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THE IMPACT OF ALTERNATIVE FORMS OF STATE REGULATION OF AT&T ON DIRECT DIAL LONG DISTANCE TELEPHONE RATES

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I. Introduction and Summary

Federal and state regulatory agencies have traditionally used rate-of-return regulation to set profit levels and rates for utilities. For example, the Federal Energy Regulatory Commission and state Public Utility Commissions (PUCs) use rate-of-return methodologies to determine the prices of electricity. Likewise, the Federal Communications Commission (FCC) and state PUCs have traditionally used rate-of-return regulation to determine the prices of telephone service. Rate-of-return regulation, however, may not be the most efficient way to regulate the prices of a regulated utility. A "price cap" framework, in which the regulatory agency regulates only the maximum price, is an alternative to rate of return regulation. Under a "price cap" framework, the regulated utility has pricing flexibility since it can lower or raise prices as long as the prices stay below the cap.

Many states have recently adopted a price cap approach in their regulation of the intrastate telephone services provided by AT&T. In particular, states have been moving from standard rate-of-return regulation towards a price cap regulatory framework that allows AT&T to have pricing flexibility. Moreover, the FCC is currently considering switching to a price cap regulatory framework, in which the FCC would regulate only the maximum prices for AT&T's interstate basic service offerings.[1] There are reasons to suspect that pricing flexibility may result in lower costs to the firm, and therefore possibly lower prices to consumers. Alternatively, it may be that there is little difference between price cap and rate-of-return regulation, in which case prices arising from the alternative schemes should be similar.

Although there has been theoretical work comparing the two regulatory frameworks, there has, to date, been almost no empirical evidence comparing prices under a price cap regime with prices under traditional rate-of-return

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[1] See FCC Docket No. 87-313 (1987). Interstate basic service offerings include Message Toll Service (MTS), private line service (service owned by a firm and dedicated to its use), and other services. MTS is ordinary direct dial long distance service where the customer is charged based on the distance, time of day, and length of time of each call.

regulation.[2] This paper presents an attempt at estimating the effects of regulatory flexibility. In particular, this study presents an econometric analysis that compares the AT&T prices of intrastate, direct dial, long distance telephone service in states that allow AT&T pricing flexibility to those in states that do not. The results of this analysis suggest that AT&T Message Toll Service[3] rates for daytime, evening, and nighttime/weekend services are all significantly lower in states that allow pricing flexibility than in states that continue to use rate-of-return regulation.[4]

One explanation for these results is that AT&T's prices are lower in states that allow pricing flexibility because of the differences in the incentives to minimize costs and innovate under the alternative regulatory approaches.[5] An alternative explanation may be that AT&T fails to lower prices in states with rate-of-return regulation because of the difficulty AT&T foresees in raising them in the future. Under pricing flexibility, prices can be increased without approval as long as they are below the ceiling price.

The differences in prices do not appear to result from the imposition of very low price ceilings. If this were the case, we would expect that prices in most "price cap" states would be "bumping up" against the price ceilings. In fact, AT&T prices below the ceiling in approximately half of the states we surveyed. Moreover, AT&T's prices in these "below" ceiling" states are lower by a statistically significant amount than its prices in states that do not allow pricing flexibility. Additionally, AT&T is a proponent of "price cap" regulation, indicating that the ceiling prices are not set at unreasonably low levels. Also, the lower prices in states that allow pricing flexibility do not simply reflect a tendency for pricing regulations to be relaxed in states where prices were already low and for stricter regulation to remain in states with high prices. Our methodology allows us to control for this possibility, and we find that this effect is not significant.[6]

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[2] The Virginia State Corporate Commission (1987) examined the effect of deregulation on AT&T pricing and has done a comparison survey of AT&T pricing in ten states.

[3] Direct dial long distance service is also called Message Toll Service (MTS).

[4] The evening and night rates probably apply most often to residential calls whereas the day rates probably apply most often to business calls.

[5] These differences are discussed in Section II. These effects would have had to occur quite quickly since most states have only recently (early 1986) allowed pricing flexibility.

[6] We control for this possibility by including the December 1983 price in our regression analysis. If deregulation had occurred in states which had low prices prior to deregulation, then the inclusion of the December 1983 price (which is prior to all state deregulation efforts) would cause the relationship between pricing flexibility and 1987 prices to disappear. Since

The telecommunications market is an extremely complex interaction of supply factors, demand factors, and political factors, all in an industry with quickly changing technology. Any single empirical model cannot incorporate all of these complexities. Consequently, we encourage more research and refinement of the models discussed in this paper to verify that the results we find are consistent with alternative data sources and alternative specifications.

The study is organized into the following sections. In Section II we compare price cap regulation and rate-of-return regulation. In Section III we discuss the changes in regulation of AT&T at the state level. In Section IV we discuss the equation we use to compare the prices of intrastate long distance service across the different states. In Section V we discuss the econometric methodology used to estimate the equation. In Section VI we discuss the results. Section VII gives conclusions.

II. Price Cap Versus Rate-of-Return Regulation

The major advantage of the price cap approach is that it encourages the utility to reduce its costs and to innovate in its production technology and service offerings by creating a greater profit incentive than exists under traditional regulation. Under rate-of-return regulation, prices are set so that the utility is assured of a specific return on its investment after recouping its operating costs. Since its rates are reduced in step with decreases in costs, the utility may have relatively little incentive to minimize its costs or to engage in innovative behavior.[7] In addition, Averch and Johnson (1962) show that under rate-of-return regulation the utility may have an incentive to use too much capital. Regulators attempt to deal with this by requiring approval for new investments. However, Haring and Kwerel (1987) note that this procedure has not been successful at the FCC. They note "[T]he FCC has, for example, approved all of AT&T's requests for new international cables facilities even when there was little demonstrated need for additional capacity."[8]

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we include the December 1983 price, our estimate relates to the change in price during the deregulation period, not price differences that already existed in 1983. It is possible, however, that the states that have chosen price cap regulation are those in which AT&T (for some reason not captured by our empirical model) was predisposed to lower prices. If so, projecting the currently observed price differences between flexible and inflexible regimes to states that in the future switch to price cap regulation may be inappropriate.

[7] In addition, the utility may have an incentive to use too much capital. See Averch and Johnson (1962).

[8] Haring and Kwerel (1987) also cite anecdotal evidence provided by Sherer (1970) indicating that overcapitalization may have, historically, been a problem in telecommunications.

Under the price-cap approach, however, the utility would be able to profit to a greater extent from cost-reducing innovations, since its rates would not be automatically adjusted downward. This incentive to innovate follows whether the utility operates in a competitive or less than competitive environment. In addition, a price cap regulatory framework may reduce the administrative and compliance costs of regulation.[9] Under a price cap regulatory framework, a regulated utility would be able to have pricing flexibility with only limited regulatory oversight as long as the prices are within permissible limits. Under rate-of-return regulation, by contrast, the utility cannot change prices without filing a rate case and obtaining governmental approval,[10] procedures which are time-consuming and expensive.

Even absent these differences in incentives and administrative costs, if the price ceiling is set to equal the price arrived at under traditional rate-of-return regulation, the two forms of regulation should be equivalent. Consequently, it appears that even in the worst case (where there are no gains associated with switching to a price cap regulation) the two forms of regulation will have the same welfare implications.

These conclusions are consistent with the theoretical work by Hayes and Seigel (1986). They demonstrate that rather than fixing the price that the regulated firm must charge, the regulator should grant the firm the option to change any price to less than or equal to a ceiling price. They conclude that if the regulated firm has pricing flexibility, both consumers and the firm are at least as well off. In addition, they suggest that firms may be more willing to lower price since a subsequent increase in price cannot be denied if the price stays below the ceiling. Haring and Kwerel (1987) also suggest that price cap regulation is superior to rate-of-return regulation of AT&T's services.

The comparison of the two forms of regulation suggests that the welfare gains from a price cap regulation should be positive or zero, but not negative. How large the gains are is an empirical issue. The rest of this paper considers the evidence from AT&T intrastate long distance prices across states that have the two forms of regulation.

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[9] For example, the direct administrative costs (excluding AT&T's cost) associated with the FCC's current regulation of AT&T have been estimated to be $40 million per year. These numbers are summarized by Haring and Kwerel (1987).

[10] Competitors are usually permitted to participate in these rate cases. Haring and Kwerel (1987) note that competitors of AT&T have opposed virtually every price reduction proposed by AT&T since the 1982 divestiture of AT&T.

III. State Regulation of AT&T

Long distance services are regulated not only by the FCC but by the states. The 1982 settlement of the Justice Department's suit against AT&T not only prevents AT&T from providing local service, but also restricts the ability of local companies to provide long distance service. Nevertheless, the total separation of local and long distance service was thought to be impractical. Therefore, Local Access and Transportation Areas (LATAs) were created within which the respective local telephone companies were allowed to provide long distance service. The creation of LATAs divided intrastate long distance service into two types, intraLATA and interLATA.[11] Many states have reserved the intrastate intraLATA service solely for the local telephone companies. The settlement of the lawsuit prohibits the local telephone companies from providing intrastate interLATA service. However, many states have encouraged competition among long distance carriers in the provision of intrastate interLATA service.[12]

Many of the 39 states with more than one LATA regulate intrastate interLATA carriers based on a distinction between dominant and nondominant firms.[13] Until recently, it was typical for the dominant firm to be subject to strict rate-of-return regulation, while the regulation of nondominant firms was less rigid. Usually, nondominant carriers simply filed tariff schedules which automatically took effect within a limited amount of time. The recent trend, however, has been away from this distinction and towards a relaxation in the regulation of the dominant firm(s). For example, between 1984 and 1987, 28 of the 39 multiLATA states have relaxed their regulation of AT&T's intrastate interLATA service.[14] For example, the Kansas Public Utility Commission permits AT&T to increase rates by four percent and decrease them by seven percent without filing a rate case.[15] Missouri has recently adopted a minimum/maximum rate band structure within which all interLATA carriers may change rates upon 14 days notice. The Missouri Public Utility Commission has ruled that the existing rates will be the maximum rates and that rates 15 percent below these rates determine a price floor.[16] The remaining 11 states continue to use rate-of-return regulation without pricing flexibility.

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[11] Thirty-nine states have more than one LATA. The United States is divided into 161 LATAs.

[12] AT&T currently provides intrastate interLATA service in all 39 multiLATA states.

[13] The states determine which firms are considered dominant and which are considered nondominant.

[14] See **State Telephone Regulation Report** (1987). A description of the regulatory approach of individual states is contained in Appendix B.

[15] *Ibid.*

[16] *Ibid.*

IV. The Empirical Model

A. The Reduced Form Model

There are two basic approaches for the empirical analysis of the price of intrastate interLATA long distance service: 1) the estimation of supply and demand equations for long distance service ("structural" equations); or 2) the estimation of a "reduced form" price model, which includes demand and supply factors in one equation. This paper is concerned not with the structural parameters of demand or supply, but rather with the difference in prices between states that allow pricing flexibility and those that do not. Consequently, we specify a reduced form equation for the price of an intrastate interLATA MTS phone call.

We estimate a simple model in which the August 1987 price is the dependent variable and the December 1983 price and a regulatory flexibility measure are the explanatory variables.[17] We include the December 1983 price as a measure of the level of prices prior to any change in regulatory approach.[18] In addition, the December 1983 price may also reflect the

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[17] The inclusion of a lagged dependent variable does not result in biased estimates of the coefficients, because we do not use time series data in this specification. Since we have cross sectional data the usual problems associated with autocorrelation in the error term do not exist.

The simple model presented in the text does not include other exogenous variables which may affect the demand for or supply of intrastate interLATA telephone service. However, if the relationship between the exogenous variables and price is stable over time, only changes in these exogenous variables between December 1983 (since the price variable for that date is included in the analysis) and August 1987 should affect the dependent variable. Nevertheless, to be thorough, a more complete reduced form model is presented in Appendix A. In that model we use the August 1987 price of an intrastate interLATA call as the dependent variable and exogenous factors that affect the demand for and/or supply of intrastate interLATA service as explanatory variables. Additionally, since the price of long distance service is subject to state regulation, we include variables that proxy the political environment of the respective public utility commissions.

The results for the regulation variables from the more inclusive model are very similar to the results from the simpler model. Therefore, for ease of presentation, we discuss the simpler model in the text. The more complete model is presented in Appendix A.

[18] We will also estimate the model without the December 1983 price. The inclusion of the 1983 price could be important because it may be that the states which have low prices in 1983 are the states that choose to allow pricing flexibility. If this were the case, a significant relationship between low prices and pricing flexibility could arise in the specification without the 1983 price even if pricing flexibility actually had no effect on price. The lower prices may not be caused by the change in regulation but rather the

tendency of the public utility commissions to favor either consumers or shareholders in its pricing decisions. The reduced form model is given by equation (1).

(1) $PRICE_i = a + b_1 83PRICE_i + b_2 REGFLEX_i + e_i$

where,

$PRICE_i$ = the August 1987 prices of intrastate interLATA calls for the following ten mileage ranges for each state.[19]

(0-10 miles)
(11-16 miles)
(17-22 miles)
(23-30 miles)
(31-40 miles)
(41-55 miles)
(56-70 miles)
(71-124 miles)
(125-196 miles)
(197-292 miles).

$83PRICE_i$ = the December 1983 prices of intrastate interLATA calls for the same ten mileage ranges just listed for each state.

$REGFLEX_i$ = a dummy variable which equals one if the state allows AT&T some regulatory pricing flexibility.[20]

The subscript i denotes the particular state, a and b_1-b_2 are coefficients to be estimated, and e_i is a normally distributed error term with a homoskedastic and diagonal variance-covariance matrix.

Since the December 1983 price is included in the analysis, one can also view this model as similar to a model that explains changes in prices since 1983.[21]

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change in regulation may be in response to low prices. However, by including the 1983 price we avoid this problem by controlling for the prices before the regulatory changes.

[19] How we combine all of these prices (as well as the 1983 prices, below) into one equation is discussed later in this appendix.

[20] See Appendix B for a list of these states.

[21] However, such a model is not equivalent to a first difference model. We have also respecified this equation by using the difference between the 1987 and 1983 prices as the dependent variable rather than by using the 1987 price as the dependent variable and the 1983 price as an explanatory variable. The results for the variable of interest (AT&T pricing

B. The Price Data

This paper focuses only on AT&T's toll rates for the 39 multiLATA states.[22] Measuring the price of intrastate interLATA service is complicated by the fact that the price of a phone call varies by time of day, distance and length (minutes of use) of the call. For example, long distance interLATA rates are often 20-60 percent lower if made in the evening or on the weekends rather than during daily business hours. Telephone companies also set higher rates for the first minute of a long distance call than for subsequent minutes of use. Moreover, long distance interLATA rates vary according to the distance range into which the call falls. All states categorize distance into distance bands, each of which commands a different charge. For example, the charge for a call that is between 0 and 10 miles is cheaper than a similar call that is between 11 and 16 miles. An additional complication in comparing prices across states is that many states use different distance ranges. For example, one state may charge one price for 0-7 mile calls while another state may charge the same price for 0-18 mile calls. Consequently, if the call is 7 miles or less the two states may have the same price while if it is between 8 and 18 miles the prices may significantly differ.

To obtain prices that can be meaningfully compared across states we constructed a set of "standardized" prices for a specified set of mileage ranges. In choosing which mileage ranges to use we examined all the tariff schedules for the states and chose the mileage ranges that the largest number of states used. These ranges are 0-10 miles, 11-16 miles, 17-22 miles, 23-30 miles, 31-40 miles, 41-55 miles, 56-70 miles, 71-124 miles, 125-196 miles and 197-292 miles.[23] We then constructed the price of the initial minute and the price of additional minutes for each mileage band. If the state classifies its prices according to the mileage ranges given above, the prices are obtained from the corresponding entry on the tariff schedule. If, however, a state charges one price for a 0-8 mile call and a higher price for a 9-15 mile call, the standardized 0-10 price would be .8 times the 0-8 mile price plus .2 times the 9-15 price.[24] These standardized prices are computed

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flexibility) are similar under these two specifications.

[22] These data were obtained from the CCMI/McGraw Hill service, which maintains computer records of AT&T toll rates for all states.

[23] Some states have distance ranges that exceed 292 miles while some states charge one price for anything over a certain distance. However, since some states do not span more than this distance we cannot meaningfully compare prices with equivalent distance ranges. Consequently, we do not analyze the prices of long distance calls that exceed 292 miles.

[24] An alternative way to compare the rates across states is to choose a mileage distance and compute what the charge for that distance would be in each state. However, the results of this method may depend on which distance is chosen.

for both the 1987 tariff schedule and the 1983 tariff schedule.[25] Appendix C contains the 1987 standardized prices for the first minute and additional minutes of an AT&T MTS phone call in each of the 39 multiLATA states.[26]

V. Econometric Methodology

We use an econometric method that allows us to use all of the price data for the different mileage bands in a single equation.

One way to estimate equation (1) would be to perform a regression for each of the mileage bands. However, a major disadvantage of estimating a separate equation for each mileage range is that we would have only 39 observations in each equation. Also, it is possible that a specific variable may have an effect on price that is insignificant for each mileage range and yet it might have this effect consistently across all mileage ranges. Further, statistical tests concerning the average price effect of any variable across the 10 equations (one for each mileage band) would require that we have independence across the residuals for the different price equations.[27] Independence of the residuals across the equations may not be a reasonable assumption for this data. For example, what we do not explain for the 0-10 mile price (the residual in the 0-10 mile equation) of one state may be correlated with what we do not explain for the 11-16 mile price. To avoid this problem we use a technique used in many models that combine data across individuals and over time for a single individual (time series-cross section models).[28]

Time series-cross section models are similar in structure to the type of reduced form model in this report. For example, in many time series-cross

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[25] Recall that one of the independent variables in the analysis is the 1983 intrastate interLATA toll.

[26] We have a set of 10 different prices (which vary according to distance) for each state. The particular manner in which we utilize this price information is discussed in the econometrics section below.

[27] If the residuals for each observation were independent of each other, we could test whether the average effect of a variable over all the 10 equations differed significantly from zero by summing the t-statistics from each ordinary least squares (OLS) equation and dividing by the square root of the number of OLS equations. However, if the residuals are not independent we need to turn to other methodologies to test the hypothesis that states with pricing flexibility have different AT&T prices than states without flexibility.

[28] An alternative method, the seemingly unrelated regression technique, is not appropriate in our model since for each mileage range we have the exact same values for the exogenous variable. In this case, even if we have correlation in the residuals across equations, we obtain the identical results as if we estimate each equation by ordinary least squares. See Kmenta (1971, p. 521).

section settings we observe the earnings of a cross section of individuals for a variety of years. In these cases researchers often "pool" the data and analyze the cross section and time series data together in a single equation. In the model described above, instead of having observations over time for the same individuals we have observations over distance for the same states.

Borrowing from the time series-cross section models, we pool the data for the different distances and analyze all of the data within a single equation. The data pooling may result in correlation among the error terms across different observations. There are numerous ways in which one can adjust the model so that the error term has the desirable statistical properties. The method used in this report is a variant of the covariance model. The covariance model allows each cross-sectional unit (in this case each state) and each time period (in this case each distance) to have its own dummy variable.[29] Therefore, any similarities in the error term across two states for the same distance range will be incorporated into the respective dummy variable. Likewise, any similarities in the error term between two different mileage ranges for the same state[30] will be incorporated into the dummy variables.[31]

The covariance model used in the analysis is given by equation (2).

$$\begin{aligned}(2)\ PRICE_{ij} = {} & a + b_1 83PRICE_{ij} + b_2 REGFLEX_i + b_3 MILE1 + \\ & b_4 MILE2 + b_5 MILE3 + b_6 MILE4 + \\ & b_7 MILE5 + b_8 MILE6 + b_9 MILE7 + \\ & b_{10} MILE8 + b_{11} MILE9 + b_{12} BOC2 + \\ & b_{13} BOC3 + b_{14} BOC4 + b_{15} BOC5 + \\ & b_{16} BOC6 + b_{17} BOC7 + e_i\end{aligned}$$

where i denotes a state, j denotes a mileage range and

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[29] This is equivalent to adding a separate intercept term for each state and each mileage range.

[30] Because the exogenous variables do not vary across the mileage bands within a state, we cannot identify the coefficients on the exogenous variables if we include dummy variables for each state. Therefore, we include dummy variables for the regional Bell Operating Companies (the Bell local telephone companies). For a further discussion see footnote 33.

[31] Note that the resulting error term should have the desirable statistical properties since unexplained similarities across observations (correlation in the error terms) in the model without the dummy variables are now incorporated in the dummy variables and are no longer in the new error term.

MILEj, j=1,9 are dummy variables for 9 of the 10 mileage ranges,[32]

BOCk, k=2,7 are dummy variables for 6 of the 7 regional Bell Operating Companies (BOC's) a state may be under.[33]

VI. Results

We start by examining the differences in average prices across the two regulatory regimes. After discussing these differences, we examine the results from the regression analysis of equation (2). In addition, Appendix A contains the results for the more complex model, one that incorporates a large number of additional factors that may determine price.

Table 1 contains the average 1987 and 1983 AT&T interLATA prices in each mileage band for a five minute call during the daytime in states that have rate-of-return regulation and states that allow pricing flexibility. States with rate-of-return regulation have higher 1987 prices than states with pricing flexibility for all of the mileage bands. However, states that currently use rate-of-return regulation also had higher prices than states that currently have pricing flexibility in 1983. Columns 3 and 6 of Table 1 give the change in average price since 1983 for the respective regulatory regimes. For 8 of the 10 mileage bands, prices have risen more dramatically (or have fallen less dramatically) in states with rate-of-return regulation. Consequently, not only are 1987 average prices higher in states with rate-of-return regulation, but part of this difference can be attributed to changes in prices since 1983. For example, since 1983, in states with rate-of-return regulation, the price of a five-minute call between 31-40 miles increased by four cents. In states that allow pricing flexibility, the average price for a 31-40 mile call has fallen by three cents.

The results for the covariance model are given in Tables 2-4. We have estimated all the equations using the price of a five minute call during

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[32] There is no dummy variable for the 197-292 mileage band. The included variables are listed in order of distance, *i.e.* (0-10),(11-16),...

[33] It is important to notice that many of the explanatory factors such as REGFLEX do not vary across the different mileage bands within the same state. Only the price data varies across mileage bans within a state. This data limitation makes it impossible to include a state dummy variable for each state as the covariance model dictates. Instead of a dummy variable for each state we include a set of dummy variables for 6 of the 7 regional Bell holding companies (the regional Bell companies are comprised of the Bell local telephone companies). Each of these dummy variables captures the part of the residual that is common to all states served by a single regional Bell company. There is no dummy variable for Ameritech, which represents the midwest region of the U.S. The included regional Bell company variables appear in the following order: Bell Atlantic, Bell South, Nynex, Pacific Telesis, SouthWest Bell, and U.S. West.

business hours, evening hours, and night\weekend hours.[34] We have estimated all the equations in linear form.[35] Additionally, we have estimated all equations with and without the December 1983 price as an explanatory variable. The coefficient on the pricing flexibility variable in the model without the December 1983 price represents the difference in August 1987 prices between states that allow AT&T pricing flexibility and those that do not. The coefficient on the pricing flexibility variable in the model with the 1983 price included is similar to a model that compares the change in prices (since 1983) in states that have allowed pricing flexibility and those that have not.[36]

We first discuss the results for the equation for daytime rates (Table 2) with the daytime 1983 price included. The results demonstrate that after controlling for differences in the daytime 1983 price those states that have allowed AT&T some degree of pricing flexibility have significantly lower daytime prices than those states that maintain strict rate-of-return regulation. The coefficient on the regulatory flexibility variable equals -.10, indicating that after controlling for the 1983 price, a five minute call, on average, costs ten cents less in states that have allowed pricing flexibility.[37] The average price of a five minute call in states that have strict rate-of-return regulation is $1.46. Therefore, on average, after taking account of

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[34] We have also estimated the equation using the price of a 15 minute call and obtained very similar results.

[35] We have also estimated the equation in a double logarithmic form (except for the dummy variables). The results using this model were very similar and consequently we do not report these results.

[36] Note that all regulatory changes regarding pricing flexibility have taken place since 1984. Therefore, if states that have allowed pricing flexibility have lowered prices more than those states that have not, it can be argued that such changes are due to the regulatory actions. Recall that we have also modeled the change in price as the dependent variable and obtained similar results to those that discussed below.

[37] The results for longer calls are similar to those for the five minute call analysis in terms of the percentage effect on price. However, the longer the call the greater will be the actual cent difference in price between the states that allow flexibility and the states that do not. For example, the price of a 15 minute call in flexible pricing states is approximately 32 cents lower than in other states (approximately three times the effect for the five minute call).

We have also estimated the model including a variable that proxies the degree of competition in each state. For example, we have included the number of long distance carriers per state divided by the area of the state as an explanatory variable in the regression analysis. The inclusion of this variable does not alter the conclusions.

differences in 1983 prices, states with pricing flexibility have approximately seven percent lower prices than those without flexibility.[38]

The coefficients on the dummy variables for mileage range are generally significant. After controlling for the 1983 price, the price of a 0-10 mile call, 11-16 mile call, 17-22 mile call, 23-30 mile call, 31-40 mile call, 41-55 mile call, 56-70 mile call and 71-124 mile call are all significantly cheaper than a call in the left out mileage range of 197-292 miles. The price of a 125-196 mile call is less, but not significantly less expensive, than a 197-292 mile call.

The particular regional Bell company has some systematic effect on price in the regression.[39] For example, *ceteris paribus*, states under Pacific Telesis (BOC5) have significantly lower prices for a given form of regulation

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[38] Some states have allowed AT&T to change prices within a specified band or change price as long as it is stays below a maximum price (see Appendix B for details). These types of pricing flexibility are precisely the types being considered by the FCC. Other states have formally given AT&T full pricing flexibility, but in some of these states the public utility commission retains the right to review (though not through formal rate cases) prices charged by AT&T and can prevent AT&T from implementing prices deemed anticompetitive. Consequently, for these states, it may be difficult to ascertain the degree of pricing freedom that AT&T actually has. Only Montana and Nebraska have actually taken steps to exempt AT&T from state regulation.

For the results presented in the text we have considered a single regulation variable representing whether AT&T has any type of pricing flexibility. We have experimented with other regulation variables. To account for the different types of pricing flexibility granted to AT&T, we have divided the single regulation variable into two variables. The first variable is a dummy variable that equals one if the state sets either a pricing band or a maximum price within which or below which AT&T can freely operate (16 of the 28 states that allow flexibility do so in this manner). This type of pricing flexibility is the type proposed by the FCC. The second variable is a dummy variable that equals 1 if the state has granted AT&T full pricing flexibility (12 of the 28 states are of this type).

The empirical results show that while both of these types of flexibility result in lower prices compared to states which allow no flexibility, the type of flexibility considered by the FCC (mileage bands or maximum price) results in even lower prices than the full pricing flexibility framework. In many cases the full pricing flexibility variable is not significant although the sign on the coefficient is consistently negative. The reason for this result is unclear. One might speculate that AT&T actually has more freedom to change prices in states with price bands or price caps than in states with full pricing flexibility since the latter states retain the right to oppose AT&T price changes while the former have essentially approved all price changes within the specified ranges.

[39] We have also estimated the equation without these dummy variables and obtain similar results for the regulation variable.

than states under the regional Bell company of Ameritech[40] (which represents the midwest region of the U.S.).

The coefficient on the 1983 price is also significant. This is expected since states that have higher prices in 1983, *ceteris paribus*, are likely to have higher prices in 1987. However, the coefficient is also significantly less than one, indicating that price differentials across the states have changed since 1983, even after allowing for the other variables in the model.

When the model is respecified without the daytime 1983 price, the results of interest do not vary much. The coefficient on the price flexibility regulation variable is still negative and significant indicating that states that have allowed AT&T pricing flexibility have benefitted from relative reductions in the prices paid by customers of AT&T. The coefficient on the flexibility variable equals -.13 indicating that the price of a five minute call is 13 cents less in states that allow pricing flexibility compared to those that do not (which translates into a nine percent price difference).

Tables 3 and 4 present the results of similar models for evening and night rates respectively. Again we discuss the results for the equation with the 1983 price. The results in Table 3 affirm the conclusion that allowing AT&T pricing flexibility results in lower prices to consumers. For evening rates the coefficient on the flexibility variable again equals -.10, indicating that after controlling for differences in the 1983 price, a five minute call, on average, costs ten cents less in states that have allowed pricing flexibility. However, the average price of a five minute call during the evening for states without flexibility is only $1.05. Therefore, on average, states with pricing flexibility have approximately ten percent lower prices. The results for the equation without the 1983 price included also suggest that pricing flexibility results in lower prices to consumers.

Finally, the results in Table 4 are consistent with the results in Tables 2 and 3. For night\weekend rates, the coefficient on the flexibility variable equals -.07, indicating that after controlling for 1983 prices, the price of a five minute call in states that allow flexibility is seven cents less than in states that do not. The average price of a five minute call during the night/weekend for states without flexibility is $0.70. Therefore, the seven cent difference translates into approximately a ten percent price difference.

One explanation for these results is that AT&T's prices are lower in states that allow pricing flexibility because of the differences in the incentives to minimize costs and innovate under the alternative regulatory approaches.[41] An alternative explanation may be that AT&T fails to lower prices in states with rate-of-return regulation because of the difficulty

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[40] This is the left out dummy variable. The coefficients of the included six regional dummies are in comparison to the left out variable.

[41] These differences are discussed in Section II. These effects would have had to occured extremely quickly since most states have only recently (early 1986) allowed pricing flexibility.

AT&T foresees in raising them in the future. Under pricing flexibility, prices can be increased without approval as long as they are below the ceiling price.

Some alternative explanations are controlled for or can otherwise be ruled out by our study methodology. For example, there is evidence that lower prices in states that allow pricing flexibility do not simply result from the imposition of very low price ceilings. If this were the case, we would expect that prices in most deregulated states would be "bumping up" against the price ceilings. In fact, AT&T prices below the ceiling in approximately half of the nine states we have surveyed that impose price ceilings. Moreover, AT&T's prices in these "below ceiling" states are lower by a statistically significant amount than its prices in states that do not allow pricing flexibility.

Also, the lower prices in states that allow pricing flexibility do not simply reflect a tendency for pricing regulations to be relaxed in states where prices were already low and for stricter regulation to remain in states with high prices. Our methodology allows us to control for this possibility, and we find that this effect is not significant.[42]

VII. Conclusion

There has recently been theoretical literature indicating that price cap regulation is preferable to rate of return regulation under certain circumstances. Little empirical evidence exists, however, on this important issue. This paper presents a first step in providing such evidence.

Our empirical examination of alternative regulatory regimes for AT&T MTS service at the intrastate level suggests that regulations permitting price flexibility may result in significantly lower prices. If true, this finding has important implications for many regulated industries. For example, because the intrastate market and the interstate market are very similar, one might expect that if the FCC allows AT&T flexibility in the pricing of interstate MTS service (which it recently has proposed), the effects would be similar to those found for intrastate interLATA services.

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[42] We control for this possibility by including the December 1983 price in our regression analysis. If deregulation had occurred in states which had low prices prior to deregulation, then the inclusion of the December 1983 price (which is prior to all state deregulation efforts) would cause the relationship between pricing flexibility and 1987 prices to disappear. Since we include the December 1983 price, our estimate relates to the change in price during the deregulation period, not price differences that already existed in 1983. It is possible, however, that the states that have chosen price cap regulation are those in which AT&T (for some reason not captured by our empirical model) was predisposed to lower prices. If so, projecting the currently observed price differences between flexible and inflexible regimes to states that in the future switch to price cap regulation may be inappropriate.

Table 1

Average AT&T InterLATA Prices in States with ROR and States with Pricing Flexibility
(Daytime Rates for a 5 Minute Call)

	ROR Regulation			Price Flexibility		
Distance	87 Price	83 Price	Change	87 Price	83 Price	Change
0-10 Miles	$0.77	$0.61	$0.16	$0.70	$0.53	$0.17
11-16 Miles	$0.91	$0.79	$0.12	$0.89	$0.74	$0.15
17-22 Miles	$1.09	$0.99	$0.10	$0.99	$0.90	$0.09
23-30 Miles	$1.27	$1.17	$0.10	$1.22	$1.16	$0.06
31-40 Miles	$1.43	$1.39	$0.04	$1.32	$1.35	-$0.03
41-55 Miles	$1.59	$1.61	-$0.02	$1.39	$1.51	-$0.12
56-70 Miles	$1.71	$1.78	-$0.07	$1.59	$1.70	-$0.11
71-124 Miles	$1.85	$1.99	-$0.14	$1.66	$1.85	-$0.19
125-196 Miles	$1.95	$2.15	-$0.20	$1.80	$2.01	-$0.21
197-292 Miles	$2.04	$2.28	-$0.24	$1.84	$2.12	-$0.28

Table 2

The Effect of AT&T Pricing Flexibility on the 1987 Price of a 5 Minute Direct Dial MTS Call During the Day

Variable	Coefficient	t-value	Coefficient	t-value
Intercept	1.99	38.25**	0.92	8.34**
83PRICE	--	--	0.48	10.51**
REGFLEX	-0.13	-4.62**	-0.10	-4.02**
MILE1 (0-10)	-1.17	-21.89**	-0.40	-4.62**
MILE2 (11-16)	-1.00	-18.65**	-0.32	-4.04**
MILE3 (17-22)	-0.87	-16.29**	-0.28	-3.81**
MILE4 (23-30)	-0.66	-12.36**	-0.18	-2.79**
MILE5 (31-40)	-0.54	-10.07**	-0.15	-2.58**
MILE6 (41-55)	-0.45	-8.38**	-0.15	-2.73**
MILE7 (56-70)	-0.27	-4.97**	-0.05	-1.06
MILE8 (71-124)	-0.18	-3.28**	-0.04	-0.88
MILE9 (125-196)	-0.05	-0.96	0.01	0.08
BOC2	-0.08	-1.67	-0.06	-1.44
BOC3	0.11	2.56**	-0.00	-0.02
BOC4	-0.06	-1.16	-0.04	-0.92
BOC5	-0.34	-5.45**	-0.26	-4.65**
BOC6	0.04	0.87	0.09	2.06*
BOC7	0.01	0.32	0.09	2.39*
Adjusted R^2	.74		.78	
F-value	69.97		90.94	
N	390		390	

* Statistically significant at .05 level.
** Statistically significant at .01 level.

Table 3

The Effect of AT&T Pricing Flexibility on the 1987 Price of a 5 Minute Direct Dial MTS Call During the Evening

Variable	Coefficient	t-value	Coefficient	t-value
Intercept	1.41	37.38**	0.59	7.29**
83PRICE	--	--	0.55	10.88**
REGFLEX	-0.13	-6.03**	-0.10	-5.42**
MILE1 (0-10)	-0.83	-21.20**	-0.23	-3.54**
MILE2 (11-16)	-0.70	-18.07**	-0.18	-3.05**
MILE3 (17-22)	-0.61	-15.77**	-0.15	-2.84**
MILE4 (23-30)	-0.47	-11.95**	-0.09	-1.93
MILE5 (31-40)	-0.38	-9.71**	-0.08	-1.79
MILE6 (41-55)	-0.32	-8.11**	-0.08	-2.12*
MILE7 (56-70)	-0.19	-4.83**	-0.02	-0.64
MILE8 (71-124)	-0.12	-3.19**	-0.02	-0.58
MILE9 (125-196)	-0.04	-0.95	0.01	0.21
BOC2	-0.01	-0.29	0.03	0.94
BOC3	0.12	3.94**	0.02	0.78
BOC4	-0.09	-2.13*	-0.06	-1.61
BOC5	-0.16	-3.56**	-0.11	-2.69**
BOC6	0.12	3.53**	0.09	2.83**
BOC7	-0.03	-0.88	0.02	0.82
Adjusted R^2	.73		.80	
F-value	67.96		91.04	
N	390		390	

* Statistically significant at .05 level.
** Statistically significant at .01 level.

Table 4

The Effect of AT&T Pricing Flexibility on the 1987 Price of a 5 Minute Direct Dial MTS Call During the Night\Weekend

Variable	Coefficient	t-value	Coefficient	t-value
Intercept	0.96	30.00**	0.36	5.40**
83PRICE	--	--	0.62	9.83**
REGFLEX	-0.06	-3.31**	-0.07	-4.21**
MILE1 (0-10)	-0.57	-17.33**	-0.13	-2.50**
MILE2 (11-16)	-0.49	-14.83**	-0.10	-2.09*
MILE3 (17-22)	-0.43	-12.96**	-0.09	-1.97*
MILE4 (23-30)	-0.32	-9.80**	-0.05	-1.24
MILE5 (31-40)	-0.26	-7.99**	-0.04	-1.19
MILE6 (41-55)	-0.22	-6.70**	-0.05	-1.53
MILE7 (56-70)	-0.13	-4.03**	-0.01	-0.40
MILE8 (71-124)	-0.09	-2.64**	-0.01	-0.39
MILE9 (125-196)	-0.03	-0.79	0.01	0.20
BOC2	0.05	1.59	0.09	3.51
BOC3	0.05	2.12*	0.01	0.56
BOC4	-0.11	-3.13**	-0.06	-1.82
BOC5	-0.09	-2.37*	-0.01	-0.23
BOC6	0.12	4.20**	0.07	2.74**
BOC7	-0.04	-1.50	0.03	1.38
Adjusted R^2	.65		.72	
F-value	45.50		59.49	
N	390		390	

* Statistically significant at .05 level.
** Statistically significant at .01 level.

Appendix A

The more complete reduced form model is given by equation (A1), which includes exogenous factors affecting the demand and supply of intrastate interLATA service and political preference variables that may affect the regulated price of the telephone service.

$$(A1)\ PRICE_i = a + b_1 83PRICE_i + b_2 REGFLEX_i + b_3 PRURAL_i + b_4 POP_i + b_5 SALOMON_i + b_6 AREA/POP_i + b_7 INCOME_i + b_8 WAGES_i + b_9 ACCESS_i + b_{10} CPI_i + b_{11} ENTRY_i + e_i$$

where the subscript i denotes the particular state, b_1-b_{11} are coefficients to be estimated, e_i is a normally distributed error term with a homoskedastic and diagonal variance-covariance matrix, and

PRICE = the August 1987 prices of interLATA calls for the following mileage ranges for each state:

(0-10 miles)
(11-16 miles)
(17-22 miles)
(23-30 miles)
(31-40 miles)
(41-55 miles)
(56-70 miles)
(71-124 miles)
(125-196 miles)
(197-292 miles),

83PRICE = the December 1983 price of intrastate call for each of the mileage ranges,

REGFLEX = a dummy variable which equals one if the state allows AT&T some pricing flexibility,

PRURAL = the percentage of rural population in each state in 1985,

POP = the population of the state in 1985,

SALOMON = a dummy variable which equals one if the Salomon Brothers electric utility rating is C+ or above and zero otherwise,

AREA/POP = the inverse of the population density of the area in 1985,

INCOME = the per capita income for each state in 1985,

WAGE = the average wage per employee in the telecommunications industry for each state in 1984,

ACCESS = a dummy variable that equals 1 if the state, since 1983, has lowered its access charge for intrastate long distance carriers to connect to the local network.

CPI = a measure of the 1986 consumer price index for state i.[43]

ENTRY = a dummy variable that equals 1 if the state restricts resellers or facilities-based competition for intraLATA toll service.

The variables in equation (A1) can be classified as those which affect the demand for interLATA service, those that affect the input costs of providing interLATA service (supply) and those variables that proxy the political environment of the PUC.[44]

While most of these variables are included for obvious reasons, we discuss three of these in more detail. The percentage rural, the access charge variable, and whether the commission allows entry into the intraLATA market are all proxies for the degree to which the public utility commission takes action to cross subsidize between intrastate toll markets and local service. The greater the rural population, the greater the political pressure is to cross-subsidize since the rural population tends to be the beneficiary of such subsidization. Moreover, a commission interested in cross-subsidization is less likely to 1) lower access charges to its long distance carriers, and 2) allow entry into the intraLATA toll market (since this is an indication that the state subsidizes local service). Consequently, PRURAL should be positively correlated with the interLATA price, ACCESS should be negatively correlated with the interLATA price, and ENTRY should be postively correlated with the interLATA price.

As in the model discussed in the text (the covariance model) the data were pooled, and we added dummy variables for the Bell regional companies and the different mileage ranges.

The results for the more inclusive model are given in Table A1. The estimation of the above equation yields results for the regulation variable that are qualitatively similar (actually, the difference in prices is even

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[43] The CPI is constructed by using an average of selected cities (both rural and urban) in the respective states.

[44] We use the most current available data for all of the exogenous variables. If the exogenous variables have not changed much since 1983 then the effect of many of the exogenous variables may already be reflected in the 1983 price. Consequently, we have also estimated equation (A1) with the 1983 price excluded. This respecification did not significantly alter the results for the regulation variable.

greater in the more inclusive model) to the results that are presented in the text. For example, for the daytime rate equation, the coefficient on the pricing flexibility variable in the more complex reduced form model equals -.15 compared to -.10 in the simpler model presented in Appendix A.

Since the market for long distance service is regulated, it is difficult to interpret the reduced form coefficients. Each coefficient incorporates the impact of the variable on the demand and/or supply side of the market, and, in addition, the way these demand and supply factors are treated by the public utility commissions. Nevertheless, some of the variables are not in accord with what we would expect. For example, the income variable is negatively related to the price of long distance telephone service. One would expect that the higher the per-capita income of the state, the higher is the demand for telephone service. The income variable may be proxying the political influence of consumer and business groups in high income states. In addition, it may that in high income-high demand states there is better ability to take advantage of scale economies in production. The other variable that is significantly related to price and is not in accord with our expectation is the percentage rural. One would expect that states with a high percentage of rural population to have higher rates. However, this variable is highly correlated with the density variable and the Salomon Brothers rating. This makes it more difficult to predict the sign on this variable.[45]

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[45] The coefficients on income and the percentage rural variables also have the unexpected sign and are statistically significant in the model with the 1983 price excluded.

Table A1

The Effect of AT&T Pricing Flexibility on the 1987 Price of a 5 Minute Direct Dial MTS Call During the Day

Variable	Coefficient	t-value
Intercept	2.32	4.69**
83PRICE	0.37	7.59**
REGFLEX	-0.15	-4.97**
PRURUAL	-0.01	-3.11**
POPULATION	-0.12	-4.65**
SALOMON	0.09	3.31**
AREA/POPULATION	-0.02	-0.47
INCOME	-0.07	-5.07**
WAGES	-0.02	-0.21
ACCESS	0.05	1.73
CPI	-0.01	-0.68
ENTRY	0.15	3.89**
MILE1 (0-10)	-0.57	-6.39**
MILE2 (11-16)	-0.47	-5.85**
MILE3 (17-22)	-0.41	-5.55**
MILE4 (23-30)	-0.29	-4.45**
MILE5 (31-40)	-0.24	-4.13**
MILE6 (41-55)	-0.22	-4.13**
MILE7 (56-70)	-0.10	-2.12*
MILE8 (71-124)	-0.07	-1.62
MILE9 (125-196)	-0.01	-0.19
BOC2	0.04	0.83
BOC3	-0.27	-0.62

BOC4	0.13	1.98*
BOC5	-0.30	-3.57**
BOC6	0.13	2.78**
BOC7	0.08	2.04*
Adjusted R^2		.85
N		390

* Statistically significant at .05 level.
** Statistically significant at .01 level.

Appendix B

How States Have Relaxed Regulation of AT&T Intrastate Services

The following descriptions are taken directly from the June 18, 1987 issue of *State Telephone Regulation Report.* State regulatory schemes can be divided into three categories, two of which are represented in the list below. First, states that are not listed below are those with strict rate-of-return regulation. In these states, AT&T must file a rate case to lower or raise its rates. Second, in states with price bands or price caps, AT&T can lower or raise its rates within the allowed range without a rate case. In these states, AT&T almost always must file a rate case in order to implement a rate outside of the authorized range. However, the price ranges or price caps are set by the public utility commissions. Consequently these states are still considered, in part, rate-of-return regulated though less strictly so than the states not listed in this table since states not listed require formal rate cases in order to change any rates. Third, for states with full pricing flexibility, the state forbears from rate-of-return regulation.

Arizona -- Oct. 1985: Banded rates, floor at 50 percent of cap; 14 days notice to change rates within band. New services require prior state approval. Rate of return regulated.

Colorado -- Nov. 1985: Minimal cost support needed for proposed services; state forbears from regulation of approved new services. Current authorized rate of return on equity is 11.93 percent.

Florida -- May 1986: Banded rates for MTS and WATS only; cap is rates in effect on implementation date with floors at switched access cost; 30 days notice required for rate changes. New MTS/WATS services effective 30 days after filing; initial rates become cap. Current authorized return on equity is 16 percent. An AT&T petition to end rate-based regulation is pending before the Public Service Commission.

Idaho -- May 1985: Rate caps only, no floor; seven days notice required for rate changes. New services need prior state approval, 30 days notice required. Current authorized rate of return on equity is 12.5 percent.

Illinois -- April 1986: MTS, WATS and other switched services deemed "competitive" by state; floor price is marginal costs of a service with no cap or ceiling price; one day notice for rate cuts, 30 days notice for increases. New services must be classified as competitive or regulated. State forbears from rate of return regulation. Geographic deaveraging temporarily banned.

Kansas -- June 1986: 4 percent rate hike or 7 percent drop allowed without prior approval; 14 days notice needed. Proposed services require prior state approval. The current authorized return on equity is 14.5 percent.

Louisiana -- July 1985: Relaxed regulation for MTS only by rate ceiling approach; MTS rate changes below ceiling made on seven days notice. New services require prior state approval. Current authorized return on equity is 15 percent.

Maryland -- Sept. 1986: Full pricing flexibility; 14 days notice required to change rates. New services take effect 14 days after filing of tariffs, unless opposed. Geographic deaveraging explicitly banned. State forbears from rate of return regulation.

Michigan -- May 1986: Flexible rate of return, anything below 15.6 percent return on equity is permissible. MTS and WATS rates can vary up to 10 percent below ceiling this year and up to 15 percent below in 1988. New services need prior state approval.

Minnesota -- June 1987: Services classified as effectively competitive, emerging competitive, or non-competitive, upon petition to PUC. First category requires notification to PUC and customers; second requires 30 days' notice for rate increase, 10 days for decrease, with PUC retaining authority to roll back rates.

Mississippi -- Oct. 1984: Banded rates with separate bands for MTS, WATS, private line, FX and 800 Service; seven days notice of rate changes within band. New services require prior state approval. Rate of return is regulated.

Missouri -- July 1985: Limited pricing flexibility applies to switched services only. For rate changes no more than 15 percent below ceiling, state approval is given through streamlined 14-day process. New services need prior approval. Private lines remain fully regulated. Current authorized return on equity is 15.3 percent.

Montana -- Oct. 1985: Private lines deregulated by statute; switched services have rate caps, no floors; no advance notice required for switched-service rate changes below caps; new services require prior state approval or determination that they are non-switched and exempt from regulation. Authorized return on equity for switched services is 15 percent.

Nebraska -- March 1987: Pricing deregulated by statute. New services can be launched at will at whatever rate a carrier deems appropriate. Rate of return regulation ended by statute, April 1986. Only legal requirements are maintaining adequate service quality and keeping a list of currently effective prices on file with the state regulatory commission.

Nevada -- April 1985: Full pricing flexibility; 10 days notice required for rate changes or to launch new services. Rate of return not regulated.

New Jersey -- Aug. 1986: Rates for services can change up to 25 percent; 14 days notice required for hikes, five days notice for cuts. Return on equity may vary up to three percentage points above or below the prescribed target return.

New York -- Oct. 1986: 2.5 percent increase or 10 percent decrease allowed without prior approval; increases must be revenue neutral; 30 days notice required for changes. Band-limit adjustments need prior state approval; adjustments that increase gross revenues by over 2.5 percent require full

rate case. New services require prior state approval. Current authorized return on equity set between 14 percent and 15 percent.

North Carolina -- Feb. 1985: Rate caps only, no floor; 14 days notice required for rate changes; AT&T's cap is cap for all carriers. New services require prior state approval. Current authorized return on equity is 14.5 percent.

Ohio -- April 1985: Banded rates, floor set at 50 percent of ceiling; 20 days notice required for rate changes within band. New services take effect on 45 days notice, unless opposed. State forbears from rate of return regulation.

Oklahoma -- July 1985: Rate changes or new services take effect 30 days after filing unless state orders suspension; geographic deaveraging explicitly banned. State has eliminated rate of return regulation.

Oregon -- Nov. 1986: Rates for a service can be anywhere between marginal cost and state-set cap; one day notice of rate changes. New services take effect 30 days after filing of tariffs, unless opposed. Rate of return not regulated.

Pennsylvania -- Aug. 1985: Rate changes that amount to less than 3 percent of gross revenues or affect less than 5 percent of customers normally require no state review; 30 days notice of rate changes or to launch new services. Individual services must be priced above cost, with state requiring 30 days advance notice of cost changes. Rate of return not regulated.

South Carolina -- Aug. 1984: Rate caps only, no floor; 14 days notice required for rate changes. Rate of return not regulated as of January 1987 but rate caps continue in effect.

Tennessee -- April 1985: Rate caps only, no floor, 30 days notice required for rate changes. New services require prior state approval. Current authorized rate of return on equity is 14.5 percent.

Texas -- March 1987: Service-specific banded rates for MTS, WATS, analog private lines and digital private lines were set to begin July 1 1987; rate changes within a rate band and launching of new services will require 30 days notice. Rate of return is regulated.

Virginia -- Aug. 1984: Full pricing flexibility; no advance notice required to change rates or launch new service. Geographic deaveraging explicitly banned. Rate of return not regulated.

Washington -- June 1987: Rate of return not regulated. Can file price lists with implementation on 10 days notice to commission and customers. Geographic deaveraging, abandonment of service, high volume discounts prohibited.

West Virginia -- June 1986: Full pricing flexibility; 14 days notice required to change rates or launch new service. Rate of return not regulated.

Appendix C

1987 AT&T Intrastate InterLATA Direct Dial MTS Rates (Day Rates)

	Distance					
	0-10 miles		11-16 miles		17-22 miles	
State	First	Add.	First	Add.	First	Add.
Alabama	$0.29	$0.17	$0.35	$0.23	$0.37	$0.25
Arizona	$0.19	$0.08	$0.24	$0.11	$0.29	$0.12
Arkansas	$0.14	$0.11	$0.19	$0.17	$0.26	$0.21
California	$0.23	$0.11	$0.23	$0.11	$0.26	$0.14
Colorado	$0.21	$0.15	$0.25	$0.18	$0.25	$0.18
Connecticut	$0.21	$0.11	$0.27	$0.13	$0.32	$0.15
Florida	$0.19	$0.09	$0.28	$0.16	$0.28	$0.16
Georgia	$0.17	$0.09	$0.21	$0.12	$0.23	$0.15
Idaho	$0.13	$0.05	$0.21	$0.11	$0.21	$0.11
Illinois	$0.28	$0.14	$0.31	$0.19	$0.31	$0.19
Indiana	$0.33	$0.21	$0.33	$0.21	$0.38	$0.25
Iowa	$0.21	$0.11	$0.21	$0.11	$0.24	$0.14
Kansas	$0.23	$0.11	$0.26	$0.14	$0.36	$0.19
Kentucky	$0.26	$0.19	$0.26	$0.19	$0.31	$0.24
Louisiana	$0.26	$0.13	$0.35	$0.21	$0.39	$0.25
Maryland	$0.27	$0.13	$0.31	$0.15	$0.31	$0.15
Massachusetts	$0.24	$0.10	$0.32	$0.15	$0.41	$0.19
Michigan	$0.20	$0.10	$0.23	$0.13	$0.28	$0.17
Minnesota	$0.14	$0.05	$0.17	$0.07	$0.21	$0.10
Mississippi	$0.30	$0.15	$0.36	$0.22	$0.40	$0.27
Missouri	$0.11	$0.09	$0.16	$0.14	$0.21	$0.17
Montana	$0.18	$0.07	$0.22	$0.10	$0.28	$0.17
Nebraska	$0.35	$0.22	$0.35	$0.22	$0.36	$0.23
Nevada	$0.23	$0.11	$0.28	$0.15	$0.28	$0.15
New Jersey	$0.12	$0.06	$0.18	$0.07	$0.26	$0.09
New York	$0.24	$0.12	$0.24	$0.12	$0.27	$0.15
North Carolina	$0.17	$0.11	$0.21	$0.14	$0.24	$0.17
North Dakota	$0.23	$0.10	$0.28	$0.15	$0.30	$0.17
Ohio	$0.30	$0.15	$0.34	$0.20	$0.34	$0.20
Oklahoma	$0.28	$0.18	$0.33	$0.23	$0.33	$0.23
Oregon	$0.30	$0.15	$0.33	$0.21	$0.33	$0.21
Pennsylvania	$0.34	$0.17	$0.34	$0.17	$0.36	$0.18
South Carolina	$0.24	$0.13	$0.25	$0.14	$0.30	$0.19
Tennessee	$0.19	$0.13	$0.24	$0.18	$0.29	$0.23
Texas	$0.07	$0.05	$0.07	$0.05	$0.09	$0.08
Virginia	$0.31	$0.16	$0.33	$0.18	$0.33	$0.18
Washington	$0.28	$0.10	$0.35	$0.17	$0.35	$0.17
West Virginia	$0.27	$0.15	$0.35	$0.20	$0.35	$0.20
Wisconsin	$0.33	$0.17	$0.35	$0.18	$0.41	$0.24

Appendix C - Continued

1987 AT&T Intrastate InterLATA Direct Dial MTS Rates (Day Rates)

	Distance					
	23-30 miles		31-40 miles		41-55 miles	
State	First	Add.	First	Add.	First	Add.
Alabama	$0.42	$0.30	$0.45	$0.33	$0.48	$0.36
Arizona	$0.33	$0.16	$0.38	$0.21	$0.43	$0.25
Arkansas	$0.31	$0.24	$0.38	$0.28	$0.41	$0.33
California	$0.32	$0.19	$0.32	$0.19	$0.34	$0.20
Colorado	$0.34	$0.22	$0.34	$0.22	$0.34	$0.22
Connecticut	$0.42	$0.19	$0.47	$0.22	$0.52	$0.28
Florida	$0.40	$0.27	$0.40	$0.27	$0.40	$0.27
Georgia	$0.31	$0.19	$0.35	$0.22	$0.43	$0.28
Idaho	$0.36	$0.25	$0.36	$0.25	$0.36	$0.25
Illinois	$0.33	$0.21	$0.33	$0.21	$0.33	$0.21
Indiana	$0.38	$0.25	$0.41	$0.29	$0.41	$0.29
Iowa	$0.30	$0.20	$0.30	$0.20	$0.34	$0.24
Kansas	$0.40	$0.21	$0.45	$0.24	$0.47	$0.26
Kentucky	$0.31	$0.24	$0.40	$0.32	$0.40	$0.32
Louisiana	$0.43	$0.29	$0.47	$0.32	$0.50	$0.32
Maryland	$0.38	$0.19	$0.38	$0.19	$0.38	$0.19
Massachusetts	$0.49	$0.21	$0.54	$0.24	$0.59	$0.28
Michigan	$0.33	$0.20	$0.38	$0.25	$0.39	$0.26
Minnesota	$0.26	$0.14	$0.32	$0.19	$0.42	$0.27
Mississippi	$0.46	$0.31	$0.49	$0.34	$0.49	$0.34
Missouri	$0.35	$0.20	$0.40	$0.23	$0.43	$0.26
Montana	$0.31	$0.19	$0.36	$0.25	$0.39	$0.27
Nebraska	$0.38	$0.25	$0.40	$0.27	$0.42	$0.29
Nevada	$0.29	$0.18	$0.29	$0.18	$0.29	$0.18
New Jersey	$0.30	$0.11	$0.35	$0.13	$0.37	$0.13
New York	$0.29	$0.16	$0.33	$0.20	$0.34	$0.21
North Carolina	$0.28	$0.19	$0.33	$0.24	$0.33	$0.24
North Dakota	$0.35	$0.20	$0.39	$0.23	$0.42	$0.26
Ohio	$0.38	$0.23	$0.38	$0.23	$0.38	$0.23
Oklahoma	$0.38	$0.27	$0.38	$0.27	$0.38	$0.27
Oregon	$0.35	$0.26	$0.35	$0.26	$0.35	$0.26
Pennsylvania	$0.37	$0.21	$0.38	$0.22	$0.39	$0.23
South Carolina	$0.34	$0.24	$0.42	$0.25	$0.42	$0.25
Tennessee	$0.34	$0.27	$0.37	$0.29	$0.42	$0.32
Texas	$0.15	$0.15	$0.22	$0.21	$0.28	$0.27
Virginia	$0.36	$0.21	$0.36	$0.21	$0.36	$0.21
Washington	$0.42	$0.23	$0.42	$0.23	$0.42	$0.23
West Virginia	$0.46	$0.28	$0.46	$0.28	$0.46	$0.28
Wisconsin	$0.45	$0.26	$0.49	$0.29	$0.53	$0.32

1987 AT&T Intrastate InterLATA Direct Dial MTS Rates (Day Rates)

	Distance					
	56-70 miles		71-124 miles		125-196 miles	
State	First	Add.	First	Add.	First	Add.
Alabama	$0.48	$0.36	$0.49	$0.37	$0.50	$0.38
Arizona	$0.45	$0.28	$0.46	$0.29	$0.50	$0.32
Arkansas	$0.43	$0.36	$0.51	$0.40	$0.55	$0.44
California	$0.34	$0.20	$0.39	$0.23	$0.42	$0.26
Colorado	$0.41	$0.27	$0.41	$0.27	$0.45	$0.30
Connecticut	$0.58	$0.30	$0.65	$0.35	$0.65	$0.35
Florida	$0.44	$0.31	$0.44	$0.31	$0.49	$0.33
Georgia	$0.45	$0.30	$0.47	$0.32	$0.48	$0.33
Idaho	$0.60	$0.47	$0.60	$0.47	$0.65	$0.52
Illinois	$0.36	$0.24	$0.36	$0.24	$0.37	$0.25
Indiana	$0.43	$0.29	$0.44	$0.29	$0.46	$0.30
Iowa	$0.37	$0.27	$0.40	$0.30	$0.42	$0.32
Kansas	$0.48	$0.28	$0.53	$0.32	$0.55	$0.35
Kentucky	$0.48	$0.35	$0.53	$0.37	$0.59	$0.40
Louisiana	$0.52	$0.33	$0.53	$0.34	$0.54	$0.34
Maryland	$0.43	$0.27	$0.43	$0.27	$0.49	$0.33
Massachusetts	$0.65	$0.30	$0.73	$0.34	$0.74	$0.35
Michigan	$0.42	$0.27	$0.44	$0.29	$0.46	$0.31
Minnesota	$0.46	$0.29	$0.52	$0.35	$0.56	$0.40
Mississippi	$0.49	$0.34	$0.49	$0.34	$0.50	$0.35
Missouri	$0.47	$0.29	$0.48	$0.32	$0.53	$0.36
Montana	$0.41	$0.30	$0.41	$0.30	$0.44	$0.33
Nebraska	$0.45	$0.32	$0.47	$0.34	$0.51	$0.38
Nevada	$0.32	$0.22	$0.32	$0.22	$0.33	$0.23
New Jersey	$0.40	$0.14	$0.48	$0.18	$0.54	$0.19
New York	$0.37	$0.22	$0.38	$0.23	$0.39	$0.24
North Carolina	$0.35	$0.25	$0.39	$0.27	$0.42	$0.31
North Dakota	$0.48	$0.32	$0.50	$0.34	$0.52	$0.36
Ohio	$0.41	$0.27	$0.41	$0.27	$0.43	$0.29
Oklahoma	$0.46	$0.32	$0.46	$0.32	$0.52	$0.40
Oregon	$0.43	$0.31	$0.49	$0.35	$0.51	$0.37
Pennsylvania	$0.40	$0.25	$0.42	$0.26	$0.43	$0.27
South Carolina	$0.45	$0.32	$0.47	$0.34	$0.50	$0.36
Tennessee	$0.46	$0.33	$0.46	$0.33	$0.47	$0.34
Texas	$0.32	$0.31	$0.36	$0.35	$0.38	$0.37
Virginia	$0.41	$0.24	$0.41	$0.24	$0.43	$0.26
Washington	$0.49	$0.30	$0.49	$0.30	$0.52	$0.31
West Virginia	$0.54	$0.37	$0.54	$0.37	$0.58	$0.39
Wisconsin	$0.55	$0.34	$0.57	$0.37	$0.61	$0.40

Appendix C - Continued

1987 AT&T Intrastate InterLATA Direct Dial MTS Rates (Day Rates)

	Distance	
	197-292 miles	
State	First	Add.
Alabama	$0.52	$0.40
Arizona	$0.53	$0.36
Arkansas	$0.60	$0.46
California	$0.43	$0.27
Colorado	$0.45	$0.30
Connecticut	$0.65	$0.35
Florida	$0.49	$0.33
Georgia	$0.50	$0.37
Idaho	$0.65	$0.52
Illinois	$0.37	$0.25
Indiana	$0.46	$0.30
Iowa	$0.43	$0.33
Kansas	$0.56	$0.36
Kentucky	$0.63	$0.44
Louisiana	$0.55	$0.35
Maryland	$0.49	$0.33
Massachusetts	$0.74	$0.35
Michigan	$0.46	$0.31
Minnesota	$0.62	$0.44
Mississippi	$0.50	$0.35
Missouri	$0.57	$0.40
Montana	$0.44	$0.33
Nebraska	$0.52	$0.39
Nevada	$0.33	$0.23
New Jersey	$0.54	$0.19
New York	$0.40	$0.26
North Carolina	$0.42	$0.31
North Dakota	$0.54	$0.38
Ohio	$0.43	$0.29
Oklahoma	$0.52	$0.40
Oregon	$0.52	$0.38
Pennsylvania	$0.44	$0.28
South Carolina	$0.50	$0.36
Tennessee	$0.48	$0.35
Texas	$0.38	$0.37
Virginia	$0.43	$0.26
Washington	$0.54	$0.33
West Virginia	$0.58	$0.39
Wisconsin	$0.63	$0.42

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