

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the matter of

American Telephone and)	
Telegraph Company)	
)	
Reclassification of AT&T)	CC Docket No. 79-252
as a Nondominant Carrier)	

Reply Comment of the Staff of the
Bureau of Economics
of the Federal Trade Commission*

June 30, 1995

*This comment represents the views of the staff of the Bureau of Economics of the Federal Trade Commission. They are not necessarily the views of the Commission or any individual Commissioner. Inquiries regarding this comment should be directed to Michael R. Ward (202-326-2096) of the FTC's Bureau of Economics.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the matter of

American Telephone and)	
Telegraph Company)	
)	
Reclassification of AT&T)	CC Docket No. 79-252
as a Nondominant Carrier)	

Reply Comment of the Staff of the
Bureau of Economics
of the Federal Trade Commission¹

I. Introduction and Summary

The staff of the Bureau of Economics of the Federal Trade Commission ("FTC") appreciates this opportunity to submit this reply comment in response to the Federal Communications Commission's ("FCC") Public Notice² ("Notice") concerning AT&T's Motion to be reclassified as a "nondominant carrier."³ AT&T

¹This comment represents the views of the staff of the Bureau of Economics of the Federal Trade Commission. They are not necessarily the views of the Commission or any individual Commissioner. Inquiries regarding this comment should be directed to Michael R. Ward (202-326-2096) of the FTC's Bureau of Economics.

²Public Notice on comments on the motion for reclassification of AT&T as a nondominant carrier in CC Docket 79-252 (DA 95-920) released April 25, 1995.

³Motion for Reclassification of American Telephone & Telegraph Company as a Nondominant Carrier, CC Docket 79-252 (filed Sept. 22, 1993).

attached to its recent Ex Parte Presentation⁴ an FTC Bureau of Economics Staff Report⁵ ("Staff Report") that attempts to measure AT&T's market power. Subsequently, Bell Atlantic, BellSouth, SBC, and Pacific Telesis attached to their comment a study by NERA⁶ ("NERA Study") that purportedly tests and rejects a key assumption of the Staff Report, using data generated from the Staff Report. This reply comment suggests that NERA may have inappropriately generated its data using estimates from the Staff Report, and that had appropriate data been used, the results of the NERA Study might have been consistent with those of the Staff Report.

⁴Ex Parte Presentation in Support of AT&T's Motion for Reclassification as a Nondominant Carrier CC Docket no. 79-252 (April 20, 1995).

⁵Michael R. Ward, Measurements of Market Power in Long Distance Telecommunications, FTC Staff Report (April 1995). The Report was filed by AT&T as Attachment T of its Ex Parte presentation in support of AT&T's Motion for Reclassification as a Nondominant Carrier. An earlier version of this report was submitted by the FTC staff to the FCC in this proceeding (Submission of the Staff of the Bureau of Economics of the Federal Trade Commission regarding Reclassification of AT&T as a Nondominant Carrier (CC Docket 79-252) (November 23, 1993)).

⁶William E. Taylor and J. Douglas Zona, "An Analysis of the State of Competition in Long-Distance Telephone Markets," (May 1995).

II. Expertise of the Staff of the Federal Trade Commission

The FTC is an independent administrative agency charged with maintaining competition and safeguarding the interests of consumers.⁷ The staff of the FTC, upon request, often analyzes the competitive or economic efficiency implications of regulatory or legislative proposals. In the course of this work, as well as in antitrust and consumer protection research and litigation, the staff applies established principles and recent developments, both empirical and theoretical, to competition and consumer protection issues. For example, the staff submitted a comment to the FCC on its proposals to modify the regulations concerning the local transport of interstate long distance traffic⁸ and the economic efficiency aspects of regulating AT&T's commercial services and optional calling plans.⁹

The staff of the Bureau of Economics of the FTC also has studied various economic aspects of the telecommunications industry. These studies include the effects of price and entry

⁷15 U.S.C. §§ 41 et seq. The FTC Act declares unlawful unfair methods of competition and unfair or deceptive acts or practices.

⁸Comment of the Staff of the Bureau of Economics of the Federal Trade Commission regarding Expanded Interconnection with Local Telephone Company Facilities (CC Docket No. 91-141 Phase I and CC Docket No. 80-286) (March 5, 1993).

⁹Reply Comments of the Staff of the Bureau of Economics of the Federal Trade Commission regarding Revisions to Price Cap Rules for AT&T (CC Docket No.93-197) (October 23, 1993).

regulations on long distance telephone service,¹⁰ and estimates of market power in the long distance industry (Staff Report).

III. NERA's Pricing Behavior Test Overstates the Likelihood of Collusion

The Staff Report empirically assessed the competitiveness of the U.S. long distance telephone market by estimating firm-specific long-run residual demand elasticities for AT&T and its rivals. Measurement of a firm's residual demand elasticity provides an estimate of its market power.¹¹ To calculate residual demand elasticities, the Staff Report estimated the degree of product substitutability by consumers (i.e., Marshallian demand elasticities) and assumed that AT&T's rivals would increase their output in response to an attempted AT&T price increase rather than increase their prices.¹²

The NERA Study's test of the validity of this assumption employs a time series of AT&T's elasticities, constructing these elasticities from estimates in the Staff Report.¹³ The Staff

¹⁰See Alan D. Mathios and Robert P. Rogers, The Impact of State Price and Entry Regulation on Intra-State Long Distance Telephone Rates, FTC Bureau of Economics Staff Report (November 1988).

¹¹Landes, William M. and Richard A. Posner, "Market Power in Antitrust Cases," Harvard Law Review 94 (1984) 937-983.

¹²For an explanation of this assumption, see Staff Report, pp. 19-22.

¹³NERA, III.B. Pricing Behavior, pp. 27-32. This comment pertains to the implementation of the NERA Study's test and makes

Report calculates AT&T's firm-specific demand elasticity for the period 1988-1991 using the equation $\eta_{it} = w_i(1-\eta^{LD})\epsilon + \eta_i$, where a firm's elasticity, η_{it} , is determined by the values of the industry elasticity, η^{LD} , a conditional firm-specific elasticity, η_i , and an income elasticity, ϵ .¹⁴ The estimates of these parameters in the Staff Report represent averages over the 1988-1991 time period. NERA constructs a time-series of elasticities by substituting into this equation a time series of AT&T's market shares, w_i , covering the period that AT&T was regulated under price-caps (i.e., 1989 to present). In creating the elasticity series, NERA also uses unchanging estimates of the industry level demand elasticity, η^{LD} , the firm-specific conditional elasticities, η_i , and the income elasticity, ϵ , generated in an earlier version of the Staff Report.¹⁵

In assuming an unchanging estimate of, η_i , NERA implicitly assumes no change in the substitutability between firms (such as AT&T, MCI and Sprint), when substitutability likely continued to increase.¹⁶ If the substitutability continued to increase,

(..continued)

no claims as to the validity of the test itself.

¹⁴This is equation (3) in the Staff Report, p. 14.

¹⁵NERA used short-run parameter estimates from an earlier version of the Staff Report that was submitted to the FCC in this proceeding in November, 1993.

¹⁶In equation (3) of the Staff Report, the substitutability between firms is measured by the firm-level conditional

estimates of the firm-level conditional demand elasticities, η_i , at different points in time would be required to appropriately construct a sample of elasticities. However, NERA uses the same value of η_i for every elasticity constructed.

The impact of NERA's assumption about constant substitutability on estimated firm demand elasticities is suggested by Table I, which presents NERA's estimated AT&T elasticity values, η_{it} . The elasticity values are generated from equation (3), by assuming constant values for η^{LD} , η_i and ϵ , and values of w_i for the 1989-1994 time period. By the 1988-1991 period, AT&T's rivals had made greater use of "1+" dialing, resolved early billing problems, and extended service throughout the U.S. These improvements made AT&T's rivals' services better substitutes for AT&T's service causing AT&T's Marshallian elasticity to fall an average of 0.45 per year from 1970 to 1990.¹⁷

It is possible that the rate of change in the substitutability between firms has fallen since then. However, AT&T's demand has likely become at least slightly more elastic since 1989, as

(..continued)

elasticity, η_i , while the term involving market share measures industry demand stimulation effects, not firm substitutability.

¹⁷Before AT&T faced competitive pressure (MCI first offered service in 1970), its elasticity was the long distance industry elasticity of about -0.7 (see e.g., Taylor, Lester D., Telecommunications Demand in Theory and Practice (Kluwer, Boston, MA: 1994)). The Staff Report estimates that AT&T's average elasticity over the 1988-1991 period was -10.1. The average annual change over this period is calculated as $[(-10.1) - (-0.7)] / [1991 - 1970]$ or approximately -0.45.

optional calling plans (e.g., Friends and Family) have become common, increased information about carrier options has reduced switching costs, and the rate at which customers switch carriers has doubled.¹⁸ Nevertheless, even a tenfold reduction in the rate of change in AT&T's elasticity (to 0.045 per year) would still be larger than the range of elasticity values (maximum value minus minimum value) predicted by the NERA Study in Table I (at most 0.035 over five years). In this case, the NERA Study still understates the range of elasticities by more than a factor of six.¹⁹

¹⁸AT&T, MCI, and Sprint have introduced over 100 new calling plans since 1989. Increased consumer information is indicated by a doubling of both industry advertising and the number of telemarketers employed since 1992. The number of residential customers who switched long distance carriers increased from 12 million in 1991 to 27 million in 1994 (Ex Parte Petition, Attachment O).

¹⁹With a tenfold reduction in the rate of change in firm substitutability, the annual rate of would become 0.045. The range of elasticities over five years (1989 to 1994) would be 0.225 which is almost six and a half times the range of 0.035 in Table I.

Table I
 NERA's Estimated AT&T Elasticity Values from Equation (3)
 Assuming Constant η^{LD} , η_{11} and ϵ

Year	AT&T Market Share w_1	Staff Report $\eta^{LD} = -0.70$ $\eta_{11} = -10.78$ $\epsilon = 1.0$	Nov. 1993 Version $\eta^{LD} = -0.65$ $\eta_{11} = -3.15$ $\epsilon = 1.0$
1989	69.3%	-10.572	-2.907
1990	66.4%	-10.581	-2.918
1991	64.3%	-10.587	-2.925
1992	62.6%	-10.592	-2.931
1993	60.2%	-10.599	-2.939
1994	59.3%	-10.602	-2.942
Range		0.030	0.035

If NERA has constructed an inappropriately narrow range of elasticity values, its test would tend to be biased in favor of finding collusion. NERA tests for the presence of collusion among AT&T and its rivals by computing a test statistic, θ . This is a producer pricing parameter with larger values associated with more collusive behavior (NERA study, pp. 28-32). Since θ is estimated in a regression as the coefficient of the inverse of AT&T's elasticity ($1/\eta_{11}$), its estimated value tends to decrease as the range of elasticity values increases. To illustrate, suppose that the measured values of η_{11} used by the econometrician varied from -2.907 in 1989 to -2.942 in 1994, (a range of 0.035, see Table I), but that the true value of η_{11} varied from -2.907 to -3.162, (a range of 0.225, see footnote 19). Even with the rate of change in

η_{1i} falling by a factor of ten (to 0.045), the value of θ would likely fall to approximately one-sixth its estimated value or about 0.4 rather than 2.55.²⁰

²⁰In a simple linear regression of Y_i on X_i , the coefficient of X_i (β) is equal to the ratio of the covariance of X_i and Y_i divided by the variance of X_i (i.e., $\beta = \text{cov}(X_i, Y_i) / \text{var}(X_i)$). If the range of X_i were to increase sixfold (e.g., by multiplying each observation of X_i by 6), then $\text{cov}(X_i, Y_i)$ would increase sixfold and $\text{var}(X_i)$ would increase thirty-sixfold ($36 = 6^2$). The resulting value of β would fall by a factor of six.

While the variation in AT&T's actual elasticities is likely larger than that constructed in the NERA study, the actual values are likely not scalar multiples of the NERA study's constructed values. In this case, the covariance of X_i and Y_i may not increase exactly sixfold as the variance of X_i increases by a factor of thirty-six. However, without other information, one would expect a sixfold increase would be the best estimate of its increase. Thus, one would expect β to fall by a factor of six, although it could fall by more or less than this.

The simple linear regression logic holds for NERA's estimated equation, even though NERA uses a more complicated estimation procedure. NERA employs a multivariate, nonlinear, instrumental variable estimation technique. But a nonlinear relationship can be approximated by a linear Taylor series; the multiple-variable regression simply requires that other factors be held constant; and instrumental variables techniques are likely not to affect the estimated parameter since there is no reason to believe that first-stage correlations are changed. Hence, the above logic applies, in approximation, even when more complicated estimation procedures are used.

IV. Conclusion

The NERA Study purportedly tests and rejects the validity of a key assumption of the Staff Report. To conduct this test the NERA study uses estimates from the Staff Report to construct a time series of AT&T's demand elasticity assuming that the substitutability between firms has been constant since 1989. However, if the substitutability had continued to increase the actual range of elasticities would likely be greater than the range of the constructed elasticities. This implies that the NERA Study's pricing behavior estimate may overstate the true value. The correct pricing behavior estimate might confirm, rather than reject, the Staff Report's pricing behavior assumption.