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Introduction

Predatory behavior has received widespread attention in both the economic and legal literature.¹ While an intriguing concept, a consensus has emerged that instances of predatory pricing are rare, and that the behavior is irrational.²

Much of the interest in the extent and rationality of predation can be traced to John McGee's seminal study of the alleged predatory pricing practices of Standard Oil. McGee was attracted to Standard Oil v. U.S.³ because the oil company's alleged predatory business practices played a large role in subsequent laws aimed at discouraging practices aimed at monopolizing a market. Based on his reading of the evidence, McGee concluded that Standard did not drive rivals out of business by initiating price wars, and that predation would have been irrational. Predation, in the first part of a two-period game, involves taking short-term losses in order to drive a rival out of business. In the second period, after the rival has been eliminated, the monopoly profits earned are sufficient to compensate the predator for its reduced profits during the predatory episode. McGee points out that by merging prior to the price war, monopoly profits can be earned in the first period that would exceed those earned through rivalry. Since predation involves an unneeded sacrifice of profits, a merger is the preferred strategy and, theoretically, it is unlikely that the dominant firm will pursue a noncooperative strategy.⁴

McGee's argument has been challenged on several grounds. First, the antitrust laws may prevent a merger. Second, the incumbent may find predation profitable because by acting aggressively, the acquisition savings achieved by causing financial harm to the entrant could exceed its short-term losses. Third, game theorists have argued that McGee's analysis ignores the value of reputation. A firm supplying multiple markets may be willing to incur losses in one market in order to establish a reputation as an aggressive incumbent. The aggressive response to the first entrant can signal potential rivals that entry will be unprofitable. This signal can deter entry in other markets and thereby increase future profits.⁵

The predation for reputation literature has largely been at the theoretical level.⁶ In this paper I investigate the strategies used by the American Telephone and Telegraph Company (AT&T) to secure control of the telephone industry. The time period analyzed, 1894-1910, is contemporaneous to the era of Standard's alleged predatory actions. The historical record suggests that AT&T selected predation, rather than merger, principally because the aggressive response to entry deterred potential rivals in other markets. The incumbent's management realized that if the strategy suggested by McGee was pursued, the compensation provided to the initial rivals would encourage future entry. Therefore, to deter future entry, AT&T adopted predatory prices in its rivals' strongest markets. As a result, the existing rivals sold their assets at a loss.

What Constitutes Predation?

Various economic and legal tests exist for predation. Their principal feature is that the predator's action is intended to drive an equally efficient rival out of business and scare off potential entrants. Typically the tactic will be a temporary price reduction, but other exclusionary acts, such as predatory use of the administrative process and noisy advertising, have been identified as acts undertaken to monopolize an industry.⁷

This view of predation is broader than the test often used by the courts, which is to evaluate the relationship between price and either the marginal, average variable or total cost of production. Many analysts have pointed out that the cost tests are difficult to

implement because the data needed to calculate the cost of production are difficult to obtain and subject to arbitrary cost allocation decisions. More importantly, a price below the marginal, average variable or total cost of production may have nothing to do with price predation.⁸ For example, a pricing strategy may be adopted that is intended to increase network externalities. Because of the externalities, a supplier may provide telephone service at a below-cost price. At the start of this century, AT&T believed that residential service should be priced at a rate that was less than the direct cost of service. This "loss" was more than made up by the higher charges that then could be set for business lines.⁹ This below-cost price is not an example of predation because it was intended to bring new customers on to the network and raise the value of service to existing customers. The strategy of AT&T described below was predatory in the sense that the moves were taken in an effort to acquire monopoly power.

Recent Economic and Historical Analysis of the Telephone Industry

It is widely accepted that AT&T's superior long-distance service played the decisive role in the firm's maintaining its position as the industry's leader.¹⁰ Alfred Chandler has argued that it was AT&T's first-mover advantage of establishing an organization that could manage the large volume of toll calls that restrained the Independents' growth.¹¹ He did not discuss the magnitude of the market for intercity calls. During 1903, fifty calls was the largest daily volume of calls between New York City and Chicago, and on average, in 1905, only fifteen calls a day went between New York City and Cleveland. The Bell Operating Company serving most of Ohio, Indiana, and Illinois studied customer calling habits around 1905 and found that "only about twenty percent of the exchange subscribers ever patronized a toll line at all, and only...three and a half percent...ever patronized a toll line over a hundred miles." Reviewing the evidence, a contemporary consultant of AT&T concluded in 1906 that the long-distance toll business was "but a trifling fraction of the entire traffic and affects but few subscribers."¹²

Kenneth Lipartito, recognizing the limited demand for long-distance service outside major urban areas, argued that while AT&T's advantage in the long-distance market was important, it was not the main factor in the areas where the majority of Americans lived. Lipartito contends that AT&T management's decision to build a high-quality network, purchase rivals, and connect with Independent telephone exchanges which served rural America and smaller cities, also played a decisive role.¹³

The traditional explanation of AT&T's success, as well as Lipartito's work, richly describe the way in which its management's strategy affected the course of the telephone industry; but in an oligopolistic market a firm's success is conditional on the activities of its competitors.¹⁴ Previous researchers have given little attention to the structure and strategy of AT&T's rivals, the Independents.

This shortcoming is illustrated by Lipartito's work. He attributes a large part of Bell's success, and conversely the failure of the Independents, to consumers' reaction to the Independents' entry strategy--providing relatively inexpensive, low-quality service: "[C]ompetition became a battle over the nature of telephone service, with Bell offering high-quality service at premium prices, and Independents offering lower-quality service at lower prices....Overall...it seems that the fate of new entrants hinged mainly on the question of quality."¹⁵

Lipartito appears to suggest that the type of equipment deployed was the major determinant of the quality of service.¹⁶ There were four primary facilities associated with

the provision of telephone service. The local loop connected a telephone to a switchboard. The switchboard was used to link nearby customers, and served as a terminus for the lines that tied together different switches. AT&T had its greatest technological advantage on these interoffice lines. In 1900, the purchase of Michael Pupin's patent for the loading coil provided AT&T with the ability to extend the distance that a call could be placed, and to lower the cost of providing long-distance service. According to Frederick Fish, the president of AT&T and one of the nation's leading authorities on patent laws, this invention provided his firm with an advantage in the long-distance market, but did not insure that AT&T would be able to control the market. Other, more expensive technology had been used as early as 1892 on long-distance calls between New York and Chicago.¹⁷

The Independents' relative strength was at the switchboard. At some competitive points they deployed automatic switchboards, which were popular with customers because they provided increased privacy of communications and immediacy of service. AT&T's management did not deploy the new technology because they believed that customers "should not be asked to do part of the service," that is dial the number, and because of concern that the new technology was less efficient in handling toll calls than manual switches.¹⁸

The telephones used by many Independents were considered superior to AT&T's. In the early 1890's many of the Bell Operating Companies chose not to deploy the newest local loop or telephone station technology because they judged the incremental cost to be greater than the incremental benefit. Not until 1900 when AT&T gained majority control of its operating companies could central management require that state-of-the-art technology be adopted. The Independents, as new entrants, were not constrained by the cost/benefits of upgrading existing facilities.¹⁹

Regardless of who had better equipment, the perception of AT&T's management, its rivals, and customer attitudes provide a clear gauge on the broader issue of quality. Customers perceived quality service in such terms as the clarity of the connection, the availability of one and two-party service, the attitude of the telephone personnel who operated the manual switchboards, and the extent to which management responded to complaints about pricing and noisy connections. The founders of competitive exchanges believed that a market existed for their service, in part, because telephone subscribers were dissatisfied with the existing, low quality of service. Lipartito's assertions to the contrary, competitive entry occurred because AT&T had undersupplied quality service.²⁰

Frederick Fish, AT&T's president during the height of the competitive era, and his successor, Theodore Vail, believed that competition resulted largely from AT&T's failure to fully develop the market and provide quality telephone service. In letters to the executives of the Bell Operating Companies, Fish frequently emphasized the need to improve the service: "We must give good service and must do everything that is necessary to have good service. Most of our opposition troubles are due, not so much to rates as to two other things, namely, bad service and not covering the field."²¹ Even where AT&T had successfully developed the market, poor service continued to endanger its position.²²

Lipartito's claim about AT&T's superior quality service runs counter to the contemporary view of the United States Department of Justice. In July 1913 the Department filed suit against AT&T claiming that the firm had illegally monopolized interstate communications. Justice argued that due to the incumbent's poor service, the Independents began local and toll service in Oregon, Washington, Montana, and Idaho around 1903. The entrants were well received, in part, because "[t]he construction of...[their] lines in many respects [was] superior to that of their rivals, and their service

was more efficient." Despite their good service, the Department believed that the entrants were "induced and forced" to sell their properties to Bell because the incumbent adopted noncompensatory rates "at some points, by giving free service at others, and by threats to do these things at still others."²³

Lipartito's other explanations for Bell's success, the company's decision to purchase rivals, and to license operations to firms better suited to serve less densely populated areas, only partly explain the evolution of the industry. These two strategies were being aggressively pursued by Bell as early as 1902,²⁴ but were not initially successful. Over time, as shown on Figure One, AT&T's strategy succeeded.

INSERT FIGURE ONE

The increase in sublicensees came despite the terms becoming less favorable to the Independents over time. For example, in 1902 Wisconsin Independents were offered sublicensee contracts which included free use of AT&T telephones. This offer was widely rejected because the Independents believed that the lucrative terms were a ploy to break up the Independent movement. The Wisconsin Independents believed that if AT&T succeeded in this attempt, similar conditions would not be available in the future. A few years later some of these same Independents asked AT&T for sublicensee contracts and obtained ones with inferior terms. In 1907 telephones were no longer made available for free to sublicensees, the charge was raised to two dollars a year.²⁵

Sublicense agreements, as well as acquisitions, involve a two-party agreement. The terms under which the Independents were willing to trade changed over time. AT&T was aware that acquisition of rivals had to be approached cautiously. If the existing Independents were able to sell their exchanges and toll lines for a profit, competitors would be encouraged to enter the industry. AT&T established a general policy that the acquisition of rivals should be made only when it involved a loss to the investors of the Independent properties.²⁶ Over time, the number of Independent firms willing to sell under the terms offered by AT&T, or become sublicensees, increased because, as I argue below, of AT&T's predatory tactics.

The Strategy of the Independents

At the start of the twentieth century many Independents refused sublicensee contracts believing it feasible and imperative to construct a second network. During the last decade of the nineteenth century, AT&T refused to interconnect with the Independents. Without access to AT&T's toll lines, the Independents concluded by 1896 that a ubiquitous toll network, such as Bell's, was "absolutely essential to the life of the various exchanges." A year later, the National Association of Independent Telephone Exchanges set as an objective the construction of such a network,²⁷ which the independents subsequently expended much effort trying to achieve.

The entrants' approach to building a network was significantly different than AT&T's. The founder of one of the leading Independent journals noted that "the Bell people worked from the top down and the Independents from the bottom up."²⁸ The Independent companies were locally controlled and were strongest in rural areas and small and medium sized cities. The Bell System was controlled from the East. AT&T owned the long-distance toll lines and was the majority stockholder in the Bell Operating Companies which provided local and short-haul toll service. They were also the dominant suppliers in large cities. Officials of AT&T and the Independent firms noted that local ownership provided the Independents with some managerial advantage. The Independent officials were more aware of local conditions, and they had greater latitude in adopting policies that

met the needs of the community. An AT&T consultant, George Anderson, pointed out that local control had been "a substantial factor making for the success" of the Independents.²⁹

The Independent companies were organized along three different lines: rural, mutual, and commercial. During the years of its patent monopoly, 1876-1894, AT&T believed that the marginal efficiency of capital was higher in the cities than in rural areas, and therefore had not developed the less densely populated markets and also had refused to rent or sell equipment to farmers. With the expiration of the patents, farmers began to purchase telephones from any one of a large number of manufacturers who served the market after 1894. The farmers provided the wire and poles for the telephone lines that traversed their property lines.³⁰

Thereafter, the telephone quickly became a popular item on the farm. It served two general functions: it reduced the level of social isolation and provided a means for quickly contacting merchants in nearby towns. These towns were often served by Independents organized along Mutual lines. These firms were financed by customer capital contributions of \$25 to \$50.³¹

In some small towns and cities, the Mutuals were the only suppliers; in other areas they competed with an existing Bell exchange. Before constructing an exchange, Mutuals typically signed up as many customers as the existing Bell exchange, many of whom had formally been served by AT&T. Because the entrants started with this large subscriber base and because the Mutuals relied on customer capital, Bell found it difficult to control these markets.³²

For social and commercial purposes, subscribers in small towns desired telephone access to larger towns. Between 1894 and 1899, however, AT&T had largely refused the Mutual and Farm-Line companies' requests to make physical connections. Wholesalers, millers, doctors, and other businessmen who worked in these larger cities realized that their trades would be aided by establishing an Independent exchange that could reach markets not developed by AT&T.³³ This need, along with the widespread dissatisfaction with AT&T's quality of service and its high prices -- which had allowed the company to earn an average return on investment of 46 percent during the monopoly era-- encouraged commercial entry in cities of all sizes.³⁴

In smaller cities, commercial telephone companies typically obtained their capital from local businessmen. In larger cities, telephone manufacturers would install the equipment in exchange for stocks and bonds in the Independent. Commercial systems were established in seven of the nation's ten largest cities: Philadelphia, St. Louis, Baltimore, Cleveland, Buffalo, San Francisco, and Pittsburgh.³⁵ These commercial systems faced the stiffest competition from AT&T, served the largest number of customers (Table One), and offered some network options that had not been developed by Bell (for example, automatic switching and connections to rural communities).

(INSERT TABLE ONE)

The Commercial firms took a special interest in extending the Independents' network because they believed that if they did not construct a long-distance network, they would be unable to attract customers away from Bell or retain customers' patronage.³⁶ During the first few years of the competitive period, business customers constituted a majority of telephone subscribers and were the principal users of toll service. The Independents actively solicited them because they were the most profitable customers to serve. While there was little difference in the cost of serving a business or residential customer, the price of the former service was significantly higher because business customers were willing to pay a premium for a network with a large number of local customers and possible toll connections.³⁷ In areas where competition was most intense--the Midwest, Central and Northern New York, and Pennsylvania--the Independent exchanges often connected to as many or more local customers as AT&T. An even more extensive toll network would have allowed the Independents to charge still higher rates for business lines. The Independents did construct regional networks. These networks were linked together and, by 1904, there was Independent toll service between Cleveland and St. Louis. The clarity of conversation on these long-distance networks, however, was often inferior to Bell's, and it took longer to setup a toll call on the Independents systems due to the lack of trunk lines. The inferior clarity resulted because no central organization had dictated construction standards. Consequently, the interconnecting equipment was not always compatible.³⁸ The Independents tried to solve this problem through their trade associations, the mechanism used by the railroads. During trade association meetings, some of the Independents' leaders recommended that high-grade construction procedures be followed. High-quality equipment was recommended and installed because the predominant users of the network, business customers, were more interested in obtaining reliable, rather than cheap service. By 1906, the Independents had succeeded in adopting and implementing standards in their regional networks. For calls over approximately 200 miles, however, the problem of standardization had not been fully resolved.³⁹

Capital was needed for the construction of the high-quality trunk lines that could expedite the completion of long-distance calls. The Independents believed that the funds should be raised by a central organization that owned all the regional toll lines. Some Independents believed that this central body should also own all independent exchanges. A central organization would be able to capture the externalities associated with an extensive, integrated network. Others opposed this structure because they believed it would eliminate the advantages associated with being the "home company." The advocates of retaining local control supported having one firm own all the toll lines.⁴⁰

Many different attempts were made to consolidate and expand the regional toll-line companies. Regardless of which organizational structure was employed, the Independents experienced trouble raising capital. Toll company stock was frequently owned by the local telephone companies, yet despite recognizing the necessity for constructing a toll network, they were unable to make large subscriptions due to their own financial constraints.⁴¹

Poor accounting practices were responsible for some of the Independent's financial problems. Some of the entrants made inadequate allowances for depreciation.⁴² More importantly, I will argue below, were AT&T's predatory actions and municipal regulations.

Competition in the Midwest

Central Union, one of AT&T's operating subsidiaries in the Midwest, provided service in Indiana, Ohio, and Illinois. While its service territory included most of these

states, Chicago, Cincinnati and Cleveland were served by other Bell Operating Companies. These three States are of special importance because, as shown on table two, the Midwest was the region where the Independents met with the greatest success.

INSERT TABLE TWO

The regional data underscores the strength of the Independents in the service territory of Central Union. In 1902, Central Union's network connected one-third as many subscribers as the Independents. At the end of 1908, Central's network, including sublicensed stations, included 48 percent of the telephone subscribers in their service territory.⁴³

Approximately 1,000 small Independent firms were operating in the Central Union territory.⁴⁴ By 1906 most of the major Independent exchanges (for example Toledo, Cleveland, and Indianapolis) were controlled by a holding company, the United States Telephone Company whose corporate structure was similar to AT&T's. United States provided long-distance service in Ohio and Michigan, and controlled the New Long Distance Company of Indiana. New Long Distance provided toll service in the Hoosier State, and along with United States Telephone, owned approximately twenty local exchange companies.⁴⁵ United States' trunk lines connected exchanges in Ohio, Michigan, and Indiana with other regional Independent systems. For example, a subscriber in Indianapolis could connect with the Federal Telephone System to reach Buffalo, or the Kinloch System to reach St. Louis.

The initial success of the Independents in this region was largely due to four factors: improved local service, reduced price, more extensive regional connections, and the public's inclination to support a local firm.⁴⁶ Confronted with the Independents' initial success, Central Union attempted to retard their rival's expansion by adopting rates which the firm's directors believed were "below the cost of doing the business." Central Union operated at a loss from 1894 through 1917 in order to protect AT&T's network.⁴⁷ According to L.N. Whitney, a superintendent of Central Union and a member of its board of directors, his firm "cut [its] rates" as part of a general strategy "to cause every dollar invested in Independent property to be lost." Whitney added that these losses served "as a warning to other investors, who might dare to invade the field of the Central Union monopoly."⁴⁸

In formulating its competitive response in the Midwest, AT&T also studied other regions to identify strategic moves that could be used to secure the territory. On the West Coast, under the leadership of John Sabin, the Pacific Telephone Company had encountered little competition. AT&T believed that entry had been forestalled because the market had been widely developed through the use of inexpensive, ten-party service (ten customers sharing one wire connection to the central office).⁴⁹

In May 1901, AT&T put Sabin in charge of the Central Union Company. Upon taking control, Sabin converted most of Central's local loops from four-party to ten-party service. According to employees of Central and AT&T, this degradation in service increased the public's interest in obtaining service from the Independents, who mostly offered one- and two-party service.⁵⁰

To the dismay of AT&T's chief engineer, Joseph Davis, and some other AT&T employees, ten-party service was unprofitable. Davis believed that the cost of providing ten-party service was as high or higher than single-party service, but because of the inferior quality, the price for Bell's service had to be lower. In 1900 Davis concluded that Central Union was providing service at a loss and advised the president of AT&T that the situation could only be reversed if Sabin was ordered to stop marketing ten-party service.

Davis' proposal was rejected and not until Sabin died in 1903 did the marketing of ten party service terminate.⁵¹

The Independents' ability to take advantage of AT&T's strategic error was hindered by two factors. First, Central's below-cost prices made it difficult for the Independents to generate internal cash for expansion. Second, before service could be started in towns and cities, a franchise had to be obtained from the local government. The franchise often included regulations that were not part of the charter of Central Union or other Bell Operating Companies.

In granting a franchise to an entrant, the cities frequently stipulated maximum rates. The prices reflected the cost of doing business in an exchange that was comparable in size to the incumbents. The low entry prices stimulated demand to an extent that had not been anticipated. Ironically, since the cost of service per subscriber increased as the number of telephones connected to the network increased,⁵² the entrants' success caused them to incur financial losses in some cities. While the Independents' initial prices were designed to cover their costs, as their systems grew the per customer cost increased. Because the franchises did not include any mechanism for adjusting the price to reflect the increased cost, this caused the Independents harm.⁵³ The promise to sell service at low rates had influenced the granting of the franchise, and therefore the cities were reluctant to allow the Independents to raise their rates.

The degree to which city regulations hindered the Independents varied across the states. The Ohio Supreme Court decided in 1905 that the cities did not have the authority to fix rates, and therefore the Independents could adjust their rates to a paying basis.⁵⁴ The Indiana courts ruled differently finding that the rates prescribed in the franchise were enforceable. This was especially harmful to the Indianapolis Telephone Company, which started service with rates approximately 50 percent lower than Central's during the monopoly era. The demand for the entrants' service exceeded the promoters' expectations. The installed capacity of the Independent's exchange, 7,000 lines, was exhausted by 1905.⁵⁵

The Indianapolis Telephone Company found that in order to sustain good service, it needed to increase its exchange rates. Unlike Central Union, the Independent could not change its rates without permission from the City. In 1906, after extensive public hearings, the Board of Public Works turned down the request. According to one observer, City officials felt that because the Independent had proposed the original rates, it had to "make the best of a bad bargain."⁵⁶

Due to the insufficient rates, the quality of service offered by Indianapolis Telephone declined.⁵⁷ This development coincided with improvements made to Bell's system. When Sabin died in May 1903, he was replaced by L.R. Richardson. Richardson found Central's service throughout the three midwest states to be "poor." Central's general manager, Horace Hill, found, on the other hand, that the Independent's service was "satisfactory" and "efficient." Richardson decided that in order to win control of the territory, the quality of service on Bell's network had to be improved, and the number of cities connected to its network had to be increased. Improvements in the quality of service were noticeable by 1905. Bell's principal advantage had been its superior long-distance connections, and Richardson felt that there was a need to establish a similar advantage in the short-distance toll market. While the Independents had developed strong county systems, Richardson believed that the construction of cross-county toll lines would help improve Central's market position.⁵⁸

In 1905, Indianapolis Telephone was the stronger company in terms of local subscribers and toll connections. As shown in Table Three, the Independent had 58 percent of the market. In addition, it offered more toll connections to nearby localities. The New Long Distance Company connected Indianapolis subscribers with 48,000 customers in surrounding communities. Central Union only offered access to 19,000 subscribers, a decided advantage for the Independent because the majority of toll calls were to neighboring communities.⁵⁹

INSERT TABLE THREE

While Richardson was improving the Central Union network, he took steps to retard the growth of the Independents. The decision of the Indianapolis Board of Works to deny the rate application damaged Indianapolis Telephone, but a more general problem for the Independents was Central Union's decision to operate at a loss until the Independents were driven from the market. Outside of Indianapolis, the city franchises were less of a limiting factor on the Independents. The Indiana Telephone Association suggested to Bell that the rivals end their ruinous rate wars. The Indiana Independents wanted to raise their rates to a paying basis, but believed that the rate increase would not be sustainable unless Central Union did the same. Central Union turned down the proposition and instead commented that competition in the industry "must and will" end.⁶⁰ AT&T was not willing to raise its prices to a paying basis until its rivals were eliminated.

Working with F.A. Pickernell, the AT&T official in charge of the parent company's competitive toll pricing policy, Central Union adopted other predatory tactics designed to limit the Independents' internal cash flow. Pickernell wrote to Richardson in 1905 that a means should be found to block the Indianapolis Independent from raising money for improvements: "If, by any means, the Indianapolis Telephone Company is prevented from getting money to put its plant in good condition, its earnings will decrease, and I would expect it would not be long before there would be difficulty in obtaining money to meet the fixed charges. This would mean...a receivership and a reorganization of the property."⁶¹

On March 2, 1909, partly in response to the deterioration of service on Indianapolis Telephone's network, the city of Indianapolis reversed its earlier position and granted the entrant a rate increase. Central Union, in line with Pickernell's suggestion, attempted to block this source of additional revenue by providing funding for a legal suit in opposition to the entrants rate increase.⁶² The outcome of the suit became immaterial when on May 1, 1909, Central Union and AT&T reduced their rates on competitive toll lines by 25 to 33 percent. The rate reduction, as described below, led to the sale of the Indianapolis exchange and other United States properties to an agent of AT&T.

Control of the Long-Distance Market

In 1909 the Independents took an important step to overcome the dearth of long-distance trunk lines. They had already established regional networks in the Midwest, Mid-Atlantic, Upstate New York, and on the West Coast, and in the Spring of 1909, the Independent Long Distance Telephone and Telegraph Syndicate took steps to unite the regional systems into a national network and increase the number of long-distance trunk lines. By mid-April the national toll company had either signed or was in the final stages of signing contracts with the nine regional Independent toll companies providing service east of the Rockies.⁶³

This development concerned AT&T. The regional toll companies had taken away traffic from AT&T. At Buffalo, for example, the message growth rate on AT&T's

monopoly toll routes was 26.5 percent for the three-year period ending March 1909, but only 9.6 percent on its competitive routes.⁶⁴

The growth of the Independents' toll network was cutting into Bell's profits. Furthermore, Pickernell believed that the Independents' toll lines were often profitable, and their expansion was improving the position of the Independent exchange companies. Pickernell attributed the success of the regional Independent toll system in New York, and elsewhere, to four factors: the Independents had more customers in some exchanges, lower day rates, and offered evening and bulk toll rate discounts, neither of which were offered by AT&T. Pickernell believed that the cumulative effect of these advantages "ha[d] been considerable," as it had "rob[bed] the Bell system of a substantial amount of toll traffic, thus not only assisting the revenue of the opposition but greatly increasing its prestige with the more important telephone customers."⁶⁵

Because of the threat the Independents posed to AT&T, Pickernell felt that AT&T "ought to do everything possible to hasten the downfall of the opposition in order that [their properties] may be purchased at a low price and merged with the Bell." AT&T had to do more than just match the rates of the Independents. On heavily used routes, the division of traffic at the Independents' rates would be profitable for the Independents. Pickernell convinced AT&T officials to "attack" the Independents' most profitable lines, postulating that if the number of stations at two network nodes were essentially equal, the traffic would follow the rate.⁶⁶

Pickernell advocated adopting rates that were lower than the Independents and that if the Independent matched the price reduction, AT&T should "cut the rate again to a point that will control, or if [the Independent Toll Company] is losing money at least divide the traffic." AT&T's competitive toll pricing policy architect argued that his plan would "enormously impair the earnings of the competitor with comparatively slight loss to the Bell company." The up to 50 percent price reductions would only be applied at competitive points. Pickernell thought that at the reduced rates, AT&T's earnings on competitive routes would be below the cost of money. Pickernell reckoned that because of AT&T's earnings in monopoly markets, there would be only a slight reduction in the firm's overall earnings. But the losses from a price war could push the opposition into receivership, and this would provide Bell with the opportunity to acquire their rivals and reestablish rates at the existing level.⁶⁷

Pickernell's letters do not indicate the magnitude of the short-term loss that might result from the price reduction. A letter written by B. Sunny, the president of the Bell Operating Company in Chicago, suggests that the forecasted annual loss to Central Union may have been as little as \$140,000. This is the estimated loss from a proposed rate cut that was being debated within AT&T in April 1909. Sunny, in a letter to the president of AT&T, argued that losses at the Independent's stronghold in Ohio and Indiana were sensible because of the systemwide benefits to AT&T. By taking these losses, Central Union prevented its rivals from operating profitably. If the existing Independents sustained losses, it would diminish their opportunity to expand into markets such as Chicago, or of internally raising money for their toll lines. Naturally, a poor return on existing investment would hurt the Independents' ability to raise money from external sources. Sunny wrote that the losses of Central Union were in the best interest of AT&T because they would help "'exterminat[e]" United States Telephone, a firm that was "'a menace to our whole organization.'"⁶⁸

In May 1909 Pickernell's policy was implemented. On competitive toll routes in the Central Union territory as well as at other competitive points that were to be part of the

Syndicates' emerging network, rates were cut approximately one-third. The rate cuts were seen by the newspapers as an attempt to "checkmate" the Independents' national toll system.⁶⁹ When the price cuts were matched by United States Telephone, AT&T and Central Union cut their toll rates an additional third. The Independent did not match the second reduction because operations at that level would result in doing business at a price that was less than the cost of business.⁷⁰

Since AT&T's toll rates were now lower, U.S. Telephone could not continue in business. As Pickernell forecasted, the traffic followed the rate. The effect of the toll cut on Bell's traffic is shown on Table Four. Message volume increased by 54 percent on the short-haul routes of Central Union and the long-haul routes of AT&T. The rate reduction did lead to a short-term reduction in AT&T's profits. Despite the large increase in traffic, revenue declined.⁷¹ In order to characterize an act as predatory, the aggressor must sacrifice short-term profits in order to increase long-term earnings.⁷² Since revenues declined, along with the clear intent to drive an efficient rival out of business, the price reduction was predatory.

INSERT TABLE FOUR

In October 1909 facing the prospect of future losses, United States agreed to sell its toll and exchange properties to the R.L. Day Company. In light of a recent circuit court's decision that found Standard Oil in violation of the Sherman Anti-Trust Act, AT&T was apprehensive that the Department of Justice might object to the acquisition of its former rival, and therefore did not directly take over ownership of the properties.⁷³ Instead, AT&T provided Day with the funds for the purchase. The sale effectively put AT&T's market share at 100 percent in the territory formerly served by United States. After Day took over control of the Company, the toll rates were returned to their pre-May 1909 level.⁷⁴

By adopting predatory prices, AT&T had succeeded in obtaining these "key" properties at a fire sale price. The United States lines accounted for slightly over 50 percent of the regional Independent toll line mileage. Day paid \$7.3 million for the properties. AT&T's comptroller calculated that the value of the property was \$12.85 million, a calculation based on both the earnings of the properties prior to the rate war, as well as the reproduction cost of the property. The two methodologies provided essentially the same result.⁷⁵

Areeda and Turner have urged that predation be inferred when prices are set below the average variable cost.⁷⁶ While region-specific cost data are unavailable, the available information suggests that AT&T's rates were below its variable cost of production. The average revenue originating in Ohio was \$0.455, \$0.025 less than AT&T's nationwide average variable cost per message.⁷⁷

INSERT TABLE FIVE

For a multimarket firm, the payoff from predation may extend beyond being able to buy out a rival at a low price. By establishing a reputation for predatory actions, the supplier is able to induce other rivals to take actions favorable to the incumbent.⁷⁸ For example, AT&T's toll rate reduction in Ohio helped it secure control of St. Louis in the Fall of 1909. St. Louis was served by Bell of Missouri and the Kinloch Telephone Company. The Independent served 28,300 customers, 16,000 less than the incumbent. Kinloch had more toll connections to nearby points and consequently had higher per-station toll revenue. Financially, Kinloch was the more profitable. Pickernell estimated that, after proper allowance for depreciation, the entrants return on actual dollars invested was 6.7 percent, 360 basis points more than Bell's rate of return. Kinloch's return was higher

despite having effectively lower rate levels. The anomaly was the result of the entrant having lower maintenance and operator costs, as well as less spare capacity per subscriber.⁷⁹

Kinloch sold service on a flat-rate basis, while Bell's used a two-part tariff. Bell's customers paid a fixed monthly charge that was lower than the Kinloch rate, but had to pay an additional per-call charge. The measured service tariff was unpopular with large users, and they mostly used the entrant's service. Despite serving only two-thirds the number of customers as Bell, the message volume was higher on the Kinloch system.⁸⁰

felt that some action had to be taken in light of its rival's gains and the prospect that Kinloch would be able to expand further in the future. In August 1909 Bell adopted the Kinloch rates. AT&T anticipated that the change of rates, due to increased expenses and the reduction in revenue, would lead to a short-term financial loss of \$250,000.⁸¹ While AT&T executives expected that the revenue effect would be positive within a year, they did not believe that the new rates would provide a satisfactory rate of return in the long-run.⁸² Furthermore, if the rate reduction allowed them to gain monopoly control over the market, the State Regulatory Commission might be reluctant to approve a post-acquisition rate increase. Therefore, Bell anticipated that the period of loss could be quite long.⁸³

When Bell adopted the Kinloch rates, the entrant did not respond with a price reduction. By not remaining the low-price supplier in town, the more profitable entrant saw its market share decline. The Independents left their rates intact because they did not wish to enter "a vigorous rate war...similar to the Ohio campaign." Instead, despite their strong financial position, they exhibited an increased willingness to sell their properties to AT&T.⁸⁴ The elimination of United States as a rival also increased the willingness of other Independents to sign sublicense contracts.⁸⁵

Ironically, the most serious legal challenge to AT&T's predatory actions was taken by some minority stockholders of Central Union. AT&T was the majority stockholder of Central Union. Central's aggressive response to entry was in the best interest of AT&T. While the losses at competitive points curtailed the Independents' ability to expand, the minority stockholders of Central Union were injured since the losses at competitive points were not shared. During the competitive era Central operated at a loss, paid no dividends, and the stock sold below par. In Read v. Central Union the judge found that the decision of Central Union to respond aggressively to entry, rather than act as a cooperative duopolist, hurt the minority stockholders of Central Union. The jurist noted that Central Union had "borne the full burden of this expensive fight." The decision of Central Union's directors to adopt policies that were in the interest of AT&T and not the firm was a violation of their fiduciary responsibilities. For this reason, along with other fiduciary violations and AT&T's attempt to monopolize the telephone market, the judge ordered AT&T to sell its holdings in Central Union. The sale did not occur because prior to the end of the appeals process, an out of court settlement was reached between the firm and the plaintiffs. AT&T agreed to pay the minority stockholders \$1.75 million for 1,978.5 shares. The stock had a par value of \$197,850, and a market value of approximately \$90,000.⁸⁶

Predation and System Losses

Lipartito has argued that AT&T did not use predatory pricing because "this would have actually hurt Bell more than the other firms, for Bell had a system to support, while they did not." Addressing the activities of Central Union, he added that it was not possible for Central Union to prey because this Bell Operating Company served "the

hinterland," and therefore could not "draw on profits from cities to sustain price wars with independents in smaller places."⁸⁷ AT&T's strategy in the Spring of 1909 demonstrates that just the opposite was the case. AT&T believed that Central Union could incur losses at competitive points to a better extent than the entrants. Despite these losses, AT&T would not have to declare bankruptcy because of the earnings from monopoly markets.

Support from monopoly markets was also needed to support AT&T's long-term investments. Between 1898 and 1913 AT&T invested approximately \$30 million in Central Union, which led to a four fold increase in the operating company's assets. The investments were made despite the prospect that Central would "have no earning capacity for a long-time." Central Union operated at a loss throughout this era. AT&T was willing to make these investments so that "the fight" in places such as Indianapolis, Toledo, and Columbus could "be carried out to a finish."⁸⁸ By curtailing or eliminating the profits of the Independents at their stronghold, AT&T was able to forestall their expansion into the monopoly markets of AT&T.⁸⁹

AT&T adopted predatory prices in other markets. In Wisconsin, the Independent exchange carriers also met with early success because of their superior quality service at reduced prices. Like Ohio, the Wisconsin Independents were not subject to municipal regulation. Prices could be adjusted to reflect the cost of service if their rival, Wisconsin Bell, adopted compensatory rates. Wisconsin Bell operated at a loss at competitive points for an extended period of time in part to limit the entrants' ability to raise capital for expansion.⁹⁰

New York City and Chicago were the two cities that Independents were most interested in entering. In order to have a comprehensive toll system, it was essential that the Independents have a terminus in these, the nation's leading cities. Furthermore, these monopoly markets were quite profitable. In 1903, operations in Chicago and New York City accounted for approximately 37 percent of the Bell Operating Companies' profits. City officials in New York and Chicago estimated that in 1905 the return on Bell's investment in their cities was approximately 14.6 and 16 percent respectively. During these years, AT&T's cost of money was approximately 5 percent.⁹¹

The United States Independent Telephone Company (USIT) of Rochester, New York led the Independents' effort to establish an exchange in New York City. USIT had a financial interest in scattered exchanges throughout the nation, owned Stromberg-Carlson, a leading manufacturer of telephone equipment for the Independents, and a toll company that interconnected many of the Independent exchanges in New York.

AT&T feared that an Independent stronghold in Upstate New York would serve as a lever for gaining entry into New York City.⁹² Thus, the Upstate Bell Operating Companies operated at a loss in order to serve as a "buffer" for its profitable New York City monopoly. Part of the pay off for this strategy came in 1907 when the USIT defaulted on its bonds and agreed to sell AT&T its properties.⁹³

This AT&T acquisition reduced the value of the Independent properties at nearby exchanges. As a network industry, the value of a firm's properties was a function of the number of connections available. The Federal Telephone Company of Buffalo, a holding company that operated in nearby Buffalo and elsewhere, saw its stock fall from \$33 to \$13 a share when the purchase was announced.⁹⁴

The Independents' structure contained no effective mechanism by which a sale to AT&T could be deterred. One unsuccessful attempt to prevent defections was through the establishment of exclusive long-term contractual connections. This type of contract prohibited either party from breaking connections, even in cases where one party joined

the Bell network. This method proved to be considerably less effective than common ownership. The contracts were costly to enforce and some courts considered the arrangement to be an illegal restraint of trade.⁹⁵

Because of its nearly complete ownership of the Bell Operating Companies, AT&T was able to capture most of the externalities associated with the expansion of its network and the defeat of its rivals. From the beginning of competition, a consensus emerged within the parent organization, and among the Bell Operating Companies, "that the profit need not necessarily be immediately attached to the particular transaction, but that the company itself profit by what is done."⁹⁶ It was sensible for AT&T to take losses at competitive points in order to protect AT&T's monopolies in Chicago and New York, and to solidify its lead in the long-distance market. Furthermore, by maintaining operations at competitive points, the value of Bell service was increased in other exchanges. Customers were willing to pay a higher exchange rate to Bell for the option value of toll access to the Midwest. If AT&T had not maintained operations at competitive points, there would have been stronger support for a competitive exchange in monopoly markets.⁹⁷ But these exchanges did not have to be operated at a loss. The decision to operate at a loss in Indiana, rather than charge paying rates as proposed by the Independents, suggests that the incumbents' strategy breached the norms of competitive behavior, and instead should be characterized as predatory.

The Independents had to establish exchanges in New York, Chicago, and other monopoly markets of the incumbent in order to counter Bell's expansion, improved service, and predatory actions.⁹⁸ AT&T's expansion had been funded in part with borrowed money, and a substantial portion of this capital was invested in areas where the Independents were strong. Because of this competition, the investment "[did] not bring back proper return."⁹⁹ If AT&T's monopoly exchanges lost their ability to cover these losses, the firm would have had difficulty repaying its loans. As aptly noted by a New York City official, the high returns in monopoly exchanges "seem[ed] to invite competition."¹⁰⁰ Had that occurred, events may have turned out otherwise.

The Independents' Failed Effort to Enter AT&T's Monopoly Markets

A. Regulatory Barriers to Entry

In 1905 the Independents were busily trying to enter the large cities in which AT&T still held monopolies. Entry conditions were ripe. There was strong public interest in the establishment of independent exchanges, and AT&T was unable to respond aggressively toward new rivals. In some cities franchise procurement was dependent on the outcome of a public referendum. In 1906 and 1907 referendums were held in Denver, Omaha, Portland (Oregon), and San Francisco, and an overwhelming majority of people voted to grant the Independents franchises. In New York City, there was widespread dissatisfaction with Bell's prices and rate structure. Chicago residents expressed keen support for the Independents because of the toll connections that would become available to those markets they controlled.¹⁰¹

Theoretically, AT&T was unlikely to have responded aggressively to entry in New York and Chicago. Since entry had already occurred in almost all markets, the optimal response of the incumbent to new entry would have been cooperation.¹⁰² Furthermore, AT&T was not in a good financial position to use "war measures" against the new entrants; its standing among investors had fallen. As shown in Figure 2, the value of AT&T's stock had dropped significantly since active trading began on the New York Stock Exchange in 1902.¹⁰³

INSERT FIGURE 2

In early 1906, two editorials in Moody's Magazine pointed out that the market was disinclined to buy any of AT&T's new stock issues, and the firm had therefore to rely on bonds as a source of external capital. Because of the Independent movement's rapid growth and its pending entry into AT&T's monopoly markets, Moody's advised its readers to exercise "caution" when considering the purchase of AT&T securities.¹⁰⁴ Between 1906 and 1908, only 10 percent of Bell's \$150 million issue in convertible bonds was purchased by the public. According to Vail, the lack of buyers was only partly due to the financial panic of 1907.¹⁰⁵ Since financial markets were reluctant to buy new issues by AT&T, and because the large capital requirements of building and sustaining a network had outstripped the firm's internal resources, in 1906 AT&T was forced to limit all extensions and additions to those that were "absolutely essential."

Entry into AT&T's monopoly markets was impeded by state and local regulations. Municipal officials were aware of Bell's large earnings during the patent period. This, along with the heated bidding between promoters, made it clear that a telephone franchise was a highly valued, intangible property. In 1906, six groups were competing for one Milwaukee franchise. City officials around the nation, unlike those in the 1870s, were not going to give this right away without serious thought. When franchises were issued to the Independents, they typically included stipulations that set maximum rates, required free telephone service to the city government, free use of the telephone poles and underground conduit for fire and police lines, and royalty fees.¹⁰⁶ Since most of these requirements were not imposed on Bell, these costs constituted a barrier to entry.

In 1903, Manhattan accounted for approximately one-fifth of all Bell Operating Company profits. Such a lucrative market invited repeated challenges to AT&T's monopoly position by the Independents. New York City was, after all, the market the entrants considered the "keystone" of the Bell System.¹⁰⁷

New York Electric Lines, an independent firm, failed to gain entry because a state court ruled that the city was required by contract to compel joint use of the conduit owned by the Empire Subway Company, a subsidiary of AT&T.

An 1884 state law had required the placement of utility wires underground. At that time, underground transmission was experimental, and due to the uncertainty concerning the project, it was difficult to raise capital for the construction of the conduits. Empire Subway agreed to build the subways on the condition that New York City require other utilities to use their conduit. Empire agreed to make space open to others when it was available and to rent the space at a "reasonable rate." No procedure was established to determine what constituted a reasonable rate.¹⁰⁸

Neither New York Electric Lines, nor any other entrant, wanted to rely on Empire for subway space. When the potential entrants did attempt to rent space, they were usually told it was unavailable. Furthermore, when Empire made space available, the rates appeared to be unreasonably high.¹⁰⁹ Despite these unfavorable entry conditions, the court's ruling left Independents no alternative.

The last major Independent effort to enter New York City was made by the Atlantic Telephone Company. The Board of Estimate and Apportionment granted Atlantic a franchise in June 1907, but the company was never able to begin construction due to certain conditions set forth in the franchise. Like New York Electric Lines, Atlantic would have had to rent space from Empire. For Atlantic, two of the more objectionable franchise clauses were an initial \$250,000 licensing fee and a prohibition on issuing stocks or bonds without first obtaining the permission of the Board of Alderman. Bell was not subject to either of these requirements.¹¹⁰

A fourth clause included in Atlantic's franchise contract best illustrates the difficulties encountered by the entrants. Atlantic had only six months after receiving the franchise to show New York City officials contracts which established toll connections to all cities with populations greater than 4,000 people within a 1,000 mile radius. Failure to meet this, or any other condition, was grounds for charter revocation. This toll connection stipulation required Atlantic to offer its subscribers the same ubiquitous service as was available on the Bell network. While this was certainly an objective of the Independent movement, in the short-term sense it was virtually impossible to achieve.

Nearby Connecticut, at the urging of the state's Bell Operating Company, had passed a law in 1899 that essentially established an unregulated monopoly. An entrant had to obtain a special charter from the Connecticut legislature, as well as a superior state court finding that competition was justified by public necessity. While a 1907 modification to this law required no state charter, it remained necessary to obtain the court finding. This made entry in the state difficult to impossible. Furthermore, while the Board of Alderman of Boston granted an Independent the right to install telephone lines on specific streets in 1906, construction could not begin until the legality of the permit was validated. In 1909, the Massachusetts State Supreme Court ruled that the grant was unconstitutionally vague because "[n]o specific part of any street [was] designated."¹¹¹

The franchise process also provided protection for Bell's Chicago monopoly. In 1907, the Chicago City Council rejected an Independent firm's petition to construct an exchange, finding that the proposed rates were unreasonably low and, therefore, not credible.¹¹² Instead, it accepted Bell's request to have its franchise extended, in exchange for which AT&T accepted rate regulation and paid an increased franchise fee. Two years earlier Bell officials were discussing just such a trade off: "whether...an agreement...to pay the city [of New York] a percentage of its gross receipts might be so attractive as to prevent the granting of a franchise to a competitor."¹¹³

Like the Bell Operating Companies in Milwaukee and New York City, Chicago Bell took a leading role in proposing rate regulation as a substitute for competition.¹¹⁴ The uncertainty surrounding state regulation deterred potential investors from supporting a competitive exchange in Milwaukee. The Wisconsin legislature was debating the establishment of rate regulation in 1907. Until the form and extent of regulation was settled, investors were unwilling to provide funds. They were concerned that regulations would make the market unprofitable.¹¹⁵ In Chicago, municipal regulation provided the council with an alternative to competition, and in New York, entry was effectively prevented by Connecticut's laws. Strategic use of the administrative process proved effective in blocking the Independents from establishing a presence in these major markets.

In the eyes of AT&T's management, municipal and state regulation was clearly preferable to competition. The cost of money to the firm was approximately 5 percent. According to Vail, government bodies did not seem to order price decreases unless a utility was earning more than 10 percent.¹¹⁶ The difference between the real and the allowed cost of money provided cash that helped cover the losses at competitive points.

B. Capital Markets

The Independents' effort to extend their toll network was also impeded by their inability to raise capital through external sources. This difficulty was the result of their poor earnings records and capital-market imperfections. The Independents spent considerable effort trying to raise capital in New York. Their securities were not traded on

the New York market and they believed that one reason for this was that they had had less direct contact with the East.¹¹⁷

While there were many financial magazines and newspapers during this period, little coverage was given to the Independents. Neither were there any major security rating services that could help investors evaluate the financial standing of the Independents. Moody's, for example, did not directly rate the soundness of different securities but merely suggested that investors learn by the habits of more sophisticated buyers. Moody's Classified Investments advised that an investor could infer that a security was relatively safe if leading banks and financial institutions included the item in their portfolios. The investment manual presented a list of the securities held by large institutions. Unlike Bell's, the Independent securities were not widely held by the large financial institutions in the East.¹¹⁸ Based on the information found in Moody's, an investor could induce that Independent securities were relatively risky as compared to Bell's. If risk-averse small- and medium-sized investors relied on Moody's investment method, the Independents would need to convince large financial institutions to invest in their securities before small investors would be willing to invest in their companies.

The large investors were closely allied in their support of AT&T. Firms such as J.P. Morgan and Kidder Peabody sought to establish industrial order. This translated into providing financing for only one firm--AT&T; to do otherwise would have promoted competition. These underwriters were closely tied with other large financiers.¹¹⁹ Through these relations, the financial syndicate was able to deny the Independents access to certain sources.

For example, in 1902, George Sheldon, a member of the New York Stock Exchange, decided to help provide the financing for an Independent company in Milwaukee. When the president of AT&T learned of this, he asked an official of J.P. Morgan & Co. to talk to Sheldon about withdrawing his support. Sheldon was subsequently visited by George F. Baker of the First National Bank and George W. Perkins of J.P. Morgan and Co. According to Sheldon, Baker and Perkins convinced him that he "could not be in the position of actively pushing an opposition to their interests in Milwaukee." He withdrew his support. After Sheldon dropped out, the Independents' 1902 effort to establish an exchange in Milwaukee collapsed.¹²⁰

AT&T's President Fish frequently relied on business associations in the financial community, industry, and other public utilities to interfere with the Independents' expansion plans.¹²¹ Particularly threatening to AT&T was the possibility that the Independents would rent space on the telegraph company poles. This would have reduced their cost of establishing a toll network. Western Union and Postal Telegraph agreed not to rent the Independents space; in exchange, AT&T promised that it would not let one telegraph company use AT&T's facilities for the purpose of getting into territory controlled by other telegraph company.¹²²

The incumbent also used strategic acquisitions to impede the entrants' access to capital. AT&T was aware that in large cities telephone manufacturers would install equipment in exchange for stocks and bonds of the Independent. In part to end this source of financing, AT&T purchased two of the leading Independent manufacturers, Stromberg-Carlson and Kellogg Manufacturing. Kellogg, the largest Independent manufacturer of telephone equipment, was controlled by AT&T between 1902 and 1909. The holdings were found to be a restraint of trade, and AT&T was ordered to sell the properties.¹²³

Unable to raise money in the East, the Independents had to rely on the regional stock exchanges: Cincinnati, Columbus, St. Louis, Toledo, Minneapolis, and Cleveland. However, these stock exchanges were inadequate for the task. For example, Cleveland was one of the largest regional stock exchanges, but in 1906 the number of shares traded in Cleveland were less than 1 percent of the volume traded on the New York Stock Exchange.¹²⁴ It was not feasible for these smaller markets to handle the large capital requirements of a telephone network.

The regional stock exchanges were quite risky for investors. On the Cleveland Stock Exchange, weeks could go by without any bids being made on the stock of United States Telephone. On the smaller Toledo exchange, sometimes days would pass during which there would be no bids on any of the securities (most of the stocks being nontelephone firms).¹²⁵ The lower liquidity levels on the regional markets made securities traded in these markets more risky than stock sold in New York.

Regardless of whether the market was in the East or the Midwest, investors were aware that AT&T had a major institutional advantage over its competitor. A critical criteria used by "conservative bankers" to evaluate the financial soundness of a public utility was to measure how its franchise compared with that of its rival.¹²⁶ Since the Independents franchise often included regulations that were not part of the Bell Operating Companies' permit, the Independents' securities were a more risky investment.

The Post-Competitive Years

McGee has proposed that even if predation occurs, this conduct may increase society's welfare. Customers benefit from the low prices, and these gains may exceed whatever losses occur if the predator gains monopoly power.¹²⁷ AT&T's below-cost pricing did provide some short-run benefits, boosting the number of subscribers on AT&T's network as new customers were attracted by the low prices. But this rapid development ended with the disappearance of the Independents. As shown on Table Seven, telephone growth was at its peak during the competitive era. With the demise of the Independents, AT&T's commercial department no longer had the same incentive to seek new customers. The slow rate of development during the post-competition years occurred despite a low level of telephone penetration--in 1920 only 35 percent of the households in the United States had telephones.

(INSERT TABLE SEVEN)

During the competitive era, AT&T for the first time took a keen interest in developing the rural market. The incumbent realized that the areas outside the cities had to be secured, otherwise the Independents would use their stronghold to gain entry into AT&T's profitable urban markets. The passing of competition reduced Bell's incentive to develop the rural market. Consequently, the proportion as well as the number of farms with telephones declined in the 1920s and 1930s.¹²⁸

Also, due to the lack of competition and effective regulation, between 1913 and 1935 AT&T's long-distance operations earned an average annual rate of return of 10.9 percent. The firm's cost of money during these years was approximately 5 to 6 percent.¹²⁹ The sizeable difference between the cost of money, and AT&T's earnings on toll calls suggests that there was a significant, persistent welfare loss to society due to the elimination of competition.

Conclusion

Despite the low volume of toll traffic, the Independents knew they needed an integrated network. In order to attract business customers away from Bell, the entrants had to offer similar, ubiquitous service. Their failure to construct the nationwide network was not due to any major technological disadvantage, or institutional barriers-to-entry in the long-distance market. By federal law, intercity toll lines could be constructed along the public highways.¹³⁰

Organizational structure was crucial, but not because of the volume of intercity calls. In order to protect profitable toll and exchange monopoly markets, AT&T was willing to take losses at markets where competition first appeared. The incumbent's strategy was effective because barriers to entry impeded the Independents from entering all markets simultaneously. Most importantly, state and municipal regulations, and to a lesser extent AT&T's ties with the nation's leading financiers, established barriers that caused the game of rivalry to be played sequentially, rather than simultaneously. If the game had been played simultaneously in all markets, AT&T would have been unable to adopt the strategy of the aggressive duopolist. By operating at a loss at competitive points, AT&T hindered the Independents' ability to raise capital for the construction of an integrated network. The shortage of money also hurt the Independents in an area that was originally their competitive strong point--quality of service. They lacked the internal cash-flow needed for the proper maintenance of their facilities causing the quality of service on their networks to deteriorate.¹³¹ The financial panic of 1907 exacerbated their financial problems. Consequently, AT&T reemerged in control of the industry as increased numbers of Independents became willing to sell their properties to Bell or become sublicensees on terms that had not been considered satisfactory a few years earlier.

Recent research in business history has emphasized that AT&T emerged as the industry leader because of the firm's strategy and structure. The researchers have concluded that AT&T's decision to build and centrally control a higher-quality network than its rivals was the primary factor that determined the incumbent's success.¹³² The evidence presented above suggests that for the first decade of the competition in the Midwest, AT&T marketed an inferior local service, had a smaller toll network for the area in which most toll calls were placed, and its operations were poorly maintained.¹³³ Furthermore, AT&T's operations were unprofitable. Despite these liabilities, by 1910 the firm emerged in control of the region. The reversal was due to important strategic moves by AT&T's management, not least of which was predatory pricing.

McGee has pointed out that if a barrier to entry is not present, it would be "foolish" for a firm to prey. Without this protection, if the predator regains control of the market, it can not be certain that it will be able to recover the losses from the first stage losses.¹³⁴ While there were no legal barriers to entry for the provision of toll service, AT&T was able to prey on its rivals because of barriers in the local markets. This history illustrates that when the courts use structural conditions to screen potential predatory actions,¹³⁵ the search for barriers should include related markets where there are clear externalities.

This history provides some insight into the modern analog of Standard Oil, the court-approved divestiture of AT&T in United States vs. AT&T.¹³⁶ In 1974 the Justice Department charged AT&T with conduct that had been "designed to maintain and expand its existing telecommunications service monopoly."¹³⁷ Brought as a Section Two case, Justice argued that during the post-World War II era, AT&T preyed on rivals.¹³⁸ AT&T was allegedly able to impede competition through its control of local exchange facilities:

"Local telephone exchanges are 'bottlenecks' under classic antitrust theory. The control of these franchises provides AT&T with the incentive and opportunity to protect, maintain and extend its monopoly in telecommunications services overall."¹³⁹

In order to eliminate this structural impediment to competition in the long-distance, telecommunications equipment and information service markets, the government proposed that the Bell Operating Companies be prohibited from providing these services.¹⁴⁰

AT&T replied that it was not guilty of any Section Two violations, and that divestiture of the Bell System would not be in the nation's best interest since AT&T had "provided...the world's best telecommunications service."¹⁴¹ AT&T argued that the monopoly structure was the result of "technological and economic imperatives of the industry."¹⁴² "A review of the history of the telecommunications makes it plain that the structure of the industry...evolved directly from the technological imperatives of networking, the interactive and interdependent nature of the telecommunications network, and the need for a single network manager to control plan and operate the network in order to assure efficiency."¹⁴³

The conduct of AT&T during the era 1894-1910 suggests that the monopoly market structure was not merely the result of "technological and economic imperatives," but was also due to such Section Two violations as predatory pricing, funding of court cases in order to interfere with price increases granted to the Independents by municipalities,¹⁴⁴ acquisition of manufacturers of telephone equipment in order to limit the Independents' access to the capital markets, and bribes/threats to financiers to discourage financing of the Independents.

The conduct of AT&T at the start of the twentieth century also suggests a willingness of the firm's management to sustain and expand its monopoly by strategic use of its ownership of bottleneck facilities. AT&T was able to prey because of barriers to entry that precluded the entrants from serving all markets. Until these barriers-to-entry are eliminated, there remains a concern that the exchange companies will prey on entrants in order to forestall entry into the telecommunications industry.¹⁴⁵

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Table One
Market Share: 1907

Organization	Number of Stations	Percent of Market
Farmer	565,649	9.2%
Mutual	125,956	2.1
Commercial	2,294,910	37.5
AT&T	3,132,063	51.2

Source: United States Bureau of the Census, Telephones: 1907
(Washington, D.C., 1910), p.22, 24.

Table Two
Bell and Independent Market Shares: 1907

	Bell	Inde- pendent	Independ- ent stations exchanging service with Bell System	Connected for ex- change of service, Bell and Independent
United States	51.2	48.8	13.7	64.9
North Atlantic	74.9	25.1	3.3	78.2
South Atlantic	57.2	42.8	7.4	64.7
North Central	33.8	66.2	20.5	54.3
South Central	50.2	49.8	18.6	68.9
Western	71.0	29.0	6.7	77.7

Source: Bureau of the Census, Telephones and Telegraphs, 1907 p.23, table 10.

Table Three
Status of Competition: Leading Cities,
Ohio, Indiana, and Illinois July 1905

City	Total Subscribers	Both Ser- vices Only	Bell Inde- pendent Only	Inde- pendent Total	Bell Inde- pendent Total Dupli- cation Dupli- cation	Busi- ness Dupli- cation	Resi- den-		
Cleveland	29,560	3,527	12,815	13,218	16,342	16,742	2,912	615	
Columbus	12,904	1,316	5,523	6,065	6,839	7,381	996	320	
Dayton	9,513	1,326	5,639	2,548	6,695	3,874	993	333	
Elgin	3,346	229	2,487	630	2,716	859	N.A.	N.A.	
Indian-apolis	12,965	1,560	3,828	7,577	5,388	9,137	1,231	329	
Joliet	3,668	418	1,944	1,306	2,362	1,724	N.A.	N.A.	
Peoria	6,057	221	5,818	18	6,039	239	209	12	
Spring- field, Ill.	5,148	600	2,450	2,098	3,050	2,968	481	119	
Spring- field, Oh.	4,338	655	2,685	998	3,240	1,653	400	225	
Toledo	9,301	950	2,325	6,026	3,275	6,976	680	270	
Total	96,800	10,802	45,514	40,484	55,946	51,553	7,902	2,223	

Source: Merchants' Association of New York, Telephone Competition: From the Standpoint of the Public (New York: n.p., 1906), p.11.

Table Four
Impact of Rate Reduction in Twenty Ohio Cities
Toll Messages and Revenues: September 1908 & September 1909

	September 1908	September 1909	Percent Change
Outward CU messages to reduced points	34,001	52,041	53.1
Outward CU messages to non-reduced points	26,766	29,783	11.3
Outward AT&T messages to reduced points	13,000	20,120	54.8
Outward AT&T messages to non-reduced points	5,196	6,650	28.0
CU message revenue to reduced points	10,916	9,554	-12.5
CU message revenue to non-reduced points	5,271	5,628	6.8
AT&T message revenue to reduced points	9,962	9,152	-5.3
AT&T message revenue to non-reduced points	7,293	9,184	25.9

Source: Thayer/Vail, November 18, 1909, B2019, "Long Lines Department," ATT.

Table Five
Price/Cost Relationship on AT&T's Competitive, Long-Distance Toll Routes

		September 1908	September 1909
Revenue per message to reduced points (messages originating in Ohio)	\$0.743	0.455	
Revenue per message non-reduced points (messages originating in Ohio)		1.404	1.381
Nationwide Average variable Cost per message	NA	0.48	
Nationwide Average Total Cost per message (variable cost plus depreciation and return on investent)	NA	0.754	

Note: NA = not available

Source: Thayer/Vail, November 18, 1909, B2019, "Long Lines Department," ATT.

Table Six

AT&T's Beta Coefficient 1902-1909

	Industrial	Railroad	N
1902	.872* (4.62)	.033 (.157)	40
1903	.735* (19.35)	1.196* (19.6)	52
1904	.431* (18.14)	.746* (26.15)	53
1905	-.234* (-5.95)	-.335* (-4.09)	52
1906	.432* (3.74)	.245 (1.763)	52
1907	.564* (13.9)	.835* (16.25)	53
1908	.608* (24.73)	.807* (20.34)	52
1909	.57* (12.55)	.878* (13.89)	53

Notes: Figures in parentheses are t-statistics.

* Significant at the 5-percent level of significance, two-tailed test

Sources: The analysis is based on end of the week prices of AT&T stock, the Wall Street Journal Industrial and Railroad Average.

Table Seven
Telephones per 1,000 Population:
Rate of Growth

1885-1893	4.6%
1894-1907	20.6
1908-1912	5.5
1913-1917	3.9
1918-1929	3.1

Source: United States, Historical Statistics, vol. 2, p. 783.

ENDNOTES

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For a summary of the literature, see Janusz A. Ordover and Garth Saloner, "Predation, Monopolization, and Antitrust," in Handbook of Industrial Organization (Amsterdam: North-Holland, 1989) 537-96; and Joseph A. Brodley and George A. Hay, "Predatory Pricing: Competing Economic Theories and the Evolution of Legal Standards," 66 Cornell Law Review 739 (1981).

Northeastern Telephone Co. v. AT&T Co., 652 F.2d 76, 88 (2d Cir. 1981), cert. denied, 455 U.S. 943 (1982); Matsushita Electric Industrial Co. v. Zenith Radio Corp. 475 U.S. 574, 591 (1986); F.M. Scherer, Industrial Market Structure and Economic Performance (Chicago: 1980), p.337; and Frank Easterbrook, "Predatory Strategies and Counterstrategies," University of Chicago Law Review 48 (1981), 263-337

221 U.S. 1 (1911).

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

Ordover and Saloner, *supra*, note 1, at 350-56; Basil S. Yamey, "Predatory Price Cutting: Notes and Comments," 15 Journal of Law and Economics 129 (1972); and Malcolm R. Burns, "Predatory Pricing and the Acquisition Cost of Competitors," 94 Journal of Political Economy 266 (1986).

Three notable exceptions are Burns, *supra* note 5; Balder von Hohenbalken and Douglas S. West, "Empirical Tests for Predatory Reputation," 19 Canadian Journal of Economics 160 (1986); and Yamey, *supra* note 5.

See, for example, Jean Tirole, The Theory of Industrial Organization (Cambridge, MA., 1989), at 373; Robert H. Bork, The Antitrust Paradox: A Policy at War with Itself (New York, 1978), at 159; and Steven Salop and David Schiffman, "Raising Rivals' Costs," 73 American Economic Review at 267 (1983).

Bork, *supra* note 7, at 154; and Tirole, *supra* note 7, at 373.

"Conference Held at Boston, January 23, and 24, 1900: Telephone Service and Charges," (hereafter "Telephone Service Conference"), box 185-02-03, American Telephone and Telegraph Corporate Archive (hereafter ATT). The conference was attended by officials of AT&T, and some of the presidents of the various Bell Operating Companies.

Alfred D. Chandler Jr., The Visible Hand: Managerial Revolution in American Business (Cambridge, MA., 1981), at 202-03; Neil Wasserman, From Invention to Innovation: Long-Distance Telephone Transmission at the Turn of the Century (Baltimore, 1985), at 121-22; John V. Langdale, "The Growth of Long-Distance Telephony in the Bell System: 1875-1907," 4 Journal of Historical Geography, at 145 (1978); and Federal Communications Commission, Investigation of the Telephone Industry in the United States (Washington, 1939), at 130.

Chandler, *supra* note 10, at 202-03.

Testimony of Horace Hill, in *Read et. al. v. Central Union Telephone Company* (hereafter "Read,") Superior Court of Cook County Illinois, Chancery General Number 299,689, tr. 3037-8 (first quote), 3537; George Anderson, "The Telephone Situation: Its Causes and its Future," October 12, 1906, at 83-4 (second quote); Frederick S. Dickson, Telephone Investments--and Others (Cleveland, 1905), at 41.

Kenneth Lipartito, The Bell System and Regional Business: The Telephone in the South, 1877-1920 (Baltimore, 1989), at 93, and "System Building at the Margin: The Problem of Public Choice in the Telephone Industry," 49 Journal of Economic History 328 (1989).

Franklin M. Fisher, "Games Economists Play: A Noncooperative View," 20 Rand Journal of Economics 113 (1989).

Lipartito, Bell System, *supra* note 13, at 93.

Lipartito, Bell System, *supra* note 13, at 92. Lipartito does not clearly define what he means by the phrase quality-of-service. He does see it as distinct from toll service. "System Building," *supra* note 13, at 327.

Fish/Cutting, April 3, 1903, v.27 Presidential Letter Books, (hereafter PLB), ATT; and Wasserman, *supra* note 10.

Original Petition, *United States v. American Telephone and Telegraph Company*, Equity No. 6082 (D.Or. 1913), 15; Harry P. Nichols, "Report of the Bureau of Franchises Upon the Application of the Atlantic Telephone Company," October 12, 1905, at 17; "Report of the Meeting of the Switchboard Committee," March 15-18, 1892, at 117-18 (quote), ATT; and John J. Carty, "Telephone Service in America," 1910, Baker Library.

Legal, not administrative control was established in 1900. The latter was not established by AT&T for a few more years. Testimony of James P. Baughman, *United States v. American Telephone and Telegraph Company*, Civil Action No. 74-1698, filed December 2, 1981, A27-31; and Allen/Fish, June 23, 1903, Allen Letter Books, ATT (hereafter ALB).

Lipartito, Bell System, *supra* note 13, at 91; Fish/Glass, September 10, 1902, PLB, v.23; Allen/Fish, March 16, 1903, ALB; Harry MacMeal, The Story of Independent Telephony (Chicago, 1934), at 33-35; Wisconsin State Journal, December 31, 1895, and March 2, 1896; Wisconsin State Telephone Association, On The Line: A History of the Telephone Industry in Wisconsin (Madison, 1985) at 118; Harry P. Nichols, "Result of Investigation of the Operation of a Dual System of Telephones in Various Cities," at 17, November 21, 1906, ATT; and 90 Telephony (March 13, 1926) at 4.

Fish/Burt, February 14, 1903, v.26 PLB (quote); and N.R. Danielian, AT&T: The Story of Industrial Conquest (New York, 1939), at 58.

Fish/Glass, March 23, 1903, PLB v.27.

US v. AT&T, p. 15 (first quote), p. 17 (second quote).

A consent decree was reached between the two parties and therefore the presiding judge did not have to rule on the specific merits of the case. The judge wrote in his consent decree order that AT&T had "attempte[d] to monopolize" commerce in a manner that violated the Sherman Act. As part of the decree, AT&T agreed to divest itself of the recently acquired toll lines and committed the local Bell Operating Company to provide exchange customers with equal access to the Independent's toll lines. AT&T was permitted to hold onto the acquired local exchange facilities because it was not possible to separate the Independent's facilities from the incumbents. 1 Decrees and Judgements in Federal Antitrust Cases (1914) 554.

The Department was also bothered by other AT&T acquisitions, including the firms purchase of controlling interest in Western Union in 1908. An inquiry was dropped in December 1913 after AT&T agreed to sell off its holdings in Western Union, refrain from purchasing competing companies without the approval of the Justice Department, and furnish toll connections to Independent companies. Federal Communications Commission, Investigation, *supra* note 10, at 139-40.

For example, see Fish/Pettingill, April 21, 1902, PLB v.23; Fish/Davis, September 25, 1901, PLB v.16; and 226, 249, "Telephone Service Conference," *supra* note 9, at 226, 249.

30 Western Electrician (March 1, 1902), at 148; 6 Telephony (1903), at 168; and Minutes of the Board of Directors, Wood County (Wisconsin) Telephone, January 15, 1907.

AT&T was willing to make an exception to its acquisition policy if the property would otherwise fall into some stronger independent's hands. Fish/Pettengill, April 21, 1902, PLB v.23.

Jackson-French, January 16, 1897, ATT box 1277 (quote); and Federal Communications Commission, Investigation, *supra* note 10, at 131.

MacMeal, *supra* note 20, at 24.

Anderson, *supra*, note 12, at 67; Telephone Securities Weekly, 3 (May 2, 1908), 3; and L.N. Whitney, "Report on Conditions in Indiana," August 1907, 21, box 11, Museum of Independent Telephony.

1 Wisconsin Telephone News (December 1906) at 1; MacMeal, *supra* note 20, at 24.

Claude Fischer, "The Revolution in Rural Telephony, 1900-1920," 11 Social Science History, at 297 (1987); Wisconsin State Telephone Association, *supra* note 20; and Allen/Fish, November 6, 1902, ALB.

Circular from Office of Wausau Telephone Company, February 16, 1897, Dane County Telephone Papers (hereafter DCTP), Wisconsin State Historical Society; and Solon C. Thayer, "Telephone Service at Cost: The Wisconsin Valley Plan," (pamphlet, 1905), at 19-20.

Allen/Fish, February 16, 1903; and F.G. Johnson, "Experience of a Pioneer Physician in Northern Wisconsin," 38 Wisconsin Medical Journal at 580 (1939).

Robert Bornholz and David S. Evans, "The Early History of Competition in the Telephone Industry," in David S. Evans, ed., Breaking Up Bell: Essays on Industrial Organization and Regulation (New York, 1983), at 25.

Whitney, *supra* note 29, at 4; and Allen/Fish, April 6, 1903, ALB.

Brown/Harper, March 30, 1898, and Twining/Harper, October 24, 1899, DCTP.

Wausau Telephone, *supra* note 32; and "Telephone Service Conference," *supra* note 9, at 131-32, 168-69, 196, 211-14.

Allen/Fish, December 3, 1903 and June 4, 1904, ALB.

"Report of the Fourth Annual Convention of the Independent Telephone Association" (1900), 12, box 11274, Museum of Independent Telephony; Electrical Engineering, 9 (1897), 277; Electrical Engineering and Telephone Magazine, 13 (1899), 206; 2 Western Electrician (March 1, 1902) at 148; and Nichols, "Result," *supra* note 20, at 17.

Others argued for, and attempted central control of the independents through a vertically integrated firm. This structure, which was used by AT&T, involved the parent company owning exchange companies, a toll line system, and a manufacturer of telephone equipment. 37 Western Electrician (October 14, 1905), at 305; 69 Commercial and Financial Chronicle (December 16, 1899), at 1224; Milwaukee Sentinel, February 12 and 13, 1903; and MacMeal, *supra* note 20, at 85.

Harper/Brester, May 12, 1899, DCTP; United Telephone Voice, May 1921, Museum of Independent Telephony.

G.C. Mathews, "The Truth About State Regulation of Utilities in Wisconsin," 54 Annals of the American Academy of Political and Social Science (July 1914), at 305-06.

Minutes of Director's Meeting, Central Union Telephone Company, March 18, 1908, at 264; and Richardson/Dubois, January 22, 1909, in "Competition, Opposition, Mergers, Connections with Independents," Read, at 141.

Telephone Securities Weekly, April 18, 1908, at 7.

New England Telephone, "The Telephone: A Description of the Bell System with Some Facts Concerning the So-called 'Independent' Movement," 1906, at 45-49.

Whitney, *supra* note 29.

Minutes of Director's Meeting, Central Union Telephone Company, January 20, 1897, at 237, ATT (quote); "Opinion Rendered by Judge William E. Dever," (hereafter "Opinion Rendered," January 20, 1917, slip. op. 41, in Read.

Whitney, *supra* note 29, at 5 (quote); and 65 Telephony (November 22, 1913), at 23.

M.D. Atwater, "The History of the Central Union Telephone Company," August 26, 1913, at 53, 56, 68, and 275; 72 Commercial and Financial Chronicle (April 27, 1901), at 823. The Independents eventually did well on the West Coast because customers were attracted to their high-quality, one-party service. Fish/Glass March 23, 1903, PLB.

Atwater, *supra* note 49, at 78, 78, 89, and 275.

Atwater, *supra* note 49, at 53, 56, 68.

See, for example, John Lee, The Economics of Telegraphs and Telephones (London, 1913), at 74.

The Independents' rates were not predatory because the below-cost prices were due to the regulatory process and were not adopted with the intent to drive an equally efficient rival out of business. Where left unconstrained by municipal regulations, the Independents raised their price to reflect the increasing unit cost. J.C. Harper to Wisconsin Railroad Commission, September 1, 1907, series 1344, box 107, file 900.4, WSHS.

Warren J. Stehman, The Financial History of the American Telephone and Telegraph Company (Boston, 1925), at 88.

New England Telephone, *supra* note 45, at 61-3; Richardson/Caldwell, November 29, 1907, "Indianapolis," B1153, ATT; and Vinton A. Sears, "Telephone Development: Status of the Industry, Scope and Effect of Competition," (Boston, 1905), at 27.

N.A., "Brief History of Indianapolis Litigation," "Indianapolis Consolidation," box 36, ATT; and Daily Telephone News April 24, 1906.

Stehman, *supra* note 54, at 86.

Richardson/Vail, February 27, 1908, box 1357, ATT (first quote); Hill, *supra* note 12, Tr. 3067 (second quote), and 3453-54; Minutes of Board of Directors, Central Union, March 18, 1908, at 265, ATT; and Atwater, *supra* note 49, at 135.

Pickernell/Fish, October 20, 1905, reprinted in Federal Communications Commission, "American Telephone and Telegraph Company Security Investments," January 25, 1937, 1:129; and Hill, *supra* note 12, 3037-38.

Central Union News 3 (February 1908), at 8.

Pickernell/Richardson, October, 13, 1905, reprinted in "Competition, Opposition, Mergers, Connection with Independents," at 56, in Read (quote); and Fish/Caldwell, December 1, 1905, PLB, v.41.

"Brief History of Indianapolis Litigation,"; and Telephony 18 (September 25, 1909), 317. Elsewhere, AT&T surreptitiously fought rate increases of the Independents in Court. See, for example, Fish/Bethell, December 23, 1902, PPLB v.2; and Fish/Yensen, June 26 and 30, 1902, PLB, v.21.

Contract United States Telephone with Max Koehler, April 19, 1909, "Ohio Consolidation," box 36, ATT; Telephony 19 (March 26, 1910), 380.

Pickernell/Hall, May 21, 1909, "Toll Line Business," b1376, ATT.

Ibid.

Ibid. (first quote); and Pickernell/Hall, May 12, 1909, "Toll Line Business," B1376, ATT.

Ibid.

Sunny/Vail, April 1, 1909, quoted in Dever, "Opinion Rendered," *supra* note 47, at 135-36; and Testimony of Frank F. Fowle, tr. 633-35, "Read."

Daily Telephone News, May, 4, 1909.

18 Telephony (August, 21, 1909), at 182, and 19 (January 8, 1910), 53. United States Telephone did not indicate if the price was less than its average total or variable cost. The firm merely stated that operations were unprofitable at that level.

The data also indicates the extent of toll competition. In 1908, 71% of the messages sent over AT&T's long-distance lines could have reached the same destination over the rivals' network. On short-distance toll calls, the option was only available for 56% of the traffic. The difference may be attributable to there being a lower likelihood of competition in small cities and towns. The long-haul traffic may have been between large cities.

Franklin M. Fisher, John J. McGowan and Joen E. Greenwood, Folded, Spindled, and Mutilated: Economic Analysis and U.S. vs. IBM (Cambridge: MIT Press, 1983), 274; and Phillip Areeda and Donald Turner, "Predatory Pricing and Related Practices Under Section 2 of the Sherman Act," Harvard Law Review 88 (February 1975), at 698.

19 Telephony (February 22, 1910), at 186; and *Standard Oil v. United States*, 173 Fed. 177.

The sale of the United States property received widespread attention. In December 1909, perhaps in anticipation of legal action, Day informed AT&T that it no longer wanted to hold the properties. Upon hearing this news, AT&T asked J.P. Morgan & Co. to take control of the properties. AT&T informed Morgan that a transaction had to occur quickly, and therefore the investment firm abandoned its standard procedure of determining the value of the properties. Morgan accepted AT&T's assurance that the investment would be profitable. Morgan/Vail, August 9, 1915, reprinted in Federal Communications Commission Accounting Department, "Report on American Telephone and Telegraph Company Corporate and Financial History," January 16, 1937, appendix 16, at 24.

Morgan's acquisition was investigated by the Attorney General Denman of Ohio. Since Morgan was on the Board of Directors of AT&T, there was concern that the acquisition may have violated the State's anti-trust laws. Denman dropped the investigation after an officer from Morgan submitted a sworn affidavit stating that the purchase had been made "'as an investment...with its own moneys,'" and that there was no agreement with AT&T regarding the control or management of United States Telephone, nor an arrangement to lessen the extent of competition. Denman believed that "'whenever Mr. Morgan signs his name to a statement it can be depended on,'" and therefore there was no need for legal action. 19 Telephony (January 22, 1910), at 88 (first quote), (January 15, 1910), 82 (second quote), and (January 8, 1910), 53. United States Attorney General George

Wickersham had indicated that he would defer to State authorities on the initiation of anti-trust suits. Telephony 55 (July, 16, 1910), 57. Perhaps since Denman felt that there was no need to challenge the acquisition by Morgan, the federal government took the same position.

Morgan and AT&T worked together to consolidate the industry. In addition, AT&T agreed to cover any losses that Morgan might incur due to the acquisition. Morgan/Vail, November 17, 1910, reprinted in Federal Communications Commission, "Financial History," appendix 16, 1.

19 Telephony (March 26, 1910), at 386.

Sunny/Vail, November 19, 1909 (quote), reprinted in Federal Communications Commission, "Control of Communications: Control of Independent Telephone Properties," June 15, 1937, 3: 174; and DuBois/Vail, October 12, 1909, "Ohio Consolidation," box 36, ATT.

Malcolm Burns, *supra* note 5, has provided an econometric estimation of the impact predation had on the price of tobacco manufactures acquired by American Tobacco. I am unable to employ Burns' methodology because of the lack of financial data for the overwhelming majority of firms acquired by AT&T.

Areeda and Turner, *supra* note 72.

Paul Joskow and Alvin Klevorick have proposed a two-stage test for predation. At the first stage, the market structure is analyzed in order to determine the likelihood of successful predation. If the probability is high, they suggest a second stage cost test. If the price is less than the long-run market equilibrium level, the average cost of production, the price reduction is considered predatory. "A Framework for Analyzing Predatory Pricing Policy," 89 Yale Law Journal 213 (1979).

By this test, AT&T's price cut should be considered predatory. Due to the barriers-to-entry discussed below, the structural test is passed, and, as shown on Table Five, price was less than the average total cost.

Reinhard Selten, "Chain Store Paradox," 9 Theory and Decision 127 (1978).

Thayer/Durant, February 24, 1909, and Pickernell/Thayer, June 2, 1909, "Missouri," box 4, ATT.

Ibid.

June 2, 1909, "Missouri," box 4, ATT.

June 7, 1909, "Missouri," box 4, ATT.

Pickernell/Thayer, June 2, 1909, "Missouri," box 4, ATT.

Calhoun/Brooke, January 18, 1910 (quote), and Transcript of Conversation between Calhoun and Brooks/Wilson, March 23, 1910, "Missouri," box 4, ATT.

19 Telephony (March 26, 1910), at 377.

"Final Decree by Judge William E. Dever," July 10, 1917 (quote p. 28), "Read;" Read/Kingsbury, April 4, 1919, reprinted in Federal Communications Commission, "Security Investments," 1: appendix 9, p.16.

Lipartito, Bell System, *supra* note 13, at 268, n.76 (first quote), and at 105 (second quote).

Minutes of Director's Meeting, Central Union Telephone Company, January 17, 1900, at 39, ATT; American Telephone and Telegraph, "Brief and Argument for Appellant," in Read, Appellate Court of Illinois, First District, Gen. No. 23664, March 1918, at 2; and Fish/Sabin, December 24, 1902 (quote only), v.2 Private Presidential Letter Books, ATT (hereafter PPLB).

Dever, "Final Decree," *supra* note 86, at 77.

Burt/Vail, October 31, 1908, ATT box 1163; and Testimony of Alonzo Burt, Frank Winter v. La Crosse Telephone and Wisconsin Telephone, Tr. 147, Wisconsin Railroad Commission, U-317, Wisconsin State Historical Society.

Hall/Fish, July 24, 1904, "Operating Companies--Performance Ratings--1903," ATT box 1348; Wall Street Journal, April 2, 1906; Nichols, "Report," *supra* note 18, at 22; and Robert Garnet, The Evolution of the Bell System's Horizontal Structure (Baltimore, 1985), at 118.

"Telephone Service Conference," *supra* note 9, at 226.

Vail/Winsor, March 26, 1909 (quote), and Vail/Clowry, September 30, 1908, "Proposed Consolidation," ATT box 47; and Telephone Securities Weekly, April 13, 1907. Because of these predatory losses, the minority stockholders of the Upstate New York Bell Operating Companies threatened a suit similar to the one filed by the minority stockholders of Central Union. The suit was not filed because AT&T provided satisfactory compensation when these upstate companies were merged with the profitable downstate firms. Vail/Gould, April 3, 1908, PPLB, v.6.

Telephone Securities Weekly, April 7, 1907.

Union Trust v. Kinloch Long Distance Telephone, 258 Illinois 202 (1913); and U.S. Telephone v. Central Union Telephone, et. al. 202 Fed 66 (1913). Other courts concluded that the exclusive toll contracts did not violate state anti-trust laws. See, for example, U.S. Telephone v. Middlepoint Home Telephone 86 Ohio 319 (1912).

E.J. Hall, President of Southern Bell and Vice-President of AT&T, "Telephone Service Conference," *supra* note 9, at 157.

Milwaukee Free Press, July 27, 1906; Milwaukee Sentinel, July 27, 1906; and Atwater, *supra* note 49, at .72-73.

"To the Citizens of Madison: Statement Issued by Dane County Telephone," 1906, Wisconsin State Historical Society; Whitney, *supra* note 29, at 32.

Fish/Pickernell, August 3, 1906, PPLB v.5 (quote); and Garnet, *supra* note 91, at 192, n.11.

Nichols, "Report," *supra* note 18, at 22 (quote).

Western Electrician, July 1, 1905, p. 11, and March 3, 1906, p. 184; Fish/Burt, July 29, 1905, PLB, v.40; Telephony, December 1906, p.358; Jesse Weik, "The Telephone Movement: Another Point of View," 90 Atlantic Monthly (February 1906), pp.267-8; City Record, June 25, 1907, p.1; Daily Telephone News, 1905; and Richardson/Fish, October 16, 1901, reproduced in Atwater, *supra* note 49, at 76.

Selten, "Chain Store Paradox," *supra* note 78, at 129.

Wall Street Journal. As shown on Table Two,, 1905 was an especially bad year for the stock--its beta coefficient was less than zero.

(INSERT TABLE SIX)

1 Moody's Magazine (January 1906), at 132-33, and (February 1906), 270-71 (quote).

"Report of the Joint Committee of the (New York State) Senate and Assembly to Investigate Telephone and Telegraph Company," (Albany, 1910), at 462.

12 Telephony (July 1906), at 20; 82 Commercial and Financial Chronicle, 82 (November 18, 1905) at 1497; City Record, May 1, 1906, at 3, ATT; and "Ordinance Granting Telephone Franchise to Automatic Telephone Company by Board of Public Works," New Bedford, June 27, 1899, ATT. The license payments often took the form of "boodle." Municipal reformers demanded similar payments--the difference being that the payment went to the city government instead of political bosses. Joel A. Tarr, "The Urban Politician as Entrepreneur," in Bruce M. Stave ed., Urban Bosses, Machines, and Progressive Reformers (Lexington, 1972), at 65; and Lincoln Steffens, The Shame of the Cities (New York, 1907), at 250.

Paul Latzke, A Fight With an Octopus (Chicago, 1906), p.12 (quote); and Hall/Fish, July 24, 1904, "Operating Companies--Performance Ratings--1903," ATT box 1348.

People ex. rel. New York Electric Lines Co. v. Ellison, 81 Northeastern Reporter 447, 449 (1907); New York Laws of 1884, ch. 534; New York Laws of 1885, ch. 499; and Merchants' Association of New York, "Inquiry Into Telephone Service and Rates in New York City" (1905), at 15, box 1019, ATT.

New York Tribune, March 15, 1905; and Federal Communications Commission Accounting Department, "Report on American Telephone and Telegraph Company Corporate and Financial History," Special Investigation Docket No. 1, volume III, appendix 14.

City Record, June 25, 1907, at 3-4, ATT; and Telephone Securities Weekly, June 29, 1907. Eight months later, the city agreed to modify the license fee. *Ibid.*, February 22, 1908, at 5.

Laws of Connecticut 1899, ch. 158 and 1907, ch. 245; "Judiciary Telephone Committee Hearings: Connecticut," (1905), 616-7 and (1907), 149-55, ATT; and Metropolitan Home Telephone Company v. Emerson, 202 Mass. 402, 403 (1909). The court emphasized that in "large cities," due to congestion, it was especially important that the city precisely identify the location of a utility's underground structures. *Ibid.*, 406. AT&T had a significant first-mover advantage because it initially placed its lines underground when there was relatively less congestion. The entrant had to incur the additional expense of avoiding the incumbents lines. Throughout the nation, as time transpired, it became increasingly difficult to obtain a permit for the placement of new telephone poles and conduit. Allen/Fish, May 13, 1903, ALB.

The Connecticut law caused the Telephone, Telegraph and Cable Company great concern when it was trying to establish an Independent network in the East. Financing was conditional on overcoming this barrier-to-entry. 69 Commercial and Financial Chronicle (December 16, 1899) at 1223.

Telephone Securities Weekly, January 11, 1908, at 3. The Independents believed that entry was impeded in many cities because of AT&T's political influence with local politicians. Latzke, *supra* note 107, at 13-14. In Milwaukee, the mayor was "bound by some previous promises to his friends" to veto any telephone ordinance granted by the city council to an Independent firm. Fish-Burt, September 20, 1902, PLB, v.23-1.

Fish/Cutler, October 17, 1905, PLB v.40.

Wisconsin Telephone Company, "Telephone Talks," no. 4 and 8, 1906, Wisconsin State Historical Society; New York Herald, May 26, 1906; Minutes of Directors of Chicago Telephone Company, ATT.

The history of the telephone industry comports with Gabriel Kolko's hypothesis that regulation was largely sponsored by the incumbent firms as a means of establishing market order. The Triumph of Conservatism: A Reinterpretation of American Economic History, 1900-1916 (New York, 1963).

Milwaukee Journal, April 12, 1906; Telephony, February 1908, at 96 and March 1908, at 206; and Milwaukee Journal, May 8, 1907.

Fish/Pickernell, August 3, 1906, v.5, and Vail/Gould, April 22, 1908, v.6 PPLB; Fish/Cutler, October 17, 1905, PLB v.40.

Weik, *supra* note 101, at 267-68.

Moody's Classified Investments (New York, 1905), at 7-8. Investors could obtain financial statements from different journals and magazines, but because there were no accounting standards at the turn of the century, the information had limited value.

Testimony of Leroy Kellogg, in "Read," tr. 8464, 8519; John Moody, The Masters of Capital: A Chronicle of Wall Street (New Haven, 1919), at 117-8; Morton Keller, The Life Insurance Enterprise, 1885-1910: A Study in the Limits of Corporate Power (Cambridge, 1963); Fritz Redlich, The Molding of American Banking: Men and Ideas (New York, 1951), at 2:379-80; and Vincent Carosso, Morgans: Private International Bankers, 1854-1913 (Cambridge, Ma., 1987).

AT&T compensated Sheldon for the expenses he had incurred in support of the Independents. Fish/Steele, June 19, 1902, PPLB, v.1; Fish/Sheldon, January 23, 1903, v.26 PLB; and Sheldon/Fish, July 30, 1902 (quote), box 66, ATT.

See, for example, Fish/Burt, August 19, 1905, PLB v.40; Fish/Waterbury, October 4, 1902, PPLB v.1; Fish/Thayer, April 18, 1902, PLB v.20.

Fish/Chandler, February 13, 1907, PLB, v.47; Fish/Clowry, January 31, 1905, PLB v.37.

Dunbar v. American Telephone and Telegraph, 238 Illinois 456, 478-81 (1909).

Journal of Commerce and Commercial Bulletin, January 3, 1907; and Finance, February 9, 1907.

Finance.

Frank A. Vanderlip, "Address to National Electric Light Association," June 1909, Vanderlip Collection, Columbia University, box D-13.

McGee, *supra* note 4, at 168.

Fischer argues that falling farm prices only partly accounts for the decline. The decrease in telephone subscription coincided with an increase in the percentage of farms with automobiles, indoor water and electricity, and radio. Fischer, *supra* note 31, at 295-7, 315.

Federal Communications Commission, "Long Lines Department: Financial and Operating Summary," April 15, 1936, at 15; Federal Communications Commission, Investigation, *supra* note 10, at 435.

Wallace/French, March 21, 1900, "Right-of-Way," box 1321, ATT.

Allen/Fish, November 6, 1902, December 3, 1903, and January 8, 1904, ALB.

Chandler *supra* note 10, and Lipartito, Bell System, *supra* note 13.

Atwater, *supra* note 49.

McGee, *supra* note 4, at 142 and 168 (quote).

Joskow and Klevorick, 77.

United States v. AT&T, 552 F. Supp. 131 226-34 (D.D.C. 1982) *aff'd sub nom.* Maryland v. United States, 460 U.S. 1001 (1983).

Plaintiff's First Statement of Contentions and Proofs, at 4, United States v. AT&T, 74-1698 (D.D.C).

Ibid.

Ibid., at 70.

Ibid., at 527.

Defendants' First Statement of Contentions and Proof, at 1 (quote) and 4, *United States v. AT&T*, 74-1698 (D.D.C.).

Ibid., at 1.

Ibid., at 80.

Abuse of the regulatory process with the intent to harm competitors is evidence of unlawful intent and purpose to monopolize. *Otter Tail Power Co. v. United States* 410 United States 366, 379-80 (1973), on remand, 360 F Supp. 451, 451-2 (D.Minn. 1973).

United States v. Western Electric, 673 F. Supp. 525, 540-62 (D.D.C. 1987).