

Professor Spiller examined the stock market response to three types of restructuring events, those he characterized as: (1) increasing the extent of competition in long distance; (2) bringing together local and long distance services; and (3) bringing together local telephone and cable operators. For each type of event, he computed the dollar value by which rivals' stock prices fell in aggregate. This was determined using the capital asset pricing model (CAPM) framework. Since Professor Spiller concluded that rivals' stock prices would decline only if there were large rents to be extracted, he finds that RBOC entry (a procompetitive event) would produce a similar reduction in rents thus generating gains in consumer welfare. He refers to this estimate as a "lower-bound" estimate. Professor Spiller goes on to define an "exact" measure of the change in consumer welfare losses based on additional information on industry prices, costs, quantities, and demand elasticities. Using the stock market information, Professor Spiller's lower bound estimate of consumer welfare losses from MFJ restrictions barring RBOC entry exceeded \$30 billion.

B. AT&T WITNESS RESPONSE

Expert economists testifying on behalf of AT&T and MCI have argued that the evidence from long-distance telecommunications markets supports a finding of competitiveness among the large carriers. They have argued that the studies cited above are at fault because "average revenue per minute" provided a superior measure of the price of carriers' service offerings, and MTS markets must be competitive because WATS markets allegedly were competitive.²⁴

²⁴ *Affidavit of R. Glenn Hubbard and William H. Lehr, Attachment 1, An Analysis of Competition in U.S. Long-Distance Telephone Service*, December 5, 1994, *United States of America v. Western Electric Company, Inc. and American Telephone and Telegraph Company*, Civil Action No. 82-0192; *Affidavit of B. Douglas Bernheim and Robert D. Willig, An Analysis of the MFJ Line of Business Restrictions*, December 1, 1994; and *Declaration of Robert E. Hall*, December 2, 1994, *United States of America v. Western Electric Company, Inc. and American Telephone and Telegraph Company*, Civil Action No. 82-0192.

Hubbard and Lehr Study

Using average revenue per minute as a measure of price, Professors R. Glenn Hubbard and William H. Lehr (hereinafter H&L) claim, based on work presented by Professor Robert Hall, that “average revenue per minute” (ARPM) yields a more “meaningful” measure of price than a price index constructed directly from the tariffs of an interexchange carrier.²⁵ There is, however, no reason to expect that ARPM would better measure price on a transaction. Interexchange carriers provide MTS services for charges laid out according to conditions in their tariffs, and their charges can be compiled accurately for any subscriber from Federal Communications Commission tariffs.²⁶ The presumption is that AT&T’s actual charge for any specific call and the tariff designation of charges for a call of that type have to be the same. That presumption does not exist for the relationship between AT&T’s charge for any call and its average revenue received per minute on all calls. Indeed, the merits of H&L’s claim can be ascertained by picking up the phone, making a call, and checking the bill for that call. No carrier charges ARPM as the price for any call; without a price, one cannot analyze the price-cost margin for the extent of market power utilized in a transaction, representative or otherwise.

²⁵ H&L did not specify how they determined AT&T’s “average revenue per minute,” which presumably equals total revenues attributed to a service divided by total minutes attributed to that service. For example, they did not define the different revenue sources that were included in their calculation of a service’s total revenues. It is not possible to know, for example, whether “average revenue per minute” for any of the services includes such irrelevant categories as revenues from non-recurring service order charges; customer charges for specialized hardware or software; revenues from the sale of cellular phones; revenues from international calls; revenues from operator surcharges; and many other revenue categories as well.

The inclusion of such “fixed” or “special” revenue elements likely will cause the measured year-to-year change in ARPM to decline faster than the “true” level net of these revenue sources since “fixed” and “special” charges have generally been reduced or eliminated from AT&T’s pricing structure. As a result, the time trend of ARPM reported by H&L is likely biased downward.

²⁶ Tariff data were obtained from HTL Telemangement Ltd., a firm that makes a “market” in these data by advising businesses on which tariff offers the lowest costs given their particular calling profiles.

Thus, H&L's use of ARPM as a measure of the "price" fails for the basic reason that no transactions occur at this "price." The ARPM for all AT&T's MTS services does not equal the price of any of AT&T's MTS services to any subscriber. There are further problems in using ARPM to measure the "prices" of all services over time; namely that ARPM cannot hold constant factors that affect the price of a call. H&L made no attempt to control for changes in (1) customers' monthly bills; (2) the distribution of calls by day, evening, and night/weekend; (3) the distribution of calls by mileage; and (4) the average number of minutes per call. But all of these factors affect the price of making an MTS phone call. If, for example, customers' monthly usage levels increased, then ARPM would tend to fall. If an AT&T customer's usage were to increase from a monthly bill of less than \$10 to a higher amount, that customer's price per minute might be lowered by changing from AT&T's basic MTS service to its *Reach Out America* plan. This would lower AT&T's ARPM even though the prices of its basic MTS and *Reach Out America* services remained unchanged. Similarly, if the distribution of calls changed to include relatively fewer day calls, ARPM would fall. If calls tended to be made for shorter distances, or if the average number of minutes per call increased, ARPM would fall. Without adjusting the index to hold the effects of these determinants constant, the resulting ARPM series cannot be used to infer that the market has become more or less competitive.

Finally, when ARPM is used to calculate an "ARPM-cost margin" for AT&T, the result is that this substitute for a price-cost margin also increases over time in the same pattern as for actual price-cost margins. Although H&L did not provide data on AT&T's ARPM, a recent letter of Mr. Alex Mandl to Chairman Reed Hundt does include estimates of ARPM.²⁷ An attachment to Mr. Mandl's letter reports AT&T's ARPM for "Interstate (Switched)" calls, without defining what services are included in that category. If it is assumed, *arguendo*, that this crude measure can be used as an index price for MTS service, the "ARPM-cost margin" for this

²⁷ See Letter of Alex Mandl, executive vice president and CEO of AT&T's Communications Services Group to The Honorable Reed E. Hundt, Chairman, Federal Communications Commission, October 4, 1994.

service can be constructed.²⁸ The ARPM margins increase slightly over the period 1985-1994, presenting a pattern not different in kind from the rising margins found by previous researchers. Thus even if it is assumed, contrary to analysis, that ARPM is a “meaningful” measure of AT&T’s “prices,” the same conclusion is reached: AT&T’s margins for interstate switched services have consistently increased as market concentration has decreased – a result at odds with competitive market performance.

Bernheim and Willig’s Non-Price Analysis

Professors B. Douglas Bernheim and Robert D. Willig (hereinafter B&W) have claimed that the ability of resellers to purchase discounted WATS services at wholesale and resell those services in the retail MTS market *necessarily causes* the MTS market to be competitive.²⁹ B&W claimed that “significant market power cannot exist” in the MTS market because firms reselling WATS, purchased in a “vigorously competitive” market, prevent AT&T, MCI, and Sprint from raising MTS prices above competitive levels. B&W stated:

... if Basket 3 services [primarily WATS] are competitive – which they are – barriers to entry in Basket 1 services [primarily MTS] are necessarily absent. Since competitive prices in bulk wholesale services closely mirror the costs of providing those services, non-facilities based entrants into Basket 1 services do not suffer from any significant economic handicap. Thus, economic logic inevitably implies that *Basket 1 services inherit the competitive characteristics of Basket 3 services*. To the extent that Basket 3 is

²⁸ The “ARPM-cost margin” equals ARPM minus marginal cost, divided by ARPM. The steps necessary to calculate this margin are as follows: (1) put Mr. Mandl’s ARPM data in nominal terms; (2) net out the switched access costs shown in Figure One; and (3) divide by the nominal ARPM. Note that identical margin would be obtained by (1) leaving Mr. Mandl’s ARPM data in their inflation-adjusted form, (2) deflating the switched access costs shown in Figure One and netting them out of the inflation-adjusted ARPM data; and (3) dividing by the inflation-adjusted ARPM. In other words, it makes absolutely no difference to the calculation of the margin whether ARPM and marginal costs are expressed in nominal or inflation-adjusted terms.

²⁹ Bernheim and Willig Affidavit.

vigorously competitive, significant market power cannot exist in Basket 1.³⁰

However, B&W's claim fails because the market for WATS is not competitive and, therefore, resellers cannot prevent facilities-based carriers from raising prices above the competitive level. B&W's claim also fails because resellers by their nature cannot curtail the ability of facilities-based carriers to exercise market power. Resellers purchase minutes of use from facilities-based long distance carriers who have been free to charge any price for WATS and Virtual Network Services since the Federal Communications Commission eliminated the price cap on Basket Two services. Resellers can profitably engage in business so long as the difference between the price at which they purchase minutes (e.g., WATS rates) is sufficiently greater than the price at which they sell minutes (i.e., their MTS rates). By sufficiently reducing this margin, facilities-based carriers could eliminate resellers from the market. Furthermore, by altering WATS rates, facilities-based carriers could control the aggregate market share of resellers.

But MacAvoy (1994) already had examined both standard and discount WATS prices available to large business customers. Standard WATS prices were calculated assuming a monthly usage level of 200 hours per month; discount WATS prices were examined by increasing monthly usage to 1,000 hours per month and by extending contract length from monthly to three years. Two basic results were obtained. First, price-cost margins from standard and discounted services were increasing in the 1990s as market shares stabilized. Second, the absolute level of these price-cost margins, for both standard and discount WATS service offerings, were at or near the level of those margins from standard MTS service. Thus, rather than margins for MTS and WATS being the same at prices equal to costs, both are the same at prices far in excess of marginal costs, as expected from collusion among suppliers.

³⁰ Bernheim and Willig Affidavit at 135 (emphasis in original).

B&W also alleged that long-distance carriers cannot charge marginal costs because they would fail to recover their total costs, i.e., carriers' average costs exceed their marginal costs. As a result, B&W concluded, "the relevant theoretical paradigm is *contestability*, rather than perfect competition. In a contestable market, price is driven down to *average* cost, which exceeds marginal cost. Prices cannot fall below average costs, or the firm will lose money and shut down. Thus, one cannot reasonably expect to observe prices that are below average costs."³¹

B&W's claim that long-distance markets should be analyzed with the contestability paradigm defies credulity. By definition a contestable market "is one into which entry is absolutely free, and exit is absolutely costless [i.e., no sunk costs]. . . the entrant suffers no disadvantage in terms of production technique or perceived quality relative to the incumbent, and that potential entrants find it appropriate to evaluate the profitability of entry in terms of the incumbent firms' pre-entry prices. . . ."³² The notion that a potential entrant into long-distance telecommunications can exit the market costlessly, i.e., incur no sunk costs, cannot be accepted. Even resellers, whose competitive significance is marginal at best, incur large sunk advertising, labor, and infrastructure costs in establishing new firms. Facilities-based carriers, of course, incur billions of dollars in sunk capital costs to develop networks. Moreover, the requirement of contestability that a new carrier could enter and begin offering service *before incumbent carriers could change their prices* does not hold. No potential entrant into long-distance telecommunications would "find it appropriate to evaluate the profitability of entry in terms of the incumbent firms' pre-entry prices." The time required for entry, even by resellers, is substantially longer than the time required for incumbents to change their prices. For these reasons, B&W's claim that contestability should be used to evaluate the competitiveness of the long-distance telecommunications market cannot be accepted.

³¹ Bernheim and Willig Affidavit at 161 (emphasis in original).

³² Baumol, W. (1982), *Contestable Markets: An Uprising in the Theory of Industry Structure*, AMERICAN ECONOMIC REVIEW, Vol. 72, pp. 1-15.

B&W also asserted that resellers play an important competitive role in long-distance telecommunications markets. But their assertion that resellers rationalize margin differences across services misses the point that ownership of the capital facilities required for service constitutes the source of market power. Resellers are reliant on facilities-based firms for their service offerings so that they can only arbitrage price differences. The facilities-based firms render them incapable of fundamentally changing the competitive performance of long-distance telecommunications markets. This assessment of the competitive insignificance of resellers conforms with that of the Federal Communications Commission:³³

The ability to own and control facilities enables a carrier to manage competition by resellers. A reseller has minimal pricing flexibility when it must rely on a competitor that also supplies the infrastructure and underlying basic services which a reseller must use to provide its own services. In addition, the reseller cannot guarantee the quality of its services because the underlying facilities necessary to provide service are not within its control.

If B&W were correct in stating that resellers make MTS markets “vigorously competitive” since they “inherit” that condition from the WATS market, then resellers should have gained market share at the expense of facilities-based carriers. But this has not occurred. Even if it is assumed that half of all long-distance carriers other than AT&T, MCI, and Sprint are resellers, they could have accounted for no more than nine percent of toll service revenues in 1994.³⁴ Then resellers that effectively compete against AT&T, MCI, and Sprint did not have their share of the MTS market grow to a significant level in the decade they have been most active. There are two possible explanations: either facilities-based carriers refused to lease their

³³ See *Notice of Proposed Rulemaking in the Matter of Market Entry and Regulation of Foreign-Affiliated Entities*, IB Docket No. 95-22, p. 30.

³⁴ See FEDERAL COMMUNICATIONS COMMISSION, *STATISTICS OF COMMUNICATIONS COMMON CARRIERS*, 1994/1995 Edition, Table 1.4.

facilities, or the ability of resellers to capture retail MTS customers is limited by the margin between WATS prices and the discount MTS plan prices offered by facilities-based carriers. There is simply no theoretical or empirical support for B&W's claim that resellers have "played a central role in the development of telecommunications competition."³⁵

Crandall and Waverman's Study

Robert Crandall and Leonard Waverman (hereinafter C&W) in their recent book entitled TALK IS CHEAP summarize eleven existing studies of competition in U.S. long distance markets.³⁶ Six of the studies cited by C&W examine interstate, interLATA markets. After examining these studies they conclude: "The degree of competition in the interstate toll market is unclear. Three studies conclude that there is little competition; three others suggest little market power on behalf of AT&T."³⁷

The three studies C&W cited that found long-distance markets to be noncompetitive were MacAvoy (1994),³⁸ Taylor and Taylor (1993),³⁹ and the WEFA Group (1993).⁴⁰ As noted above, MacAvoy (1994) examined the price-cost margins of the three interstate carriers during the period 1984-1994 and concluded that these margins were rising as sales concentration

³⁵ Bernheim and Willig Affidavit at 146.

³⁶ Crandall, Robert, W. and Waverman, Leonard (1995), TALK IS CHEAP: THE PROMISE OF REGULATORY REFORM IN NORTH AMERICAN TELECOMMUNICATIONS, Washington, D.C.: The Brookings Institution.

³⁷ *Id.* at 131.

³⁸ MacAvoy, Paul. W. (1994), *Tacit Collusion by Regulation: Pricing of Long-Distance Telephone Services*, WORKING PAPER SERIES C 37 YALE SCHOOL OF MANAGEMENT.

³⁹ Taylor, William E. and Taylor, Lester D. (1993), *Postdivestiture Long-Distance Competition in the United States*, 83 AMERICAN ECONOMIC REVIEW, *Papers and Proceedings* at 185-190.

⁴⁰ WEFA Group (1993), ECONOMIC IMPACT OF ELIMINATING THE LINE-OF-BUSINESS RESTRICTIONS ON THE BELL COMPANIES.

declined. Taylor and Taylor measured decreases in the interexchange carriers access costs relative to AT&T's price reductions. The authors observed that AT&T's price decline has not matched access cost decreases (or, again, that price-cost margins have increased). The WEFA Group utilized a macro-econometric model and a Cournot model of non-cooperative firm behavior to establish the existence of current high price-cost margins, so that RBOC entry would cause significant price reductions and large consumer benefits.

Two of the studies C&W cited as providing evidence of competition in long distance markets are Ward (1993)⁴¹ and Kahi, Kaserman, and Mayo (1995).⁴² These studies are similar in design in that both infer indirectly the ability of the interexchange carriers to mark-up price in excess of cost by estimating firm-specific demand elasticities. The general structural model in industrial economics is that the price-cost margin equals the concentration index times the interfirm response factor divided by the elasticity of demand (as on four above). Rather than measuring price-cost margins directly, which is the goal, they seek to find one determinant of margins. Such a procedure is suspect since inference from that measured determinant assumes that other "right-hand-side" determinants take certain values and are constant. Michael Ward's study used annual national data for the period 1986-1991 and monthly state data for the period 1988-91 to measure elasticities of demand. Kahi, Kaserman, and Mayo use data that characterizes competitive conditions in the third quarter of 1984 and the fourth quarter of 1993. Both made findings that infer "low" margins. Of course, there is no need to infer price-cost margins given data on prices and costs, such as the data utilized in MacAvoy (1994 and 1995), whose findings cast serious doubt on these two econometric studies. Furthermore, Ward's study relied for the most part on pre-1990 data when the presence of tacit collusion becomes most evident after 1989. By then, long distance carrier market shares had stabilized and the Federal

⁴¹ Ward, Michael (1993), *Market Power in Long Distance Communications*, Federal Trade Commission.

⁴² Kahi, Simran, K., Kaserman, David L., and Mayo, John W. (1995), *Is the "Dominant Firm" Dominant? An Empirical Analysis of AT&T's Market Power*, JOURNAL OF LAW AND ECONOMICS.

Communications Commission tariffing process was such that once or twice per year, AT&T submitted tariffs to the Commission that were followed by almost the same submissions from MCI and Sprint.⁴³

The third study cited by C&W that provides evidence of competitive conditions in long distance was conducted by Robert Hall. As noted above, Professor Hall in testimony for MCI examined what he called AT&T's "average revenue per minute (ARPM)." He concluded that AT&T's ARPM declined over time by more than AT&T's decline in per minute access costs. Of course, no consumer would actually pay a price equal to AT&T's ARPM, except by chance, so this measure is an irrelevant price index. Using actual AT&T price indices constructed from both standard and discount plans, MacAvoy (1995) came to just the opposite conclusion – AT&T's price-cost margins increased overtime as market concentration declined and then stabilized. As previously noted, Taylor and Taylor, and Taylor and Zona, and MacAvoy, Doane and Williams came to the similar conclusion. In addition, Professor Hall failed to take note of the level of AT&T's price-cost margins, which are higher than those in his published works that he describes as non-competitive.⁴⁴

C&W concluded their summary of prior empirical work with their own estimate of AT&T's price-cost margin. They used estimates of AT&T's average revenue per interstate conversation minute to create an ARPM-cost margin. C&W obtained ARPM-cost margins in the range of 0.35 to 0.61 for 1993, with the lower value obtained only after using a marginal cost estimate of \$0.05 cents per minute. C&W's more realistic marginal cost estimate of \$0.01 per minute (a figure confirmed by AT&T's own cost expert) leads to a margin that compares favorably with the estimate of AT&T's price-cost margin for standard MTS of 0.66 for 1993 as

⁴³ See MacAvoy, P. (1995), *Tacit Collusion Under Regulation in the Pricing of Interstate Long-Distance Telephone Services*, 4 JOURNAL OF ECONOMICS AND MANAGEMENT STRATEGY 147, at 158.

⁴⁴ Hall, Robert (1988), *The Relationship Between Price and Marginal Cost in U.S. Industry*, JOURNAL OF POLITICAL ECONOMY, Vol. 96, pp. 921-947.

reported in MacAvoy (1995). Moreover, the margins reported by C&W also are high in absolute value relative to those in other industries. For example, in a sample of 284 industries, Domowitz, Hubbard, and Petersen reported that the average price-cost margin in 1981 equaled 0.275.⁴⁵ They also split out the most concentrated industries in their sample (for which the top four firms accounted for at least 81 percent of sales), and found an average price cost margin of 0.330. Thus, C&W's lower-bound estimate of AT&T's margin exceeded the average price-cost margin found in a sample of highly concentrated industries

Kaserman and Mayo Study

In a recent study submitted in testimony for AT&T, Professors David Kaserman and John Mayo (hereinafter K&M) concluded that the long-distance telecommunications industry was competitive and that AT&T had no ability to exercise market power.⁴⁶ As a threshold matter, K&M's conclusions cannot be accepted because they analyzed market power in a market that does not exist. They defined the relevant market as all toll services sold in the U.S., but this cannot qualify as a relevant market. A market consists of those products which, from the perspective of consumers, are reasonably interchangeable.⁴⁷ MTS, WATS, and virtual network service prices differ both absolutely and over time in ways that demonstrate they are not substitutes. Thus, for example, from the perspective of a residential consumer, if MTS prices

⁴⁵ Ian Domowitz, R. Glenn Hubbard & Bruce Petersen, *Business Cycles and the Relationship Between Concentration and Price-Cost Margins*, 17 RAND J. ECON. 1 (1986). They define the price-cost margin as [Value of Sales + Change in Inventories - Payroll - Cost of Materials] divided by [Value of Sales + Change in Inventories]. The 284 industries are four-digit Standard Industrial Code industries as defined by the U.S. Bureau of the Census.

⁴⁶ Kaserman, D. and Mayo, J. (1995), *Is AT&T "Dominant"? An Assessment of the Evidence*, working paper.

⁴⁷ See Stigler, G. and Sherwin, R. (1985) *The Extent of the Market*, 28 JOURNAL OF LAW AND ECONOMICS, 555-585. Markets also have geographic dimensions, which are of less importance in the current context.

were to increase, the existence of a WATS service requiring hundreds of hours per month or a virtual network service requiring thousands of hours per month does not offer a good substitute. These services, thus, must be offered in separate markets.

K&M began their study with the claim that a firm's market power should be evaluated by examining three factors: (1) supply elasticity, (2) demand conditions, and (3) the firm's market share. Again, these are "right-hand-side" determinants of margin behavior. K&M's rendition of the relevant criteria follows from their use of the structure-conduct-performance paradigm in which a firm's ability to exercise market power is evaluated *indirectly* on the basis of structural characteristics of the market, such as firm share and barriers to entry.⁴⁸ But when prices and costs can be measured, a firm's market power can be measured *directly* by its ability to charge prices in excess of costs, i.e., its price-cost margin. Moreover, once a firm's price-cost margin has been measured, the firm's conduct in price-setting behavior generally can be determined.⁴⁹ K&M's approach, by construction, is incapable of such a direct evaluation of a firm's market power and behavioral characteristics.

Not surprisingly, K&M's indirect approach led them astray. For example, in evaluating their first market power criterion, they concluded that the supply elasticity in their (mis)defined market was high and barriers to entry were low on the basis of their claim that "over 450 competitors were providing long-distance services in the United States" by 1994.⁵⁰ Unfortunately, K&M failed to mention that the vast majority of these firms were resellers who existed at the discretion of facilities-based carriers. Thus K&M do not assess concentration in supply. Indeed, K&M might have mentioned that since the development of AT&T, MCI, and Sprint, not one national, facilities-based carrier has entered the long-distance telecommunications

⁴⁸ See Carlton, D. and Perloff, J. (1994), *MODERN INDUSTRIAL ORGANIZATION*, New York, NY: Harper Collins, Chapter Nine.

⁴⁹ That is, the firm's conjectural variation can be measured.

⁵⁰ Kaserman and Mayo (1995), at 17.

business. Moreover, their claim that barriers to entry did not exist is incredible given that entrants must incur sunk investment costs.

In their evaluation of their second criterion, market demand conditions, K&M concluded that AT&T's ability to exercise market power must be constrained by the fact that total minutes of use increased over the period 1984 to 1994 by ten percent annually.⁵¹ K&M found that this growth enabled new firms to enter, so AT&T's market power must be small. Of course, since essentially all those firms were resellers, K&M's conclusion does not follow. K&M added that the distribution of demand was such that a large share of AT&T's residential revenues were derived from a relatively small share of its residential customers. This allegedly made the exercise of market power impossible because customers with large demands would switch services. But MacAvoy (1995) showed that carrier's price-cost margins on discount plans designed for customers with relatively large demands were essentially the same as margins earned on standard MTS plans designed for customers with small demands.

Finally, K&M's evaluation of their third criterion, market share, also was deficient. They concluded that "firms whose market share declines over time in a market with stable (or falling) prices do not have significant market power."⁵² This is wrong; even a firm with a small market share in a market with falling prices has substantial market power if it has the ability to set its price substantially in excess of its marginal costs. Contrary to K&M, thirty years of empirical work in the field of industrial organization have taught that a firm's market share cannot predict its ability to exercise market power.⁵³ In sum, K&M's study managed to examine a number of factors that provided indirect evidence on long-distance carriers' ability to exercise market power (which they necessarily misinterpreted given their incorrect definition of the market), but they

⁵¹ Kaserman and Mayo (1995), at 22.

⁵² Kaserman and Mayo (1995), at 13.

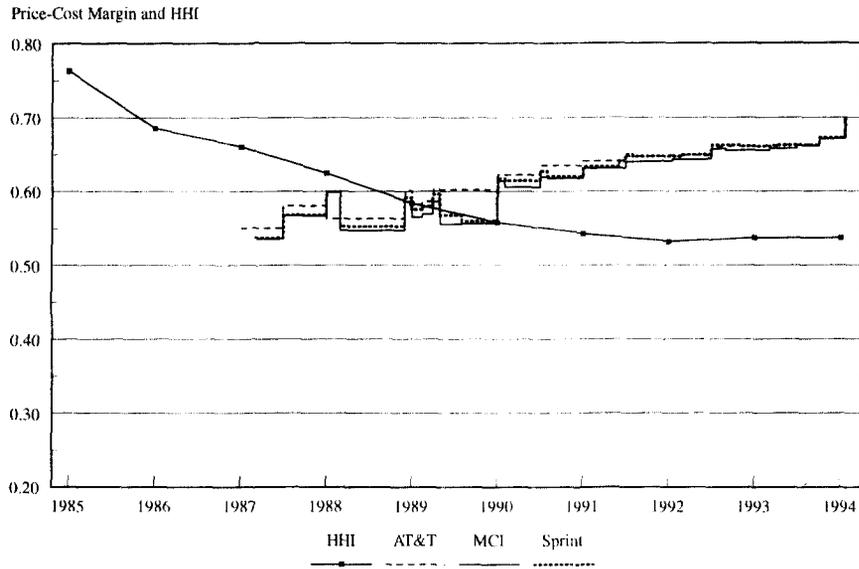
⁵³ See, e.g., Martin, S. (1993), *ADVANCED INDUSTRIAL ECONOMICS*, Oxford: Blackwell, Chapter 18.

failed to examine any direct evidence such as that available in carriers' prices and costs. Unfortunately, the combination of a failed market definition and irrelevant, misinterpreted evidence combined to yield a study whose findings cannot be accepted.

IV. CONCLUSION

In sum, the preponderance of evidence on competition in long-distance telecommunications markets supports the conclusion that tacit collusion characterizes the price-setting process of interexchange carriers. The evidence on this point is clear and convincing – no study, even those using AT&T's ARPM as a poor substitute measure of price, has found that price-cost margins fell in response to the decline in seller concentration that has occurred since divestiture. The evidence on the state of competition in long-distance markets is not “inconclusive and conflicting,” but rather supports the conclusion that carriers have maintained tacitly collusive price-setting practices resulting in identical and rising price-cost margins. The evidence on this point is summed up in a figure from MacAvoy (1995) that plots price-cost margins for the standard MTS service offerings of AT&T, MCI, and Sprint against seller concentration (as measured by the HHI). The figure documents the success of these three carriers in establishing and maintaining rising profit margins despite a more competitive market structure.

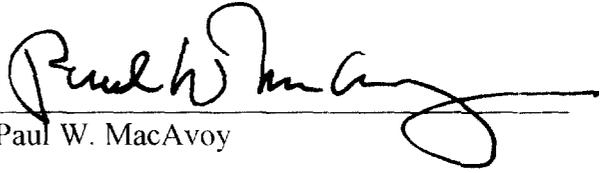
PRICE-COST MARGINS AND MARKET CONCENTRATION MTS



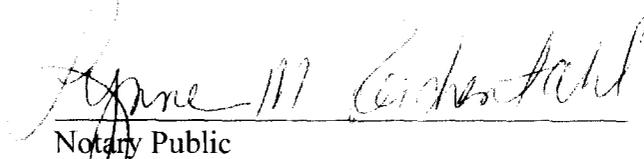
Sources: Marginal Costs from FCC and WEFA; Rates from HTL Telemanagement, Ltd.; and Market Concentration from Multinational Business Services, Inc.

To increase the competitiveness of long-distance telecommunications markets, several steps should be taken. Removal of tariffing requirements certainly will reduce the ability of carriers to coordinate prices, but this sole action is not sufficient to ensure the establishment of competition. The sufficient condition requires entry by facilities-based carriers into long-distance telecommunications markets. New entry would result in lower prices, creating substantial annual benefits to consumers.

I hereby swear, under penalty of perjury, that the foregoing is true and correct, to the best of my knowledge and belief.


Paul W. MacAvoy

Subscribed and sworn before me on this 24th day of April, 1996.


Notary Public

My Commission Expires: November 30 1998.

UNCORRECTED PAGE PROOFS

**The Failure of Antitrust
and Regulation to Create
Competition in Long-Distance
Telephone Services**

Paul W. MacAvoy

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Foreword

THE TWO THEMATIC ELEMENTS in this book were developed in the course of research undertaken as a cooperative effort in the period just prior to the 1984 antitrust divestiture of AT&T from its local service operations. While working with Kenneth Robinson, we produced two articles,¹ which raised the questions: What was the purpose of the largest antitrust proceeding in history; could it be achieved by divestiture; how would antitrust and public utility regulation interact to produce the intended results? Our answers were that antitrust action was intended with the assistance of regulation to lead to competition, that would displace regulation, and would lead to tangible long-distance consumer benefits. Antitrust action occurred; the rest has not been obvious, but rather has remained open to analysis and interpretation. I became concerned with whether these results were being achieved in the early 1990s in writing a book review of Robert Crandall's *After the Breakup: U.S. Telecommunications in a More Competitive Era*, and Barry Cole's *After the Breakup: Assessing the New Post—AT&T Divestiture Era* for *Regulation* magazine. Both volumes expected competitive benefits from

1. Paul W. MacAvoy & Kenneth Robinson, *Winning by Losing: The AT&T Settlement and Its Impact on Telecommunications*, 1 YALE J. ON REG. 1, 14 (1983); *Losing by Judicial Policymaking: The First Year of the AT&T Divestiture*, 2 YALE J. ON REG. 225, 228-32 (1985).

the divestiture, but neither pronounced that goal achieved.

In the 1990s further work proved to be difficult because of lack of data on which competition could be judged. The main obstacle was an inability to test for competitiveness with the price behavior of the large long-distance carriers. But in 1993 extensive data on tariff prices became available from HTL Telecommunications Incorporated. Based on that data source, in preparation for an affidavit submitted to the antitrust divestiture court, I developed software and a database that produced time series of representative prices for long-distance calls. This database development was undertaken with Michael Doane and Michael Williams of AG Economics, an Analysis Group Company, and was financed by a consortium of local Bell operating companies for whom the affidavit was submitted to the court. The price series, combined with then-newly public data of AT&T on the cost structure of long-distance services, enabled me to analyze the competitiveness of long-distance markets using tests of price-cost margins offered up by the theoretical literature in industrial organization.

The second thematic element has come from the legal-regulatory literature. Numerous studies have focused on the telecommunications industry, generally in order to arrive at a judgment of the efficacy of regulation. However, by conflating the performance of the local and long-distance segments, their findings have been limited. Moreover, as a result of divestiture, there are now three governmental institutions wielding power over the long-distance carriers, the Federal Communications Commission, the antitrust divestiture district court, and Congress. The Commission after 1984 found itself sharing decisions with the district court in administering entry and pricing of AT&T's services. The antitrust court built its own regulatory process in administering requests of the divested companies for waivers from the decree. Congress has weighed in with the Telecommunications Act of 1996. The result has been that after divestiture, regulation intensified, in effect by institutionalizing pricing procedures that affected competition as much as had antitrust policy.

This second thematic element—the implementation of antitrust policy by regulation—has been developed over recent years with the collegial assistance of J. Gregory Sidak of American Enterprise Institute, with whom I have taught telecommunications policy.

with Solveig Bernstein of the Cato Institute, and with Cara Lombardi, private legal practitioner.

An economics journal article on pricing competition was published in the *Journal of Economics and Management Strategy* in 1995.² A Yale Working Paper with Michael Williams and Michael Doane has focused on the California long-distance market.³ The second stage of this research resulted in Yale Working Paper #44 which was used as the basis for seminars at the Yale School of Management and American Enterprise Institute in 1995 and 1996.⁴

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2. Paul W. MacAvoy, *Tacit Collusion Under Regulation in the Pricing of Long-Distance Telephone Services*, 4 J. ECON. & MGMT. STRAT. 147-86.

3. Paul W. MacAvoy, Michael Doane & Michael Williams, *Policy vs. Reality in Establishing Competition in California Long-Distance Telephone Service Markets*, YALE SCHOOL OF MANAGEMENT WORKING PAPER (1995).

4. Paul W. MacAvoy, *The Failure of Antitrust and Regulation to Establish Competition in Markets for Long-Distance Telephone Services*, YALE SCHOOL OF MANAGEMENT WORKING PAPER #44 (1995).