commission dispensed with the substantial information requirements needed to support

nondominant carrier tariff filings.[56] This was accomplished by establishing a presumption that such filings were lawful. The argument is that these carriers cannot unreasonably discriminate, given their lack of market power. Competitive carriers were also exempted from obtaining entry certificates for each new route. The companion proceeding to free competitive carriers from all tariff obligations may be considered by the Commission.[57]

If further proceedings go forward and withstand judicial review, then the only carriers subject to tariff regulation will be AT&T and Western Union. The Domsats were found dominant in the rulemaking phase due to a shortage of satellite capacity caused by the explosive growth of the satellite cable services in the 1970s. The staff, however, has recommended that the Domsats be allowed to charge market clearing prices for satellite transponders in order to put transponders to their most efficient use and to provide accurate market signals for potential entrants.[58]

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56 First Report and Order, Docket 79-242, 85 FCC 2d 1 (1980).

57 Deregulation of Telecommunications Services, Further Notice of Proposed Rulemaking, 84 FCC 2d 445 (1981).

58 Id. In January 1982 the Commission issued a Notice of Proposed Rulemaking that would allow satellite transponders to be sold at market clearing prices rather than leased at regulated rates. See CC Docket No. 82-45, released February 8, 1982.

C. Summary

Entry restrictions have been removed for all interstate communications markets, although legal entry barriers remain for local service and intrastate interexchange markets. Enhanced services have been totally deregulated and terminal equipment will be. Steps have been taken to reduce rate and investment regulation for all carriers except AT&T in the interexchange transmission and switching market. Local exchange and AT&T provided interexchange service deregulation have not been seriously considered by regulatory authorities. The next logical deregulatory steps are to conclude the process of deregulating non-dominant interexchange carriers and begin the process of deregulating AT&T.

IV. DOMINANT FIRM ECONOMICS

AT&T will dominate virtually all of the markets in which it will participate after divestiture of its local exchange operations. Dominant firms allegedly exercise "market power." Therefore, any deregulatory steps beyond those discussed in Section III must confront this market dominance. Dominant firm economics has two elements. First is the analysis of the conditions under which a firm can successfully raise prices above the competitive level, i.e., above marginal cost. The second element of dominant firm economics is analysis of conduct used to acquire or solidify market power, which can be subsequently used to enhance profits. Tie-in sales, refusals to deal, predatory pricing, vertical price squeezes and restrictive distribution practices are all elements of conduct alleged to enhance market power.

The status quo provides the benchmark against which further deregulatory initiatives must be judged. Therefore, the economics of the rate of return regulated dominant firm is discussed first. The economics of the unregulated dominant firm is surveyed next because the nature and extent of possible deregulation depend on predictions about the behavior of a deregulated AT&T.

A. Dominant Firm Regulation

The simple monopoly model has been used in the past to justify regulation and to evaluate the performance of regulated markets. In this model, the monopolist produces an "essential" homogeneous product subject to economies of

scale, with both a stable technology and a stable demand curve. The model predicts that pricing rules such as those implicit in rate of return regulation can limit monopoly pricing.[59]

As noted in Section I, application of regulation has exposed several practical problems. First, the regulatory process can be distorted to produce inefficient results. Capture of the agency, when regulators substitute the goals of the regulated firm for the goal of economic efficiency, is an example.[60] Second, regulation may never have been intended to produce efficient market outcomes; the desire to achieve distributional equity or to shelter suppliers and customers from the costs of rapid change are alternative goals of regulation.[61] Finally, even efficiency oriented regulators may not achieve their objectives; most of the necessary information about demand and cost is either unknown, or in the hands of the regulated firm and not accessible to the regulator.[62]

The discussion here, however, will assume that regulators attempt to maximize economic efficiency. If efficiency oriented regulation by reasonably well informed regulators does not work, then the case for deregulation does

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59 See, for example, James C. Bonbright, Principles of Public Utility Rates, 1961.

60 See George J. Stigler, Theory of Economic Regulation, 2 Bell Journal of Economics and Management Science 3 (1971).

61 Bruce M. Owen and Ronald Braeutigam, The Regulation Game 18-32 (1978).

62 Id. at 4.

not have to rely on institutional failures. Analyses that examine the optimal behavior of a dominant firm faced with a regulatory earnings constraint are discussed below.

Modern theorists have focused on the distortions and regulatory evasion induced when a profit maximizing firm faces a constraint on its rate of return.[63] The distortions that may occur when the regulated firm participates in several markets are of particular interest since AT&T is both horizontally and vertically integrated and will remain so after restructuring.

The effects of regulating dominant firms can be classified into two groups. First are those associated with input selection biases, "gold plating" and internal cross-subsidies. Second are those that may arise when a regulated monopolist participates in more than one market or when competitive firms enter the monopoly markets. The latter are problems such as predatory cross-subsidy, anticompetitive transfer pricing and refusals to deal.

1. Input and Output Distortions

In theory, regulation can prevent the monopoly from exploiting its market power by forcing it to set its price at the level of average cost. But costs, including investments, are under the control of the firm. Profits may be enhanced by adopting a cost structure that an unregulated, profit-maximizing

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[63] See Elizabeth E. Bailey, Economic Theory of Regulatory Constraint (1973) and Charles W. Needy, Regulation Induced Distortions (1975), for analyses of some of these issues. The recent sustainability literature shows that competitive entry may become attractive in one or more of the regulated firm's markets even if single firm production would minimize total costs of production. This theoretical problem with the application of regulation will not be considered here. See John Panzer and Robert Willig, Free Entry and the Sustainability of Natural Monopoly, 8 Bell Journal of Economics 1 (1977).

firm would find unattractive. For example, if regulators allow the rate of return to exceed the cost of capital, but keep prices below the full monopoly level, then the firm will maximize constrained profits by selecting a method of production that uses more capital than would an unregulated firm.[64] The same incentives will lead it to extend the scope of its monopoly franchise, through cross-subsidy if necessary, to expand its rate base.[65]

There is also a suspicion that regulation induces wasteful expenditures.[66] Moreover, regulated firms have an incentive to diversify into unregulated input or output markets in order to evade the earnings constraint through use of artificial transfer prices.[67] Finally, the price structure of a regulated firm may be used to support subsidies to particular consumers or services; these subsidies produce efficiency losses.[68] These practices lead to higher costs and prices than the simple monopoly model of regulation predicts.

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64 Harvey Averch and Leland L. Johnson, Behavior of the Firm Under Regulatory Constraint, 52 American Economic Review 1052 (1962).

65 Id. at 1057.

66 See William G. Shepherd, The Competitive Margin in Telecommunications, in William M. Capron, ed., Technological Change in Regulated Industries 102-103 (1971).

67 John Sheahan, Integration and Exclusion in the Telephone Equipment Industry, 70 Quarterly Journal of Economics 249 (1956).

68 See Richard Posner, Taxation by Regulation, 2 Bell Journal of Economics and Management Science 22 (1971).

2. Competitive Problems

The competitive implications of rate of return regulation have received less attention. Again assuming that regulation keeps prices below the full monopoly level, entry by competitors into a regulated market will reduce the dominant firm's total profits because his rate base will ultimately be smaller. But if the regulated firm serves another market that is protected from entry, then the market subject to entry might be cross-subsidized from the monopoly market to deter entry.

The cross-subsidy can be implemented in several ways including: allocation of the costs of shared facilities to the monopoly service; allocation of the development or marketing expenses associated with the market subject to entry to competitive markets or to general overhead, and reduction of the prices of inputs supplied to the competitive product or service by unregulated affiliates while increasing the prices of inputs supplied to the monopoly market.[69] The reason that regulators might succeed in limiting overall rate of return to a prescribed level and not succeed in preventing cross-subsidy is that regulating broad aggregates is easier than regulating individual price-cost relationships, particularly where there are common costs and a complicated, changing technology.

If a competitor must purchase an essential input from the regulated firm, then denial of access, inferior access or discriminatory pricing can be used to disadvantage or eliminate competitors and maintain regulated firm

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69 See Janusz A. Ordover and Rober D. Willig. An Economic Definition of Predatory Product Innovation, Discussion Paper, forthcoming in Steven Salop, ed. Strategic Views of Predation.

profitability. There are also anticompetitive consequences if a regulated firm chooses to evade a regulatory constraint by using artificial transfer prices to shift profits into an unregulated subsidiary. In this situation purchases might be made from an affiliate even if the affiliate is not the least cost supplier. This behavior does not reduce profits, even in the short-run, because the firm is able to pass on higher costs to consumers of its monopoly service.[70]

Assuming that the regulated firm attempts to maximize profits, it has an incentive to behave in the ways suggested above. It is this incentive, rather than any actual practices, that is relevant here. As long as the incentives exist, regulators and deregulators alike must take them into account.[71]

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[70] These competitive problems flow from the the same incentives that lead to the input and output distortions. In both cases the firm has an incentive to increase its rate base. In the first instance this is done by selecting a technology biased toward use of capital or by using more capital than an unregulated firm. In the second instance the firm seeks to add products or cross-subsidize to prevent erosion of existing rate base. One of the motivations for allowing entry into telecommunications in the first place was to induce efficient performance from the regulated firm, but if the underlying problems are not remedied, the distortions manifest themselves in other ways. See Jerry B. Duvall, The Conceptual Framework of Common Carrier Policy Making at the Federal Communications Commission in Recent Years, in Proceedings of the 1981 Rate Symposium on Problems of Regulated Industries (1981).

[71] Some argue that AT&T is not a profit maximizing firm. It turns out, however, that many of the hypothesised alternatives to profit maximizing behavior are just as likely to induce problems of the type discussed above. See Needy, supra note 63, at 47-48.

B. The Unregulated Dominant Firm

Although regulation produces incentives for a dominant firm to engage in anticompetitive behavior, it does not necessarily follow that deregulation will eliminate all anticompetitive incentives. After deregulation AT&T will continue to dominate most, if not all, telecommunications markets. If this dominance translates into market power, then deregulation may not improve consumer welfare. An understanding of the sources of market power, and the ways it might be exercised, will be useful in evaluating further deregulatory initiatives.

Analysis of the unregulated dominant firm is controversial. Some economists and Appellate Court judges have viewed tie-in sales, refusals to deal, predatory pricing, vertical price squeezes and restrictive distribution practices as tools that can be used to build or maintain market power. In the 1960s and 1970s there was a reaction to this view. Efficiency oriented explanations of these kinds of dominant firm conduct were developed and the rationality of using predatory practices to drive out or disadvantage rivals was questioned.

Thus the threshold question is whether dominant firms do have the incentives and ability to exercise monopoly power. As noted above, there are two dimensions to the exercise of monopoly power. The first is the ability to price above cost for significant periods of time; the second is the ability to "leverage" a monopoly into another market, or protect an existing monopoly, by engaging in anticompetitive conduct.

The "Chicago School" of industrial organization holds that prices cannot be sustained above costs because of the threat of entry, regardless of the structure of the market. A firm with 100 percent of the sales in a given market cannot earn monopoly profits for long if there is a potential entrant waiting in the wings to take advantage of above cost prices.[72] An older view associated with the teachings of Schumpeter holds that exploitation of barriers by a monopolist creates the very conditions necessary for the ultimate destruction of the monopoly.[73] The argument is that high prices stimulate both innovation designed to erode the barriers and shifts in consumer tastes that narrow the monopoly mark-up. If either of these two views is correct, there is little basis for concern over monopoly pricing, except perhaps to the extent government mandated barriers to entry make a market less susceptible to dynamic influences.

If prices cannot be sustained above costs, then predatory pricing cannot maximize long run profits. Any attempt to raise prices after rivals are driven out would simply result in reentry of the rivals. In the meantime, disproportionately large losses would be incurred.[74] If this is true, low dominant firm prices must be evidence of superior efficiency. Similarly, if

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72 See Richard Posner, The Chicago School of Antitrust Analysis, 127 University of Pennsylvania Law Review 925 (1979).

73 Joseph Schumpeter, Capitalism, Socialism and Democracy, 3rd ed. (1950).

74 John S. McGee, Predatory Price Cutting: The Standard Oil (N.J.) Case, 1 Journal of Law and Economics 137, 1958.

vertical squeezes and refusals to deal are observed, then the explanation must be vertical economies or the need to eliminate "free rider" problems.[75]

These theorists have also analyzed the case where a monopoly (perhaps due to patent or franchise barriers) is assumed. Under simplified assumptions about cost and demand conditions, it can be shown that the total value of a monopoly can be extracted by charging high prices in the monopolized market.[76] If so, attempts to extend a monopoly into a related market would be unprofitable. The lesson drawn is that attempts to constrain tie-in sales, exclusive dealing arrangements, and vertical mergers can only reduce efficiency. If there is a monopoly problem, it must be attacked directly.

Other economists, however, believe that the efficiency effects of dominant firm behavior towards competitors and customers in related markets are ambiguous. There are models that suggest that: (1) monopoly overcharges can be sustained in the long run; (2) predatory conduct can be used to eliminate competition, and (3) under plausible assumptions about demand and cost conditions, a dominant firm may have an incentive to extend its monopoly power to other markets.[77] These results depend on assumptions about entry barriers and potential competition.

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75 John S. McGee, In Defense of Industrial Concentration (1971).

76 Posner, supra note 71, at 936-937.

77 Ordover and Willig, supra, note 69 and George A. Hay, An Economic Analysis of Vertical Integration, 1 Industrial Organization Review 188 (1973).

In the remainder of this Section an attempt will be made to identify entry barriers and potential opportunities for the exercise of strategic behavior in telecommunications markets. If deregulation can be justified even if it is assumed that dominant firms have incentives to engage in anticompetitive conduct, then the case for deregulation is more persuasive than it would be if based on the simple model that holds that such conduct never happens. In the next Section it will be argued that existing telecommunications markets may in fact exhibit characterisics that make predatory behavior profitable, but that the divestiture contemplated by the AT&T case settlement solves most of these problems.

1. Entry Barriers

If there are no entry barriers, then even a 100 percent market share does not allow a firm to charge a price greater than cost.[78] Entry barriers have been defined in many ways.[79] To some economists an entry barrier is any market characteristic that allows an incumbent firm to raise prices above cost without attracting entry. The circularity of this definition led George J. Stigler to define an entry barrier as any cost that must be incurred by an

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78 See Elizabeth E. Bailey, Contestability and the Design of Regulatory and Antitrust Policy, 71 American Economic Review 178 (1981) for a discussion of this extreme case. For a criticism of this particular analysis see Robert Preece and Roy Morris, Alternative Rational for Market Deregulation, Office of Plans and Policy Working Paper, forthcoming.

79 See Harold Demsetz, Barriers to Entry, 72 American Economic Review 47 (1982) for a discussion of the various definitions.

entrant that the incumbant firm has not itself incurred.[80] To Stigler, scale economies are not an entry barrier if the potential entrant could produce the same output at the same cost as the incumbent. Scale economies are barriers by the first definition because in the extreme case a natural monopolist can charge high prices without attracting entry.

C.C. Von Weizsacker defines entry barriers as "...a cost of producing which must be borne by a firm which seeks to enter an industry but is not borne by a firm already in the industry and which implies a distortion in the allocation of resources from the social point of view."[81] Scale economies are not necessarily a barrier to entry by this definition since entry would raise the cost of production; the benefits of having an additional competitor may or may not exceed these costs.

The next Section considers the costs and benefits of deregulating AT&T. If it can be shown that AT&T will not be able to raise price above cost after deregulation, then it is not necessary to perform the social welfare analysis required under the Von Weizsacker definition. Therefore, the first definition is useful for present purposes. Any structural characteristic of a market that will prevent potential entrants from taking advantage of prices above cost will be considered a barrier to entry. If necessary a welfare analysis can determine whether steps should be taken to reduce barriers, if any are found.

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80 See The Organization Of Industry 67 (1968).

81 A Welfare Analysis of Barriers to Entry, 11 Bell Journal of Economics 400 (1980).

Entry barriers have been attributed to a number of factors including scale economies, capital market imperfections, lack of name recognition, rapid output adjustment costs, or patent positions held by the dominant firm.[82] The recent economics literature has focused on market specific capital or sunk costs as a barrier to entry. William Baumol and Robert Willig use the example of railroad engines versus roadbed to illustrate the sunk cost concept.[83] Purchase of an engine is a fixed cost while construction of the roadbed is both a fixed and a sunk cost. If entry is unsuccessful, the engine can be sold in a second-hand market or used by the firm in another market. The cost of the roadbed, however, cannot be recovered since it has no economic value other than in providing service between the two points it connects. If a potential entrant must incur significant sunk costs, the cost of failure is high and he may be deterred from entering.

Three related lines of entry barrier analysis will be discussed here. The first takes the existence and height of entry barriers as given and analyses the optimal pricing behavior of the dominant firm. The second is based on the insight that, under certain circumstances, the height of entry barriers may be under partial control of the dominant firm; these endogenous entry barriers provide an opportunity for strategic behavior aimed at ensuring long run profitability. The third line of inquiry takes entry barriers as

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82 See the survey in Scherer, supra note 30, at 229-266. Richard Posner, supra note 71, at 929-931, presents a criticism of the concept of entry barriers.

83 William J. Baumol and Robert D. Willig, Fixed Costs, Sunk Costs, Entry Barriers, Public Goods, and Sustainability of Monopoly, 96 Quarterly Journal of Economics 405 (1981).

given, but asks what types of strategic dominant firm conduct towards competitors best exploit the barriers.

2. Limit Pricing

In the limit pricing model the dominant firm selects profit maximizing price, given the presence of exogenous entry barriers.[84] For example, scale economies may be so extensive relative to the size of the market that entry would significantly expand industry capacity. If the incumbent holds output at the pre-entry level, price would fall significantly. Therefore, the established firm will select a price above costs but low enough to prevent the entrant from earning a profit after entry induces a price reduction. This price, referred to as the limit price, deters entry.

This model has been extended by Darius Gaskins.[85] Gaskins assumes that entry into a market occurs gradually, at a rate that depends on the markup set by the dominant firm. The time lag before entry takes place can be thought of as a barrier. The Gaskins "dynamic limit pricing" firm sets a price in each period designed to maximize firm net worth. The firm may charge a higher price than a static limit pricing firm would initially. Market share would erode as entry occurs but the firm would have earned high profits in the early years. One obvious implication is that deregulation of a monopoly market may

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84 See Franco Modigliani, New Developments on the Oligopoly Front, 66 Journal of Political Economy 215 (1958).

85 See Darius W. Gaskins, "Dynamic Limit Pricing: Optimal Pricing Under Threat of Entry," 3 Journal of Economic Theory 306 (1971). Gerald W. Brock, The Telecommunications Industry (1981) presents a dynamic limit pricing model and applies it to the telecommunications industry.

lead to dynamic limit pricing and above cost prices for a time, even if the long run equilibrium for the market is a competitive price.

3. Endogenous Entry Barriers

Michael Spence has investigated the strategic uses of excess capacity as an entry deterrent.[86] While the limit pricing firm deters entry with low prices, the Spence firm deters entry by investing in capacity. The dominant firm determines the level of capacity that would not allow an entrant to earn a profit, if fully utilized. The potential entrant knows that the dominant firm has the capacity to increase production and drive prices down to this competitive level. Therefore, entry will not take place even if the dominant firm prices above cost.

Spence has also developed a model of investment strategy in a new, rapidly growing market.[87] Without delving into the technical arguments, the basic result is that in a market that exhibits scale economies or learning curve effects, initial entrants will have an incentive to "preempt" a large market share by investing as rapidly as possible up to an optimal size.

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86 A. Michael Spence, Entry, Capacity, Investment and Oligopolistic Pricing, 8 Bell Journal of Economics 534 (1977).

87 Investment Strategy and Growth in a New Market, 10 Bell Journal of Economics 1 (1979).

Therefore the market will have fewer competitors. Spence assumes market performance may suffer due to tacit or explicit collusion.[88]

4. Strategic Behavior

Ordover and Willig have developed a general framework that can be used to analyze dominant firm behavior toward actual and potential rivals.[89] They begin by making two assumptions about entry. First, "...a market must be protected by a form of entry barriers term [ed] entry hurdles. These exist whenever the prospective entrant is cost disadvantaged vis-a-vis the incumbent solely because the incumbent is already functioning as an ongoing concern, while the entrant has not yet committed the requisite resources."[90] Second, the "...market must be characterized by the presence of reentry barriers. A reentry barrier is defined as the additional cost which must be incurred by a firm which has exited in order to restart its operations."[91] An entry hurdle may be caused by high sunk costs. A reentry barrier occurs when there are start-up costs associated with reentry even given the presence of the initial sunk investment.

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88 In both models Spence assumes that the investment in capacity is irreversible. This irreversibility makes the threat to expand output when entry occurs credible and plays a role similar to sunk costs in the contestability literature. Moreover, the only disadvantage that potential entrants necessarily face is the fact that they have not yet entered.

89 "An Economic Definition," supra note 69.

90 Id. at 4.

91 Id.

Ordover and Willig investigate exclusionary vertical mergers, predatory product innovations and product redesign, and refusals to deal.[92] Of particular interest is "system" pricing. The essential characteristic of a system is that two or more complementary products are combined by suppliers or customers to provide a final product or service. Examples used by Willig and Ordover are cameras and film, computer mainframes and peripheral devices, and local telephone loops and intercity microwave. A firm with a dominant position in one, but not all, of the system components may be able to disadvantage competitors who supply the non-monopolized components. For example, bundling the system components together would require components competitors to enter the monopoly component market, which by definition is subject to entry hurdles. Bundling is the equivalent of a refusal to deal with customers who wish only to buy the monopoly product (sometimes referred to as a tie-in sale). Similarly, the dominant firm can price the non-monopoly components below cost with the same effect. Finally, the dominant can introduce a new monopoly component incompatible with competitors' components to drive out or substantially disadvantage competitors.

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92 Predatory conduct is "...defined as a response to a rival that sacrifices part of the profit that could be earned, under competitive circumstances, were the rival to remain viable, in order to induce exit and gain consequent additional monopoly profit." Id. at 3. For example, suppose that in the face of entry a dominant firm can maintain prices at the preentry level and earn profits of X dollars. But the dominant firm instead reduces prices below cost, drives out the entrant and earns profits of X + D. If, under the counterfactual hypothesis that the entrant remains viable in the face of the price reduction, the dominant firm would earn profits of X - D, less than the profits it would have gained by maintaining preentry prices, Ordover and Willig classify the price reduction as predatory.

Although not discussed by Ordover and Willig, another case in which a dominant supplier of a key component might wish to eliminate rivals could arise when the presence of strong component suppliers could have the effect of eroding entry barriers at the monopoly level.[93] Pricing aimed at removing rivals could be viewed as an investment in maintaining entry barriers analagous to the Spence monopolist's investment in capacity.

It is clear that the dominant firm can engage in this kind of behavior. The question is when, if ever, it would find it worthwhile to do so. System components are, by definition, complements. Everything else equal, a competitive market for the nonmonopoly component will stimulate demand and increase profits on the monopoly component. Consider, however, a case where, instead of purchasing the monopoly component, consumers can purchase an inferior alternative at a price higher than the dominant firm's costs, but below his price. Consumers may purchase the alternative and reduce dominant firm profits, therefore, an incentive may exist to monopolize the other components to choke off demand for the alternative.

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[93] Paul Joskow and Allen Klevorick refer to this as an "entry point" submarket. See "A Framework for the Analysis of Predatory Pricing, 89 Yale Law Journal 213 (1980).

C. Conclusion

The controversy between the Chicago School and those who believe that dominant firms exercise market power obviously cannot be resolved here. The models discussed above illustrate hypothetical situations in which predatory or exclusionary conduct can enhance long run dominant firm conduct. But the real world incidence is questionable. Price reductions, system design changes, and failure of existing rivals cannot, by themselves, be taken as proof of predation. Therefore, remedial policy should not be applied simply because a given market exhibits the structural preconditions that make predatory behavior a viable strategy.

Deregulation of a dominant firm, however, requires that the potential for anticompetitive conduct be identified and steps be taken to limit such behavior if the benefits exceed the costs. If entry is constrained due to a time lag, the dominant firm has degrees of freedom to engage in strategic conduct that may reduce competition. The dominant market position of AT&T may be the result of past regulation rather than dynamic market forces. Therefore, it may be appropriate to design transitional deregulatory measures to limit the potential for anticompetitive behavior.

V. TELECOMMUNICATIONS COMPETITION AND DEREGULATION AFTER RESTRUCTURING

This Section discusses the costs and benefits of interexchange deregulation in light of the potential competitive problems identified in the previous Section. Particular concerns are: (1) simple monopoly pricing of interexchange services; (2) monopoly pricing of telecommunications network equipment, and (3) use of the interexchange or equipment monopolies to compete unfairly in the enhanced service and terminal equipment markets. The conclusion is that ultimate deregulation is desirable.

The restructuring contemplated by the 1982 decree will take a number of years. During this period the threat to competition posed by AT&T's market power will be acute. Therefore, regulation in this transition period is a very important subject. However, it is discussed only briefly at the end of the section. The majority of this section assumes that restructuring is complete so competitors have equal or nearly equal access to the local distribution networks owned by the divested operating companies. It is only after this point that a market test of competition is possible. [94]

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94 Restructuring will not occur until 18 months after the judge approves the settlement. Thereafter, there will be a transition period during which equal access will be phased-in. By September 1, 1986, the BOCs must offer access to all interexchange carriers "...that is equal in type and quality to that provided for... AT&T...." Modification, supra note 1, at Appendix B. Brock, The Telecommunications Industry, supra note 85, concludes that deregulation is desirable even absent restructuring. The Wirth Report, supra note 12, seems to conclude that deregulation would be undesirable even with restructuring.

A. Monopoly Pricing of Interexchange Services

The first question is whether AT&T would be able to extract monopoly profits by pricing interexchange toll services substantially above costs. Anticompetitive problems that might be caused by the continued vertical relationship between Western Electric and AT&T's interexchange services are considered in part B.

As noted in Section II, there are several product and geographic submarkets within the broadly defined interexchange transmission and switching market. For example, the "toll connecting links" used to connect rural exchanges to toll switching centers in urban areas may constitute separate geographic submarkets because they differ substantially from transmission and switching among urban areas in their potential for competition. Similarly, a submarket for large businesses is distinguishable from the residential and small business submarket, at least in terms of demand characteristics. On the supply side, private lines can be distinguished from the switched MTS and WATS markets.[95] Once equal interconnection is achieved, however, the service submarkets will be equally subject to competitive forces. Therefore, this Section will focus on the switching and transmission services market in general rather than on the service submarkets individually. The urban interexchange market is discussed first.

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95 See Jerry Duvall and Michael Pelcovits, Reforming Regulatory Policy for Private Line Telecommunications Services: Implications for Market Performance, FCC, Office of Plans and Policy, Working Paper #4, December 1980 for a more comprehensive discussion of basic interexchange market definition.

1. Urban Interexchange Deregulation

The potential effects of deregulation assuming continued monopoly are discussed first. Technological changes that have altered entry conditions are discussed next. The "cream skimming," or regulation induced entry, hypothesis is discussed third. Current levels of competition are discussed fourth. Ways to deal with AT&T's transitory market power are discussed fifth. Finally, the problems posed by the potential of continued intrastate toll regulation are detailed.

a. deregulated monopoly

Before discussing interexchange switching and transmission competition, it will be useful to discuss the potential costs and benefits of deregulation, even assuming a continued interexchange monopoly.[96] With complete deregulation all of the perverse incentives induced by regulation that were discussed in the previous section would come to an end. Input biases, output distortions, gold plating, and the direct costs of regulation all result in costs. Under regulation these costs are passed on to the ratepayers, but with deregulation the monopolist could reduce its costs and earn higher profits. There would be pressure to eliminate internal subsidies because pricing below marginal cost in previously subsidized markets would be unprofitable; any resource allocation distortions caused by interservice cross-subsidies would

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[96] See Nina W. Cornell, Daniel Kelley and Peter R. Greenhalgh, Social Objectives and Competition in Common Carrier Communications: Incompatible or Inseparable? in Harry M. Trebing, ed., Energy and Communications in Transition 43 (1980) for a discussion of these issues in greater depth.

be eliminated. All else equal, each of these changes would increase economic efficiency and improve consumer welfare.[97]

The extent to which the benefits of deregulation would be offset by monopoly pricing depend on (1) the costs of the regulation-induced distortions; (2) the costs incurred by the firm in complying with regulatory requirements; and (3) the past success of the regulators in keeping prices reasonably close to distorted cost levels. The net result of all these factors is that regulated prices may already be at the level where they would be in an unregulated environment. With deregulation, the dominant firm could simply retain (as additional profits) resources previously spent on regulatory compliance and evasion. Moreover, if regulation has acted as a bar to the development or deployment of new technology, the dynamic efficiency that will be induced by deregulation could have substantial positive effects on prices in the long run. Finally, profit maximizing behavior by a monopolist often requires price reductions when costs fall.[98] If deregulation increases productivity, then future monopoly prices may well be below future regulated prices, even assuming otherwise efficient regulation.

Without quantifying all of these variables, there is no way of knowing whether unregulated prices would exceed current prices. But to the extent a market is characterized by substantial entry barriers and inelastic demand, regulation may have kept prices below a monopolist's profit maximizing

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97 There would, of course, be income distribution effects to the extent markets and submarkets are currently subsidized.

98 See Oliver Williamson, Economies as an Antitrust Defense: The Welfare Tradeoffs, 58 American Economic Review 18 (1968).

level. Natural monopoly conditions, for example, may deter entry indefinitely; lesser entry barriers may allow a dominant firm to engage in monopoly practices in other markets. In this case, monopoly overcharges by a deregulated dominant firm could be significant or even substantial. Thus, a discussion of entry conditions and the potential for competition follows.

b. barriers to entry

As noted in the previous Section, sunk costs can be an important factor in establishing entry barriers. Prior to the widespread use of microwave and satellite technology, the ratio of sunk costs to total costs was very high. Anyone wishing to compete with AT&T prior to the development of microwave (assuming the Commission would have allowed entry) would have had to negotiate rights-of-way for every foot of cable. If entry proved unsuccessful, a large portion of the cost of obtaining and building right-of-way would have been lost. Microwave technology, however, allows potential competitors to limit right-of-way negotiations and acquisition costs to tower sights every 20 to 30 miles along a communications path, depending on the terrain. It appears that the major current constraint on obtaining rights-of-way are the environmental and zoning clearances needed for microwave towers.[99]

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99 Empirical research and market experience demonstrate that economies of scale in point to point microwave markets are exhausted at relatively low levels. See Leonard Waverman, The Regulation of Intercity Telecommunications, in Almarin Phillips, ed., Promoting Competition in Regulated Markets 201 (1975).

Satellite technology provides telecommunications carriers with great flexibility in serving new cities. The cost of adding a city to a satellite network is limited to the cost of an earth station plus the local facilities. Costs are coming down as earth station technology advances. Although satellite transmission cannot now compete with microwave transmission for calls between cities less than 500 miles apart, reduced earth station expenses and expanded capacity satellites allowed by newer technologies will reduce this figure.[100]

AT&T may possess absolute cost advantages attributable to its well developed network. One possible source of absolute cost advantage is the ability to engage in alternate routing. Alternate routing provides the ability to use a network more efficiently by routing traffic between point A and point B through facilities at point C when all of the direct A to B trunks are occupied. For example, calls made early in the business day between New York and Washington D.C. can be routed through unoccupied trunks in other time zones. MCI and Southern Pacific, however, have well developed networks with redundant paths and can take advantage of these economies already. Satellite networks, such as the one being developed by SBS, are constrained only by the absolute capacity of their satellites and thus are inherently more efficient than land based networks in their ability to capture networking economies. Finally, the newer networks have the potential advantage of employing state of

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100 There are currently four satellite systems in operation and several more are planned. Although there has been a shortage of satellite capacity caused by the explosive growth of pay cable services, projections indicate that capacity problems will ease in the near future. See Larry F. Darby, Report on Transponder Availability, 1981-1984, May 18, 1981 (submitted in an undocketed FCC proceeding).

the art network equipment while AT&T must operate with substantially older and less efficient equipment.

c. cream skimming

It has been argued that in spite of the evidence that new technology has altered the cost characteristics, AT&T still has a natural monopoly and only the presence or the effects of regulation allow the OCCs to survive. In Docket 20003, AT&T argued that OCC entry in the private line market could be explained only in terms of "cream-skimming," i.e., the OCCs taking advantage of AT&T's average cost pricing that allegedly subsidizes low volume microwave routes from revenue on high volume, low cost routes.[101] If so, then deaveraged toll rates would eliminate the OCCs. Similarly, it has been argued that OCC entry into MTS/WATS markets is feasible only because the OCCs do not pay the full subsidy to local services that is paid by AT&T. There are good reasons, however, to believe that technology rather than regulation is keeping the OCCs in business.

The cream skimming argument has never been proven by AT&T in spite of the incentive it has to do so. AT&T's attempt to deaverage private line rates, the so-called hi-lo tariff, was rejected by the Commission due to a lack of cost justification.[102] This is not suprising given the empirical evidence that microwave transmission scale economies are not large enough to preclude

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101 Supra note 47.

102 Docket No. 19919, 55 FCC 2d 224 (1975). AT&T provided data on both a fully distributed cost and an incremental cost basis. Neither of the cost estimates was found acceptable.

competition. Thus, there is no reason to believe that cream skimming arguments have merit.

The argument that the OCCs do not pay the same subsidy that long lines pays to interstate services has similar defects. First, even assuming that the OCCs pay less than a full subsidy, at present they receive an inferior grade of interconnection that makes it more difficult for them to compete with AT&T. If interconnection were improved, they could charge more for their services and pay a higher subsidy. Second, given AT&T's present vertically-integrated structure, there is simply no way of determining the extent of any actual subsidy. Internal revenue flows within the Bell system may have the effect of placing cost burdens on the local exchanges. For example, pricing distortions within Bell Labs and Western Electric could have the effect of raising prices for local exchange equipment while reducing microwave prices. There is an incentive to allocate a disproportionate level of costs to local exchange services both because interexchange services are subject to competition and because the demand for interexchange services is more elastic than the demand for exchange services.[103]

In summary, there is sufficient reason to believe that the interexchange market is potentially competitive. Such a test, however, will not be possible until the OCCs receive more favorable terms of physical interconnection and

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103 See Taylor supra note 21.

the Bell System is restructured to guarantee that internal revenue flows do not distort the underlying costs of service.[104]

d. current levels of competition

The interexchange market is not a sunk cost monopoly of the type discussed in the previous Section. Neither, however, does it appear to be free of all barriers to entry. First, to be an effective competitor in the switched services market, an OCC must have a well developed network. A network that only serves a few cities is attractive only to a firm putting together its own private line network or a business that happens to have a great deal of traffic between the cities on the network. A user whose calling needs involve substantial off network calls has little incentive to incur the expense of bargaining and dealing with an additional supplier. This contrasts with the airline market where point to point operation can be profitable.

A number of OCCs, however, have developed extensive facilities-based networks. In addition, the Commission's 1976 private line resale and 1980 MTS/WATS resale decisions (discussed in Section III) allow OCCs to complete their networks by using resold AT&T circuits to reach points off their own networks. While there is probably some minimum efficient size for networking, this size is undoubtedly well short of the maximum possible sized network. It turns out that a substantial portion of all interexchange calls are between a

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104 Not all OCCs may desire equal interconnection. Some may prefer to continue to serve a low quality, low price submarket. They should, however, be given the right to such interconnection as a starting point in order to insure non-discrimination. See Roy Morris and Robert Preece, Negotiating for Improved Interconnection: The Incentives to Bargain, Office of Plans and Policy, Working Paper #7 (1982).

relatively small number of cities and are made by a relatively small number of firms.[105] In this situation, competitors do not have to reach every point served by AT&T in order to limit the exercise of market power. General price increases not justified by cost will enable the OCC's to increase their market shares.

Selective price increases to points not served by the OCCs will invite entry, assuming enough business is involved to justify the facilities construction. Even without facilities construction, attempts by AT&T to raise prices for calls from cities not served by the OCCs will invite the OCCs to use 800 services (in WATS) to allow those customers access to their networks, thus placing a definite limit on the prices AT&T can extract from those markets. The complexity in pricing that would be involved in AT&T attempting to price discriminate on calls to or from cities not served by OCCs also acts as a deterrent. (Much existing rate averaging may be attributed to the complexity rather than to any specific desire to subsidize high cost points on the network).

AT&T could potentially refuse to allow resale of its services after deregulation (as it did prior to the Commission's resale decisions). This would raise entry barriers. Two remedies are available. First, the Commission could require AT&T to make capacity for resale available even after elimination of rate of return regulation. This might require continued

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105 In 1976 50 percent of all interstate business MTS and WATS billings were generated by the 32 largest metropolitan areas; 3.9 percent of the interstate long distance customers generated 61.7 percent of total revenues. See The Dilemna of Telecommunications Policy, exhibit 8, submitted to Congress September 21, 1977.

tariffing (but not rate of return regulation or cost justification) of AT&T services. Alternatively, the Commission could deregulate entirely, leaving the question of resale to the antitrust courts. Refusals to deal by firms with dominant market shares have in the past been found to violate antitrust laws.

e. transition regulation

In the long run, then, it appears that monopoly pricing by AT&T will lead to erosion of market share as competitors expand to take advantage of opportunities to earn a share of the monopoly profits. Eventually AT&T would no longer be able to earn supercompetitive profits. The long run, however, may be several years away. AT&T's current share of the interexchange market is well above 90 percent. Its share of capacity may be even higher. The existing OCCs appear to be growing as rapidly as their financial resources and ability to acquire rights of way allow.

If AT&T were to raise prices immediately, it would continue to serve most of the market until competitors' capacity increased.[106] The Gaskins dynamic limit pricing model discussed in the previous Section suggests that a firm such as AT&T might employ this very strategy, taking short run profits but sacrificing profits downstream. An historical analogy is provided by U.S. Steel, a dominant firm constructed by merger in the early part of the

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106 It is assumed here that prices are currently less than their short run profit maximizing level. If through regulatory evasion and cost shifting AT&T has achieved the short run profit maximizing price, then further increases would by definition reduce profits and would not be attempted.

century. U.S. Steel allowed its market share to erode over time while earning monopoly profits.[107]

One solution to this potential problem is to deregulate gradually, limiting AT&T price increases over a transition period while competitors plan and build their networks. This transition could be handled in several ways. One alternative is to retain a restraint on the overall rate of return while allowing AT&T to choose individual prices as it pleases. Another is to drop the rate of return constraint, while limiting tariff increases to a range of reasonableness determined by cost increases. The airline case, where carriers were given increasing fare flexibility around a standard industry fare level, might be applied here.[108]

The length of time required for this transition depends on the rate at which competitors can expand. MCI, the largest OCC, has grown very rapidly. According to MCI's 1981 Annual Report, revenues increased by 52 percent and 11.5 million channel miles of transmission capacity were added in 1980. By the end of 1980 its network had grown to 70 metropoliton areas. MCI currently serves over 150 cities. As noted above, a major barrier to growth is acquiring and building rights-of-way. Once a route is installed, however, it can be upgraded for higher capacity more easily than establishing a new route. This means that OCCs that have reached a "critical" sized network may be able to add capacity more rapidly subsequently. The largest increment to capacity, however, will likely come from the new satellite carriers. The

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107 See George J. Stigler, The Dominant Firm and the Inverted Umbrella, 8 Journal of Law and Economics 167 (1965).

108 See Bailey and Panzer, supra note 79.

Commission has authorized four new satellite systems and is considering changing satellite spacing standards to allow even greater capacity. Although there has been a recent shortage of capacity due to the large growth in the demand for satellite video services, this new capacity should allow for future growth of both video and non video satellite services.[109]

The previous Section discussed predatory pricing as a strategy that might be used by a dominant firm to reduce competition and thus reap future monopoly gains. With restructuring, however, the most significant incentive AT&T might have had to engage in this tactic will be removed. With control over the bottleneck local loops, AT&T could shift costs to the local exchanges without reducing total firm profits or could provide interexchange competitors with inferior access arrangements. Absent control over the local loops, predatory conduct becomes less profitable. Substantial price reductions for interexchange services would result in permanent revenue losses. Moreover, since AT&T controls such a large share of the market, it would impose a substantially greater monetary penalty on itself than on its competitors. The threat of resale would make selective service cuts unattractive as well. The OCCs could simply take advantage of the below cost rates by reselling to others.

If safeguards against predatory pricing are desired anyway, there are several options. One is the same as discussed for monopoly pricing--a short run constraint limiting price reductions to a certain amount. Another alternative is to force the dominant firm to live with the price reductions

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109 See Darby, supra note 99.

even after exit from the market takes place.[110] A third possibility is to rely on the antitrust laws, although it is unlikely they could effectively combat this strategy because, as noted in the previous section, it is very difficult to distinguish between strategic behavior and price reductions designed to meet competition. If either of the first two solutions are adopted, they should be employed only for a short time since they are regulatory measures, albeit of a different sort than currently applied, and would result in regulatory costs.

The previous section also discussed strategic behavior short of classic predatory conduct. For example, as a dominant firm, AT&T might maintain substantial excess capacity as a credible entry deterring mechanism.[111] Entrants and fringe competitors would be discouraged from entering or expanding, knowing that a retaliatory price cut would reduce post entry profits. As noted in the previous Section, however, the threat of entry does constrain profits below the profit maximizing level. Even if this entry deterrence strategy is viable, the resulting price output combination might be superior to the existing result under regulation.

f. the intrastate toll problem

The discussion to this point has assumed that both intrastate and interstate interexchange service would be deregulated together. Many states,

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110 See William J. Baumol, Quasi-Permanence of Price Reductions: A Policy for the Prevention of Predatory Pricing, 89 The Yale Law Journal 1 (1979) for a discussion of this particular regulatory technique.

111 See the discussion of the Spence model infra.

however, do not allow entry into intrastate toll markets. In such states, AT&T might be able to shift costs from its interstate services to its intrastate services and thereby underprice services for which there is competition. Knowing in advance that AT&T has this ability might deter interexchange market entry.

This argument assumes that the state regulators would allow the necessary intrastate rate increases. The states typically resist upward rate pressure, whether justified or not. AT&T's main problem may be to keep intrastate prices even as high as cost. But even assuming that AT&T would have its way with state regulators, the Commission could require consistent cost allocation among jurisdictions. This would not prevent all potential abuse but could limit the problem significantly. A superior solution would be Commission jurisdiction over intrastate interexchange services, which could be obtained either by preemption or by legislation.[112]

2. The Toll Connecting Link Problem

While economies of scale in microwave transmission are not sufficient to prevent competition in most point to point transmission markets, there may be some very "thin" markets that are true natural monopolies. For example, if small satellite earth stations are infeasible, then transmission of telephone calls from a remote rural area to an interexchange carrier's switching center might be such a situation. This would cause two types of problems. First, the monopolist might be able to price the service high enough to extract

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112 Recent proposals to amend the Communications Act have contained this provision. See S898 and HR5158.

substantial monopoly profits. Second, the cost of providing the service might be so great that not enough customers would use it to justify continued operation even if priced at cost; the link would not be supplied and the remote rural area would not be part of any interexchange network.

If the concern is with monopoly pricing, then the solution is to define toll connecting links as an exchange access service to be offered by local telephone companies. The service could then be regulated by state utility commissions. If the problem is that the service would not be offered at all, then the solution is to subsidize it. Direct subsidies from the treasury are optimal, but if infeasible, the necessary subsidy could be generated internally to the telephone system by providing toll connecting link operators with revenues collected from interexchange carriers or from urban exchange carriers.[113]

There are, of course, potential problems with these approaches. If economies of scale do not exist or are eliminated by a new technology such as satellite, a potentially competitive service will have been subjected to needless, inefficient regulation. An improperly designed subsidy mechanism may distort the development of technology. Thus, this proposal is not entirely satisfactory.

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[113] Both of the legislative proposals cited in the previous footnote contain provisions of this sort. Cornell, Kelley and Greenhalgh, supra note 95, argue that if these subsidies are necessary, they should be implemented in ways that minimize disincentives to invest in cost reducing technology.

B. Monopoly Pricing of Network Equipment

Western Electric and the Bell Telephone Laboratories will remain AT&T subsidiaries after restructing. As noted in Section II, Western is the dominant manufacturer of telephone equipment in the United States and Bell Labs is the largest telecommunications related research and development operation. Western and Bell Labs have been operated as captive suppliers to the Bell System with only a minimal amount of sales to non-government, non-Bell entities. AT&T maintains that prices have been effectively constrained by a corporate policy to keep Western Electric's rate of return near the regulated rate of return for the system as a whole.[114] If this is true, then after restructuring, AT&T may choose to run Western as a profit maximizing firm and begin exercising monopoly power in the equipment markets it dominates.

As in the discussion about Long Lines pricing, the first question to be considered is whether the system of implicit rate of return regulation has actually kept Western prices below the monopoly level. Although the BOCs and Long Lines were free in principle to purchase equipment from non-Bell vendors, Western received most of the business.[115] Without the competitive spur to efficiency, Western prices may have been inflated by artificially high costs. The vertical relationship between the Bell System companies may also

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114 See statement of Dr. J. M. Brown, vice president, Western Electric Co. in Industrial Reorganization Act, Hearings before the Antitrust and Monopoly Subcommittee of the Senate Judiciary Committee, 93rd Congress, 2d Session, part 6, at 4400 (1974).

115 See the Wirth Report, supra note 12, at 182-183.

have served to reduce the rate of innovation since the incentive of independent manufacturers to develop technology was reduced by the vertical link.[116]

Nevertheless, as in the previous discussion, it is assumed arguendo that prices for Western products have been effectively limited and the implications of restructuring will be explored. Since the continued affiliation of Western Electric with AT&T adds a degree of complexity to the problem, the analysis will be divided into two parts. First, it is assumed that the interexchange and enhanced service relationship will have no effect on AT&T strategy for Western pricing so the equipment markets can be analyzed independently. Second, this assumption will be relaxed and the potential effects of continued vertical integration will be explored.

1. Horizontal Market Power

There are several telecommunications equipment markets. This discussion will focus on two broad markets, the market for local exchange equipment and the market for interexchange equipment. The terminal equipment market is discussed in the next part of this Section.

Barriers to entry into telecommunications equipment manufacturing vary with the individual product lines. In general, there is no reason to suppose that they are large. Microwave radio and communications satellite production technology is widely held. Switching is based on digital computer technology, which is also widely held. There may, however, be individual product lines

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116 See Shepherd, The Competitive Margin in Telecommunications, supra note 66, at 86-122.

where large fixed costs create falling average costs over the entire range of production. In addition, as the near exclusive supplier to AT&T in the past, Western may have acquired some inherent cost advantages over potential entrants. The ability to take advantage of these cost advantages would be limited to the amount of the cost advantage itself, because higher prices would allow alternative suppliers to successfully contract for the business.

The primary concern over monopoly pricing of equipment is that Western will be able to raise prices substantially in spite of the fact that the BOCs will have no continuing common ownership incentive to favor Western products. If restructuring were to take place today, alternative suppliers would not have the ability to supply the vast demands of the BOCs. AT&T's annual construction budget was 17.3 billion dollars in 1980.[117] It would take some time for competing equipment manufacturers to expand capacity to compete for a significant share of this market. In this time Western might raise prices _a la_ the Gaskins model. But Western has no inherent advantage in producing this equipment, so entry would ultimately be attracted if prices were raised. By overcharging the BOCs, Western would risk the loss of a substantial market.

Another potential problem is the previously noted continuing advantage that Western might have as the past supplier to the Bell System. Since alternative suppliers have had little success in selling to the Bell system, only Western has the current capability to manufacture equipment to Bell System specifications, which the new BOCs may be locked into for some time.

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117 Bell System Statistical Manual, supra., note 14, at 606.

This problem, however, would seem to be more significant at the interexchange level than at the exchange level. State of the art local switching and transmission technology is digital rather than analog. As noted above, the technology used in digital switching is the same technology used in the highly competitive computer industry. The manufacturers serving the independent telephone industry have developed these products. AT&T's digital local switch has been developed only recently. Meanwhile alternative suppliers are providing the 1500 independent telephone companies with digital switches.

AT&T's interexchange network uses Western Electric installed switches almost exclusively. Attempts by alternative suppliers to enter this market will be difficult because the software development has been done.[118] Whether this will be a problem, however, must be considered in the context of the vertical relationship that will continue to exist between Long Lines and Western Electric, which is discussed next.

2. Vertical Problems

If the interexchange competition discussion is correct, then it appears that AT&T would have little ability to attempt to earn monopoly profits on its interexchange equipment submarket monopoly. High prices for this equipment can only benefit the firm if competitors must purchase it as well (see the discussion on vertical squeezes in the previous Section). But the existing competitors rely on other suppliers for their switches and microwave equipment. Charging itself high prices will only reduce interexchange

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118 The plug compatable computer market, however, has developed along competitive lines in spite of disadvantages such as this.

revenues--robbing Peter to pay Paul. AT&T will presumably charge the profit maximizing price for its interexchange services with or without an equipment subsidiary. To the extent Western provides AT&T cost advantages over its interexchange competitors, AT&T could underprice competitors, but again, the extent to which AT&T could subsequently earn monopoly profits is limited because at some price entrants could expand.[119]

C. Enhanced Services and Terminal Equipment

The Commission has decided that the enhanced services and terminal equipment markets are competitive or potentially competitive, even with the vertical link between AT&T and the local exchanges.[120] In general, restructuring only reinforces the argument implicit in the Commission's decision to allow AT&T into these markets. Interexchange transmission, however, is an essential input into most enhanced services. The question of whether the deregulation of interexchange services can adversely affect enhanced services competition should be considered. First, however, it will be useful to review briefly the underlying rationale for enhanced services deregulation.

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119 If it is assumed that this argument is incorrect, divestiture of Western from AT&T could actually reduce efficiency. Competition at the interexchange level provides AT&T an incentive to keep its own underlying equipment prices at competitive levels. If Western were an independent entity, it would wish to maximize profits on the sale of interexchange equipment. Therefore, it might raise prices above the levels that an integrated firm would charge.

120 See the discussion of the Second Computer Inquiry in Section III infra.

1. The Rationale for Deregulation

AT&T's market power, at least as measured by market share and entry barriers, is not as large in the enhanced services and terminal equipment markets as in others in which it participates. Indeed, its market share in the enhanced service area is arguably zero; by definition these are services that AT&T was not allowed to provide prior to the Commission's Second Computer Inquiry decision. There are literally hundreds of large and small firms providing a variety of enhanced services, ranging from call answering to sophisticated switched data networks. As noted in Section II above, AT&T has been losing ground steadily in the terminal equipment market, where a host of large and small competitors have developed features that are more attractive to customers.[121]

In addition, terminal equipment and enhanced services are characterized by a high degree of product differentiation. Competition is likely to take the form of rivalry based on innovation and the ability to identify and target products to particular market segments. In this world, cross-subsidy is less likely to be a useful anticompetitive tool than in a world characterized by homogeneous products. Finally, and related to the last point, AT&T does not have an initial advantage in these markets, as its declining terminal equipment market share and slow development of the new enhanced services demonstrate.

One strategy that a firm might choose in this situation is to select a few of the services or products where its resource base is best and attempt to

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121 See the Wirth Report, supra note 12, at 237.

grow as rapidly as possible to take advantage of learning curve effects and to preempt entry. This "new market" strategy was discussed in Section IV.[122] Since, as discussed above, the market can be expected to develop with a number of closely related services and products, market power would be minimal. The enhanced services and terminal equipment markets are vast, and growing very rapidly. It is not reasonable, therefore, to assume that competition would be forestalled completely. Second, it will be impossible for any one firm, even a firm with the resources of AT&T, to enter every submarket. There is little doubt that competitors will find market niches of their own and compete for enhanced services and terminal equipment dollars.

The market structure described could result in the exercise of market power in certain submarkets. But since the degree of market power will be limited severely by the availability of reasonably close substitutes, there is no great cause for concern. The costs of rate of return regulation are certainly not warranted.

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122 Thomas A. Vanderslice, President of GTE, in discussing GTE's strategy towards emerging communications markets is quoted as saying "the important thing is to get market share early in the game." See GTE Runs Big Risks as it Strives to enter Complex New Markets, Wall Street Journal 18, March 18, 1982.

2. Vertical Integration

As long as competition in the interexchange switching and transmission markets develops along the lines predicted in part A above, there is little reason to believe that AT&T would be able to leverage its position in those markets into a monopoly position in enhanced services. It was noted above, however, that AT&T's large initial market shares would provide it with a period of short run price flexibility as a result of the time it would take for competitors to expand. Enhanced service competitors must rely on obtaining transmission capacity to be successful. Therefore, this lag in the effect of interexchange competition could be used to advantage by AT&T. As discussed in Section IV, AT&T could attempt to squeeze enhanced service competitors by charging high prices for the essential component. Alternatively, AT&T could simply provide competitors with inferior service or no service at all. Changes in interconnection standards might also be employed to disadvantage competitors. In light of these potential problems, it might be wise for the Commission to retain the resale structure of Second Computer Inquiry for a transition period after restructuring to facilitate equal access to underlying transmission for all enhanced service vendors.

D. Deregulation before Restructuring

A fundamental premise of the paper to this point is that even if deregulation of AT&T were to result in the exercise of some market power, continued regulation is undesirable because it involves substantial costs.

This raises the question whether the deregulation contemplated here should begin immediately instead of after restructuring takes place. There is, however, a role regulation must play in the period between now and the time restructuring does take place. As long as the local exchange bottleneck is affiliated with AT&T and rate of return constrained, AT&T has an incentive and the ability to reduce the competition it will eventually face. Since competitors will not have access to local loops on non-discriminatory terms until after restructuring, competition cannot be relied on to be an effective constraint on the exercise of market power. Therefore, the Commission must be alert to the possibility of anticompetitive tariffs.

Beyond this, the Commission must be active in designing the access arrangements that will be designed while AT&T remains in control of the BOCs. A particular concern of the Commission should be the development of access arrangements that promote efficient pricing of both exchange and interexchange services. There are many access charge schemes that will satisfy jurisdictional concerns, but since the local exchanges will continue to be rate of return regulated franchise monopolies, at least for a time, inefficient access tariffs may be sustainable. To take one example, there are proposed access charge mechanisms that discriminate against private line services. If they are implemented, private line services would be eliminated from the market. This would reduce competition in the enhanced services market because the value added resellers depend heavily upon private lines for their transmission needs.

VI CONCLUSIONS

The interexchange telecommunications market is not now competitively structured, nor will it be after restructuring. The market will, however, be potentially competitive. AT&T's large initial market share provides it with a competitive advantage that may be used to earn monopoly profits or disadvantage rivals. Continued regulation is not likely to solve this problem, and, as discussed in Section IV, may exacerbate it. There are certain transitional regulatory mechanisms that can be designed to reduce this short run market power; the Commission should proceed to investigate these mechanisms so that deregulation can proceed after restructuring and equal access are achieved.

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