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An Oligopoly Analysis of AT&T's Performance in the Wireline Long-Distance Markets After Divestiture

Paul W. MacAvoy*

Having been present at the creation of "divestiture," as the next witness for the defense scheduled to be called before the court, the day after the surprise settlement, and therefore never heard, I had a seat at the table to listen to what was to be forthcoming. It was evident to me that AT&T management expected to become the dominant long-distance (LD) wireline service provider in nationwide business and residential markets, free of price controls of the FCC. The Antitrust Division never said that LD divestiture from the local exchange companies was expected to result in effective LD competition. Instead, the divestiture process plus open entry in LD markets was meant to create as many LD carriers operating as far away from regulation as possible in numerous duplicative carrier networks.¹ But the Antitrust Division made no connection between numbers of networks and competition among LD service suppliers.

The antitrust court, Judge Greene's district court, had plans to manage the process of creating duplicative national networks. The local exchange companies were forced to build out their interconnection nodes to provide parity for all old and new LD carriers in picking up and delivering calls. In

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1. See Paul W. MacAvoy & Kenneth Robinson, *Winning by Losing: The AT&T Settlement and Its Impact on Telecommunications*, 1 YALE J. ON REG. 1 (1983).

the transition period before parity was achieved, beginning in 1984, the regulated charges for interconnection favored the other carriers, and these new carriers then expanded relative to AT&T. AT&T lost a third of its 90% plus share of call revenues, in both national residence and business service markets. Accounting for revenue shares of AT&T, and the entrants MCI and Sprint, with then-comparable national service offerings, the Herfindahl-Hirschman Index (HHI) fell from close to 0.9, indicative of a market structure in which there were 1.1 firms, to 0.5, similar to that for two equally sized firms by the end of the first dozen years of the court remedy process.² The prices in AT&T's tariff were still subject to caps set by the FCC, because AT&T was still defined as a "dominant firm" by the FCC while MCI and Sprint were not. While the caps were seldom limiting, the FCC process allowed the three carriers to set the same prices; AT&T submitted its tariff to the FCC as required and the other two followed voluntarily.

The Judge Greene court, in effect, was implementing the regulatory reform programs of the Ford and Carter Administrations in the other network industries. These programs: (a) separated ownership of the product at the entry node from transport services from that node to the exit node, and (b) regulated prices for link and node utilization where there were open entry "bottlenecks." By legislation or agency rulemaking, the gas networks or power grids were restructured into newly defined, open-entry regional markets subject to price caps at key nodes. These partial deregulatory policies proceeded through the mid 1980s to the late 1990s changing only to add auction markets in place of some price controls. The Greene court's antitrust policy in the AT&T divestiture went in this direction.

The AT&T revenue share from wireline services declined by 2% to 5% per year from 1984 to 1991, then stabilized at 65%, which held, plus or minus 1%, until 1997.³ To lose a third of total revenue share in any of these network industries presaged a decline in price relative to the costs of service. In fact, both residential and business LD charges declined, but so did the (regulated) interexchange switching charges that constituted the largest share of LD costs. Wireline LD prices for services throughout the country went down, but not by as much as did marginal costs for these services in this fifteen year period. Price net of marginal cost, as a percentage of price,—the Lerner Index in oligopoly theory—increased on standard plan services to an amount in excess of 60%. Even on discount

2. See PAUL W. MACAVOY, *THE FAILURE OF ANTITRUST AND REGULATION TO ESTABLISH COMPETITION IN LONG DISTANCE TELEPHONE SERVICES* 131 (1966); *C.f.* PAUL W. MACAVOY, *THE UNSUSTAINABLE COSTS OF PARTIAL DEREGULATION* (2007).

3. See MACAVOY, *UNSUSTAINABLE COSTS*, *supra* note 2.

plans—contracts for service to which large numbers of residential subscribers were switching—these margins increased from 65% to 68%.⁴

The AT&T share of wireline revenues, which was close to two-thirds, ceased declining in the 1990s, while shares of the two other firmly established carriers with national networks, MCI and Sprint, ceased increasing. Demand functions were negatively sloped for the two main residential services, standard and discount, with elasticities less than one. The high and increasing price-cost (Lerner) margins were not indicative of competitive pricing; they were too high, and were increasing after market shares stabilized. Demands for business services were highly interactive, with change in prices and service packages customized to lure large corporate clients. These patterns of interactive prices and fast-changing service packages did not fit those of a competitive pricing system either.

If not competitive, then what? The market structure was characterized by one large carrier and two others, each able to provide full service of a national scale, essentially that of an oligopoly. There were not enough different sources of comparable service, by construct, “two” according to the HHI, to force price levels down to the near-zero competitive Lerner margin. There were limited price differences, mostly associated with discount packages for AT&T and MCI, but Sprint copied the prices in AT&T’s tariff. Then the “what” question becomes, what kind of oligopoly? With tariffs at the FCC putting in place one-shot price schedules that held for most of a year, the “kind” or “classification” of oligopoly was Cournot, which implied that an HHI equivalent of two firms would result in a Lerner Index half of that with an LD monopoly.

Consider that these pricing margins were in fact the result of a concerted Cournot strategy; the Lerner Index would be the product of market share multiplied by the “strategic factor,” divided by the market demand elasticity. That factor, the coefficient of conjectural variation, V , determined that repetitive responses of the two smaller network service providers would either complement ($V = +1$) or substitute ($V = -1$) for service initiatives of AT&T. Complementary responses, to every change in AT&T’s service offerings, produced “defined” Cournot margins. Substituting responses, in which the two followers increased service when AT&T reduced service, renders the Lerner margin convergent to zero, the replication of “competitive pricing.”⁵

The changes in Lerner margins from the mid 1980s to 1997 were neither largely positive nor negative. The second and third carriers did not

4. See *id.*

5. With the conventional profit maximizing model, for firm i , in which product levels q_i and q_j are interactive, then first order conditions for Lerner “ L ” or price-cost margin for firm “ i ” $(p_i - c_i)/p_i = [(q_i/Q)(1 + V_i)]/e$.

follow in lock step to undercut AT&T, nor did they provide the expansive support necessary to allow AT&T to set tariff prices at monopoly levels. From year to year, the AT&T conjectural variation ranged from 0 to -0.3 , values associated with setting out a strategy to disregard the responses of the other two providers. But the large service provider was not able to totally ignore the others over this long period of time. The Lerner margin, even though increasing, was too low—by 20%—and the elasticity of demand was not sufficiently large (negative), to validate a strategy of monopoly.

In 1996, with passage of the Telecommunications Act, the framework in which AT&T set its strategic pricing changed. The last vestiges of tariffs disappeared for the three carriers, rendering it difficult for the largest carrier to take the lead in the continued pattern of reductions in conjectural variation, which were small. The merchandising practices of the companies to stabilize Cournot turned to simplification of pricing with announcements of “cents per minute” packages containing some featured services. The mechanics for knowing what all the major providers were doing, sufficient to practice Cournot, were still maintained by simplifying the tariff.

However, there were other determinants of price formation moving against stable to increasing price cost margins. The rapid expansion of cell phone service, not only by the three carriers, but also by at least three independent service providers, provided the option for both commercial and residential customers to shift out of wireline services at prices lower or comparable to those of discount LD service packages. The price elasticity of wireline service demands was increasing from a range of -0.7 to more than -1.1 in the few field tests made in that period. Greater price sensitivity and difficulty in preventing shifting to other wireless service providers put pressure on the Cournot strategy.

Even so, significant pressure was exerted by the FCC in implementing the Telecommunications Act for the three wireline carriers to increase Lerner margins extensively. The new funds necessary to provide universal service to be collected from LD service subscribers called for increasing price-cost margins to “pass through” a universal funds “tax.” However, with Cournot pricing these carriers had to absorb some percentage of the tax and would be left in too weak of a profit position to sustain services, let alone expand the long-called-for broadband access, or so they argued.

This argument of the carriers on “pass through” was logically sound. A continuation of Cournot would require a 2% to 4% reduction in Lerner margins to collect a 10% universal service tax. Only a more collusive pricing arrangement would result in the larger cash flow necessary to cover a 10% surcharge.

In this post Telecommunications Act period, from 1997 to 2004, AT&T's Lerner margins increased from 60% to the low 90% range for standard residential service, a rapidly declining class of service. AT&T's Lerner margins on discount plan services also increased, but by much less, on this increasing class of service. The Lerner Index estimates were in excess of those consistent with Cournot without pass-through of the Universal Service Fund (USF) charges levied by the FCC. There was an opportunity provided by USF recovery plans, fostered by the FCC, to jointly increase prices more collusively. That all three carriers succeeded in more than full USF recovery from increased Lerner margins was indicated by an FCC order limiting recovery surcharges to the required contribution.⁶

Did AT&T, in this last stage of its existence, conspire with the FCC to set LD joint monopoly prices? Its Lerner Index values clearly resulted from a new collective strategy (i.e., a value of $V > 0$). In most years, the estimate of conjectural variation increased to greater than 1.0, indicative of a joint strategy to set the price level. Given a market share of 0.4 and the Lerner Index at 0.88, the conjectural variation coefficient had to exceed 1.5 for monopoly.⁷ In line with the 1997-2004 data, the average V equaled 1.2 for standard plan wireline and 0.9 for discount plans in place. In standard plan service, while that service was in decline, AT&T had prices approaching monopoly levels. While in discount plans, where price-sensitive customers migrated to wireless in large numbers, prices were not at those levels.

In a November 2005 speech to the people of AT&T, the CEO expressed the current condition succinctly, saying, "the old business we had worked fine with much higher price levels" leaving out the words "standard plan," but noting that with the shift out of old business to discount plans and wireless, "we have serious trouble given the direction prices [are] headed." He put it another way that was even more illuminating, "our customers needed what we provided them, but competitive price levels made it impossible for us to make a profit with the cost structure." What the customers "needed" were "new service offerings to create new revenue streams."⁸ Broadband waited to be funded, and only monopoly level prices inclusive of the tax would provide those funds.

In the twenty years from 1984 to 2004, the court-initiated implementation process was intended first to structurally separate local acquisition of calls from LD delivery, and second to add to the number of

6. Federal State Joint Board on Universal Service, *Report and Order and Second Further Notice of Proposed Rulemaking*, 17 F.C.C.R. 24952, paras. 40-63 (2002).

7. With the Lerner Index of 0.88 in residential service markets, demand elasticity of 1.1 and market share of firm i , AT&T, equal to $qi/Q=0.40$ then $0.88=0.40 (I+V)/1.1$ and the estimated $V=1.2$. The monopoly value of V is the solution of $S_i(I+V)=1$ which here is 1.5.

8. David W. Dorman, CEO, AT&T, Corp., Speech to AT&T (Nov. 2005).

networks independent of AT&T. Whether this was ever expected to result in competitive market performance is unknown. By 2004, specialized common carriers and wireless service providers had achieved the structural part, but with either Cournot oligopoly prices, or with the FCC “inspired” joint tax for monopoly pricing. At that point in time, an industry-wide reversal of this structural condition took place, a merger which sent AT&T back into providing local exchanges, and caused other local operating companies to attach to the leading wireless companies. That series of mergers reversed direction against the structural goals of the 1984 antitrust court and the Justice Department.

This structural reversal brought the case for a divestiture antitrust remedy to an end. At least in this industry, and perhaps in others, the structured fragmentation goal was shelved. There are at least three results from there: (1) the court’s resorting in complex antitrust proceedings to settlement between the parties does not remake market structures consistent with the competitive model; (2) conditions of scale and scope inherent in networks work against structural remedies seeking to set a dozen service providers in markets; and (3) specific to bottleneck price controls, provide a compelling incentive for introducing bundled services that make it impossible to use price to monitor performance.

In light of these current conditions, after numerous papers and books on oligopoly and regulation, this is my last inquiry into antitrust and regulation in telecommunications. I cannot work without being able to define markets and prices, to unravel industry performance; and that is no longer possible. One can no longer tell what the oligopoly is doing.