

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

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In the Matter of)	
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Section 272(f)(1) Sunset of the BOC Separate Affiliate and Related Requirements)	WC Docket No. 02-112
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2000 Biennial Regulatory Review Separate Affiliate Requirements of Section 64.1903 of the Commission's Rules)	CC Docket No. 00-175
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**DECLARATION OF
DENNIS W. CARLTON, HAL SIDER AND ALLAN SHAMPINE**

June 30, 2003

I. QUALIFICATIONS

1. I, Dennis W. Carlton, am Professor of Economics at the Graduate School of Business of The University of Chicago. I have served on the faculties of the Law School and the Department of Economics at The University of Chicago and the Department of Economics at the Massachusetts Institute of Technology. I specialize in the economics of industrial organization, which is the study of individual markets and includes the study of antitrust and regulatory issues. I am co-author of *Modern Industrial Organization*, a leading textbook in the field of industrial organization, and I also have published numerous articles in academic journals and books. In addition, I am Co-Editor of the *Journal of Law and Economics*, a leading journal that publishes research applying economic analysis to industrial organization and legal matters. In addition to my academic experience, I am a consultant to Lexecon Inc., an economics consulting firm that specializes in the application of economic analysis to legal and regulatory issues.

2. I, Hal S. Sider, am a Senior Economist and Senior Vice-President of Lexecon Inc. I received a B.A. in Economics from the University of Illinois in 1976 and a Ph.D. in Economics from the University of Wisconsin (Madison) in 1980. I have been with Lexecon since 1985, having previously worked in several government positions. I specialize in applied microeconomic analysis and have performed a wide variety of economic and econometric studies relating to industrial organization, antitrust and merger analysis. I have published a number of articles in professional economics journals on a variety of economic topics and have testified as an economic expert on matters relating to industrial organization, antitrust, labor economics and damages. In addition, I have directed several studies of competition in telecommunications industries and have previously testified as an expert on telecommunications matters before the FCC and various state public utility commissions.

3. I, Allan L. Shampine, am an Economist at Lexecon Inc. I received a B.S. in Economics and Systems Analysis summa cum laude from Southern Methodist University in 1991 and a Ph.D. in Economics from the University of Chicago in 1996. I have been with Lexecon since 1996 and have performed a wide variety of economic studies relating to telecommunications and other industries. I have published a number of articles in professional economics journals on issues relating to telecommunications and technology. I am also editor of Down to the Wire: Studies in the Diffusion and Regulation of Telecommunications Technologies (Nova Press, 2003), which addresses from an economic perspective the regulation of new telecommunications technologies. In addition, I have previously testified as an expert on telecommunications matters before the FCC.

II. INTRODUCTION AND SUMMARY

A. BACKGROUND

4. We have been asked by counsel for SBC, Verizon and Qwest to address certain issues raised in the Further Notice of Proposed Rulemaking (FNPRM) in these matters. In this notice, the FCC seeks comments on the “need for dominant carrier regulation of BOCs’ in-region, interstate and international interexchange telecommunications services after sunset of the Commission’s section 272 structural and related requirements in a state.”¹ We address this issue below, along with the related question of whether the regulatory status of the long-distance operations of independent incumbent local exchange carriers (other than BOCs) should hinge on whether those operations are provided through a structurally separate affiliate. We use the term incumbent local exchange carriers or “ILECs” to refer collectively to the BOCs and independent LECs.

1. FNPRM, ¶2.

5. Section 272 of the Telecommunications Act of 1996 requires BOCs provide long distance services through a separate subsidiary for the first three years following approval to provide such services.² Although this provision does not apply to independent local exchange carriers, Commission rules require such carriers to adhere to less strict separation requirements in order to avoid dominant carrier regulation of their long distance services. In the absence of structural separation rules, ILECs would be free to more fully integrate their provision of long distance and other services.³

6. The FCC's FNPRM asks for comments regarding whether the FCC should impose "dominant carrier" regulation on BOCs' provision of long distance services following expiration of separate subsidiary requirements under Section 272. We understand that, if applied to the BOCs and other ILECs, these regulations: (i) could require those LECs to file tariffs, possibly with detailed cost data; (ii) may subject their ILECs' long distance services to price cap regulation; and (iii) would require them to comply with restrictions on market exit.⁴

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2. As explained in the FCC's initial notice in this proceeding, BOCs and their long distance subsidiaries: (i) may not jointly own transmission and switching equipment; (ii) may not share employees or real estate; (iii) may not perform any operating, installation, or maintenance functions for each other; and (iv) must maintain separate books of account; (v) must have separate officers and directors; and (vi) must conduct all transactions on an arm's length basis.) FCC, NPRM in the Matter of Section 272(f)(1) Sunset of the BOC Separate Affiliate and Related Requirements, WC Docket NO. 02-112, FCC 02-148, May 24, 2002, 4-5.
 3. Both SBC and Verizon have estimated that expiration of separate subsidiary rules would result in large savings over coming years. Verizon estimates that it could save "almost \$247 million through 2006 if the separate affiliate restrictions were eliminated today..." Comments of Verizon in the Matter of Section 272(f)(1) Sunset of the BOC Separate Affiliate and Related Requirements, WC Docket No. 02-112, August 5, 2002, pp. 10-11. SBC estimates that it could save "50 percent for personnel in the network engineering, customer care, billing and network operations departments" as well as large additional savings in labor costs. Comments of SBC Communications Inc. in the Matter of Section 272(f)(1) Sunset of the BOC Separate Affiliate and Related Requirements, WC Docket No. 02-112, August 8, 2002, pp. 7-8.
 4. FNPRM, ¶37.

7. In the FNPRM, the FCC notes that “dominant carrier regulation should be imposed on a carrier only if it could unilaterally raise price and sustain prices above the competitive level and thereby exercise market power by restricting its output or by its control of an essential input.”⁵ Based on this perspective, the FCC requests comments on the current scope of competition in the provision of long distance service as well as comments on whether expiration of separation requirements enables ILECs to harm competition by manipulating rivals’ access to the local network. More specifically, the FCC asks whether expiration of structural separation rules would:

- facilitate non-price discrimination by ILECs against their long distance rivals;
- enable ILECs to engage in a “price squeeze” designed to drive their long distance rivals from the market;
- enable ILECs to harm competition by shifting costs from their long distance to local service operations.

B. SUMMARY OF CONCLUSIONS

8. We conclude that permitting the BOCs and independent ILECs to integrate their long-distance and local exchange operations will not adversely affect competition.⁶ Thus, there is no economic basis for imposing dominant carrier regulation on BOCs’ in-region long distance service based on the sunset of Section 272 structural separation requirements, nor is there any economic basis for conditioning the non-dominant status of independent LECs’ long distance operations on the structural separation of those operations.

5. FNPRM, ¶5.

6. As noted above, separation requirements faced by non-BOC ILECs are less restrictive than those faced by BOCs. Our conclusion that expiration of the BOC rules would not adversely affect consumers necessarily implies that expiration of the less stringent rules faced by non-BOC ILECs also would not result in consumer harm.

9. First, competition in the provision of long distance services has increased dramatically since 1995 when the FCC determined that AT&T should not be subject to dominant carrier regulation.⁷ As discussed in more detail in Section III below, competition along each of the dimensions considered by the FCC has increased:

- The share of wireline subscribers served today by ILEC long distance services (in areas in which they are authorized to provide them) is far smaller today than AT&T's share in 1995, when the FCC concluded that it was not a dominant carrier. More generally, the concentration of wireline long distance services has fallen dramatically since 1995.
- Consumers are increasingly using alternative technologies for long distance communications. Since 1995, wireless services have come to account for a substantial and growing fraction of long distance calls. There also has been tremendous growth in e-mail and instant messaging, which are substitutes for certain long distance calls. Emerging technologies such as "voice over Internet Protocol" (VoIP) and continued growth of existing alternatives to wireline long distance service promise even greater future competition.
- Analysts and carriers agree that there is a glut of capacity in long distance facilities resulting from the deployment of new national fiber optic networks as well as increased capacity of network electronics, which are placing downward pressure on prices.
- Wireline long distance usage has fallen substantially over recent years, from an average of 71 minutes per month in 1995 to 41 minutes per month in 2002. As a

7. The FCC's opinion in that matter addressed the conditions under which a long distance supplier can exercise market power (in the absence of any ability to manipulate access to the local network which, as shown below, is unaffected by expiration of Section 272).

result of both declining prices and usage, average monthly household wireline long distance spending has fallen from \$21.42 in 1999 to \$12.39 in 2002.

10. Second, expiration of structural separation rules would not enable ILECs to adversely affect competition by manipulating access to their local network. As discussed in more detail in Section IV below:

- The expiration of structural separation rules does not adversely affect the ability of regulators to detect non-price discrimination in the provision of access services by ILECs. A number of regulatory safeguards against discrimination would remain in effect following expiration of the structural separation requirement. In addition, ILECs' rivals in the provision of long distance service include large and sophisticated companies that routinely monitor the quality of access services that they receive.
- The expiration of structural separation rules would not give ILECs the incentive or ability to harm competition by engaging in a predatory "price squeeze" designed to drive their long distance rivals from the market. It is widely recognized that successful predation is rare. It is especially unlikely that it could succeed in industries, like telecommunications, in which there are substantial fixed assets that are likely to remain in the industry even if rival long distance companies become bankrupt. The continuing presence of these assets in the industry precludes recoupment of any investment in predation. Moreover, even if an ILEC could drive and keep its competitors from the industry, it would have no assurance of being able to recoup its losses because it would likely face re-regulation of the rates it charges due to its new monopoly status. Because

recoupment is so unlikely, it is highly unlikely that any ILEC would pursue such a strategy.

- Nor would the elimination of structural separation requirements increase ILECs' incentive or ability to harm competition by engaging in cross-subsidization. The FCC raises concerns that cost shifting can (i) facilitate predation or (ii) enable ILECs to avoid regulation of local services. With respect to the former, an ILEC's incentive and ability to engage in predation does not depend on its ability to shift costs. With respect to the latter, cost shifting makes sense only if it enables the ILEC to recover these costs in the price of the regulated service. However, due to price cap regulation of local service rates and intrastate access charges as well as the FCC's CALLS order regulating interstate access charges, prices for regulated services are now set with little regard to costs. In any event, as the FCC itself has recognized, dominant carrier regulation of long distance services is designed to ensure that long distance rates are not too high and is an inappropriate tool for protecting against improper local rate increase.

11. In Section V we elaborate on this point and show that even if one were to (incorrectly) conclude that the expiration of structural separation rules raised competitive concerns, dominant carrier regulation is ill suited to address them. We also discuss how, in the absence of competitive concerns resulting from expiration of the structural separation requirements, imposition of dominant carrier rules would adversely affect competition in the provision of long distance services by discouraging competition and development of new services.

III. THE INDUSTRY HAS BECOME MUCH MORE COMPETITIVE THAN IN 1995, WHEN THE COMMISSION DETERMINED THAT AT&T WAS NOT A DOMINANT FIRM

12. The FNPRM requests comments on the current scope of competition in the provision of long distance service and asks whether the lifting of structural separation requirements risks harm to competition that requires imposition of dominant carrier regulation. This section shows that, using the FCC's framework for evaluating competition in long distance services (in the absence of concerns about manipulation of access to the local network), there is no basis for subjecting ILECs to dominant carrier regulation.

13. The FCC concluded in 1995 that AT&T's long distance service should not be subject to dominant carrier regulation.⁸ Because AT&T did not provide local exchange services, the FCC's review at the time focused exclusively on conditions in the long distance marketplace. We maintain the same approach in this section. As noted above, however, the FNPRM also raises concerns that expiration of the separate subsidiary requirements would give ILECs the incentive or ability to raise long distance prices by manipulating access to their local network through non-price discrimination, executing a predatory price squeeze or engaging in cost shifting. Section IV below shows that there is no basis for these concerns.

A. FRAMEWORK FOR EVALUATING ILECS' DOMINANCE AS LONG DISTANCE SERVICE PROVIDERS

14. The exercise of defining economic markets is undertaken in order to determine the forces that determine price and to determine whether firms can exercise market power. A properly defined market includes all firms whose participation in provision of a service significantly constrains the price under analysis.⁹

8. FCC, Order in the Matter of Motion of AT&T Corp. to be Reclassified as a Non-Dominant Carrier, FCC 95-427, 11 FCC Rcd 3271, October 23, 1995 (hereafter, "AT&T Non-Dominance Order").

9. According to Carlton and Perloff, *Modern Industrial Organization*, 3rd edition, "[a] firm (or group of firms acting together) has market power if it is profitably able to charge a price

15. The FNPRM states that rapid changes in the telecommunications industry in recent years have blurred traditional distinctions between wireline and wireless services and between local and long distance services. These changes complicate the delineation of a precise market definition. However, it is not necessary to precisely delineate the current scope of the product market to address the question posed in the FNPRM – whether ILECs should be subject to dominant carrier regulation following expiration of structural separation requirements. This is because, compared to 1995 – when the FCC determined that AT&T was not dominant – the industry has become much more competitive, regardless of the precise market definition used. Therefore there are no changes in competitive conditions that justify imposition of dominant carrier regulation.

16. In the 1995 AT&T Non-Dominance proceedings, the FCC addressed the conditions under which a long distance carrier should be subject to dominant carrier regulation.¹⁰ The Commission’s analysis focused on four factors: (1) market share; (2) demand elasticity; (3) supply elasticity; and (4) disparities in size, resources, financial strength and cost structures

(...continued)

above that which would prevail under competition, which is usually taken to be marginal cost.” (p. 610.) A market is defined to include “all those products that are close demand or supply substitutes.” (p. 612) The Merger Guidelines of the U.S. Department of Justice and Federal Trade Commission define two services as being in the same market if a small, but non-transitory price increase by a monopoly provider of one of these services would cause enough buyers to shift their purchases to the other service so as to render the price increase unprofitable. U.S. Department of Justice and the Federal Trade Commission, Horizontal Merger Guidelines, Revised April 8, 1997, Section 1.11. The FCC relies on the same basic framework and specifically applies the Merger Guidelines approach in FCC, Opinion in the Matter of Regulatory Treatment of LEC Provision of Interexchange Services Originating in the LEC’s Local Exchange Area and Policy and Rules Concerning the Interstate, Interchange Marketplace, 12 FCC RCD 15, 756 (hereafter, “LEC Non-Dominance Order”), ¶25.

10. The FCC’s analysis did not address the effect on long distance prices of a long distance carrier’s ability to manipulate access to the local network, since AT&T did not provide local exchange services.

among the market participants.¹¹ At that time the FCC highlighted the fact that:

- AT&T's share of subscribers and revenue had rapidly declined in prior years;
- There was significant excess capacity in the long distance industry and competitors could readily expand.¹²
- AT&T's customers readily switched long distance carriers.¹³
- AT&T's large size, financial strength and technical capabilities were not sufficiently unique to confer market power.¹⁴

17. In this section we review the current state of competition in the long distance industry using the same general framework and show that, along each dimension, the industry has become much more competitive than in 1995, when the Commission determined that AT&T was not a dominant firm.

B. RECENT CHANGES HAVE BROUGHT INCREASING COMPETITION TO THE LONG DISTANCE INDUSTRY

18. Along each of the dimensions analyzed by the FCC in the AT&T Non-Dominance proceeding, the long distance industry today faces considerably more competition than in 1995.

- The industry faces increased competition from new wireline service providers, principally BOCs. Although the BOC entry has heightened competition in the provision of long distance services, by any measure their share remains well below that of AT&T in 1995 when AT&T was declared non-dominant. Each BOC (and independent ILEC) is expected to account for less than 10 percent of wireline subscribers nationwide, even after the 271 process is complete. Each BOC's (in-region) share of wireline subscribers is expected to remain far lower

11. AT&T Non-Dominance Order, ¶38.

12. *Id.*, ¶70.

13. *Id.*, ¶63.

14. *Id.*, ¶73.

than AT&T's share in 1995. Overall, industry concentration has fallen sharply and the disparity in the share of subscribers served by the major wireline long distance firms is expected to remain much smaller than in 1995.

- Wireline long distance service providers also face substantial and growing intermodal competition from wireless services. E-mail and instant messaging, which are substitutes for certain long distance calls, provide a significant additional source of competition. As a result, the volume of wireline long distance minutes has declined sharply in recent years. Under these circumstances, attempts by wireline providers to raise prices would result in the loss of minutes to wireless services, e-mail and instant messaging, even if ILECs retained their existing long distance customers.
- There has been a vast increase in industry capacity in recent years resulting from massive deployment of new fiber optic capacity as well as increases in capacity due to advances in network electronics.

19. As shown below, the long distance industry is in the midst of large-scale and fundamental changes. Such circumstances reduce the ability even of firms that account for a large share of industry output to exercise market power (as well as attempts by members of an industry to act in any coordinated fashion). In dynamic industries, firms will have varying perceptions about future demand and supply conditions and, as a result, will have strong incentives to pursue independent strategies. Under these circumstances, current market shares and concentration measures are likely to be poor indicators of a firm's future ability to exercise market power or the ability of firms in the industry to act in a coordinated fashion.

1. The concentration of wireline long distance services has declined dramatically in recent years.

20. According to FCC data, AT&T accounted for roughly 55 percent of long distance revenue, 59 percent of long distance minutes and more than 65 percent of subscribers when the FCC concluded it was not dominant in 1995.¹⁵ The next largest carrier at the time, MCI, accounted for 17 percent of long distance revenues -- roughly 30 percent of AT&T's.¹⁶

21. Since that time, AT&T's share and industry concentration has declined rapidly. Nonetheless, AT&T remains, by far, the nation's largest provider of long distance services. The FCC reports that as of 2001, the most recent data available, AT&T's share of long distance toll service revenue was 37 percent.¹⁷

22. The share of long distance subscribers served by BOCs has been growing rapidly due to the expansion of the number of states in which long distance service has been authorized (and BOCs' success in obtaining new customers). As of June 2003, BOCs have received approval to provide long distance service in 43 states (and Washington, D.C.), which account for more than 80 percent of BOC lines.¹⁸ As shown in Figure 1, BOCs together combined for an estimated 10 percent of wireline long distance subscribers in 2002. This share is projected to increase to 17 percent in 2003 and 26 percent in 2005, following the expected expansion of BOCs' authority to provide long distance service in the remaining states.¹⁹

15. AT&T Non-Dominance Order ¶167 (citing 1994 data).

16. FCC, Long Distance Market Shares Fourth Quarter 1998, March 1999, Table 3.2.

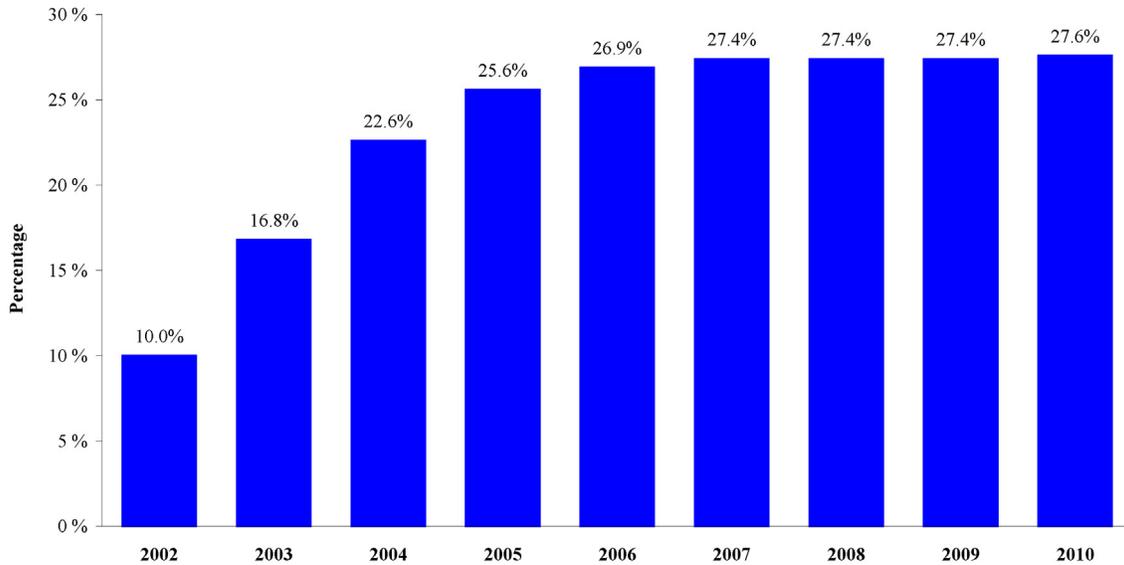
17. FCC, Statistics of the Long Distance Telecommunications Industry, May 2003, Table 7.

18. *Id.*, Table 12, and FCC, Qwest 271 Order for Minnesota, FCC 03-142, June 26, 2003.

19. These figures reflect BOCs' share of all wireline subscribers, which include subscribers of CLECs and independent ILECs. Deutsche Bank estimates that BOCs' share of their own local service customers will reach roughly 38 percent in 2005. Deutsche Bank, "Wireline – Mid Year Review: Last Man Standing," May 27, 2003, p. 143, 157, 168.

Figure 1:

**Projected Combined RBOC Shares of Wireline Long Distance Subscribers
2002 - 2010**



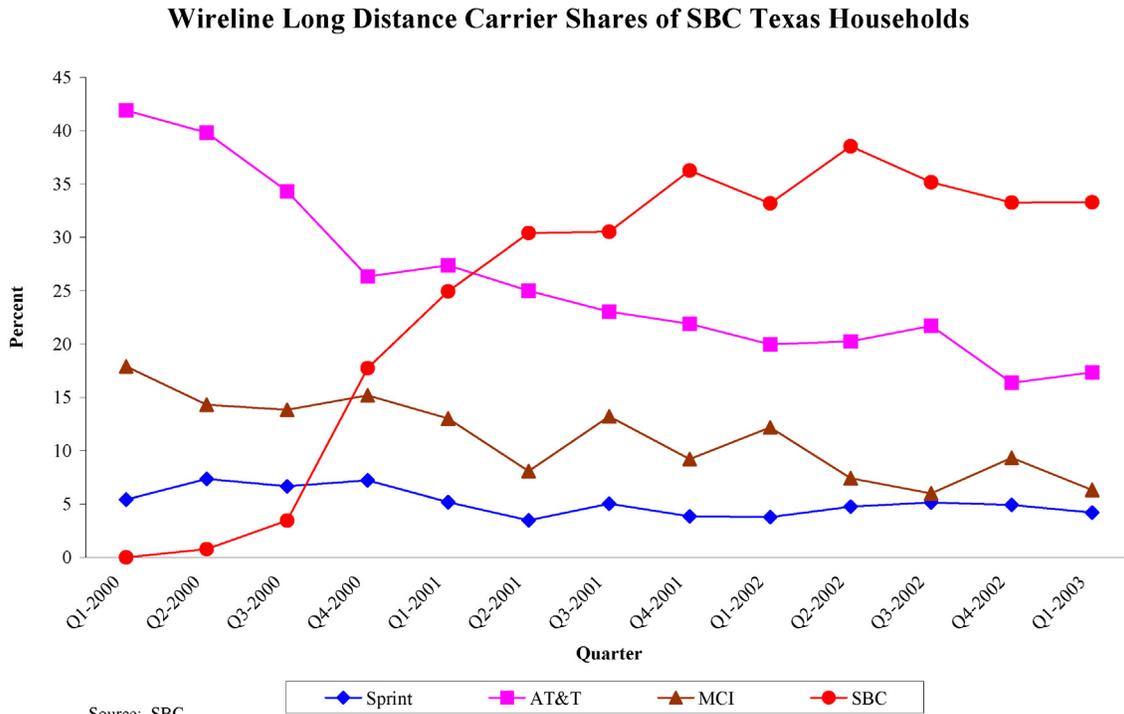
Source: Deutsche Bank, Wireline - Mid Year Review: Last Man Standing, May 27, 2003, p. 185.
Note: 2003-2010 are forecasts.

23. After that date, however, little further growth in BOCs’ share of wireline long distance subscribers is anticipated. This is consistent with evidence from states in which BOCs have already entered which indicates that “[t]he experience (thus far) of the RBOCs getting into new markets has been one of significant initial market share gains and then relative stabilization within 18 months of entry.”²⁰

24. The rapid growth and subsequent stabilization of BOCs’ share following 271 approval is shown in Figure 2, which reports changes in the shares of households served by major long distance carriers in areas of Texas served by SBC following SBC’s 271 authorization in June 2000. As the figure shows, SBC’s share in its regional footprint went from zero to roughly 35 percent by the fourth quarter of 2001 and has been roughly stable since that time.

20. Deutsche Bank, “Wireline - Mid Year Review: Last Man Standing,” May 27, 2003, p. 35.

Figure 2:



25. While Figure 1 reports BOCs' combined share of long distance subscribers, it can also be interpreted as an approximation of the average BOC share in a given region, since only one BOC operates in a given area. Thus, the data imply that, in any given region, BOCs will account for a substantially smaller share of wireline long distance subscribers than AT&T did in 1995. Calculation of BOCs' shares in this way, however, does not necessarily imply that geographic markets for long distance services are regional. Factors such as geographic price averaging requirements and the ability of BOCs to enter out-of-region suggest that the geographic scope of the market may be broader.

26. Even if shares and concentration are calculated on a regional basis in this way, the data reveal dramatic declines in wireline concentration and further show that BOCs' expected share is well below AT&T's national share in 1995, when it was declared to be non-dominant. As shown in Table 1, measured on the basis of the average BOCs' expected in-region share of presubscribed lines, the concentration of the wireline long distance industry has fallen

dramatically since 1995. The Herfindahl-Hirschman Index (HHI) for wireline long distance providers (in a given region) is expected to decline to roughly 1500 in 2005, far below the level of roughly 4700 that prevailed in 1995.²¹ If each BOC's national share is used in the calculation, the HHI falls to about 1,100. These figures also implicitly exaggerate shares and concentration by not accounting for long distance traffic carried by wireless firms (as well as ignoring the impact of e-mail, instant messaging and other forms of "intermodal" competition).

Table 1:
Long Distance Presubscribed Wireline Shares and Approximate HHIs

Year	AT&T	MCI	Sprint	Combined RBOCs	Others	Regional HHI ¹	National HHI ²
1995	66.4%	15.7%	6.4%		11.5%	4,708	4,708
2005	24.4%	14.2%	5.1%	25.6%	30.7%	1,509	1,060

Source: FCC, Long Distance Market Shares Fourth Quarter 1998, March 1999, Table 2.2 (http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/mksh4q98.pdf) for 1995 data; Deutsche Bank, *Wireline Mid-Year Review: Last Man Standing*, May 27, 2003, pp. 185, 143, 157, 168 for 2005 data.

Notes: HHI calculation treats "others" as group of 1% firms.
1/ Regional HHI based on assumption that each RBOC's 2005 share is equal to RBOCs combined national share.
2/ National HHI based on each RBOC's expected nationwide share (Verizon 9.8%; SBC 9.3%; BellSouth 4.0%; Qwest 2.4%).

27. Moreover, the disparity in the number of subscribers served (in a given region) between BOCs and other carriers that is expected in 2005 is much smaller than when AT&T was declared to be a non-dominant carrier in 1995. As noted above, AT&T's revenues were more than three times as large as its next largest rival at that time. The Deutsche Bank forecasts for 2005 indicate that AT&T is expected to account for 27 percent of industry gross toll revenue (which includes long distance, intraLATA toll and private line revenue), BOCs' (combined) will account for 19 percent, MCI will account for 14 percent and Sprint will account for 7 percent.

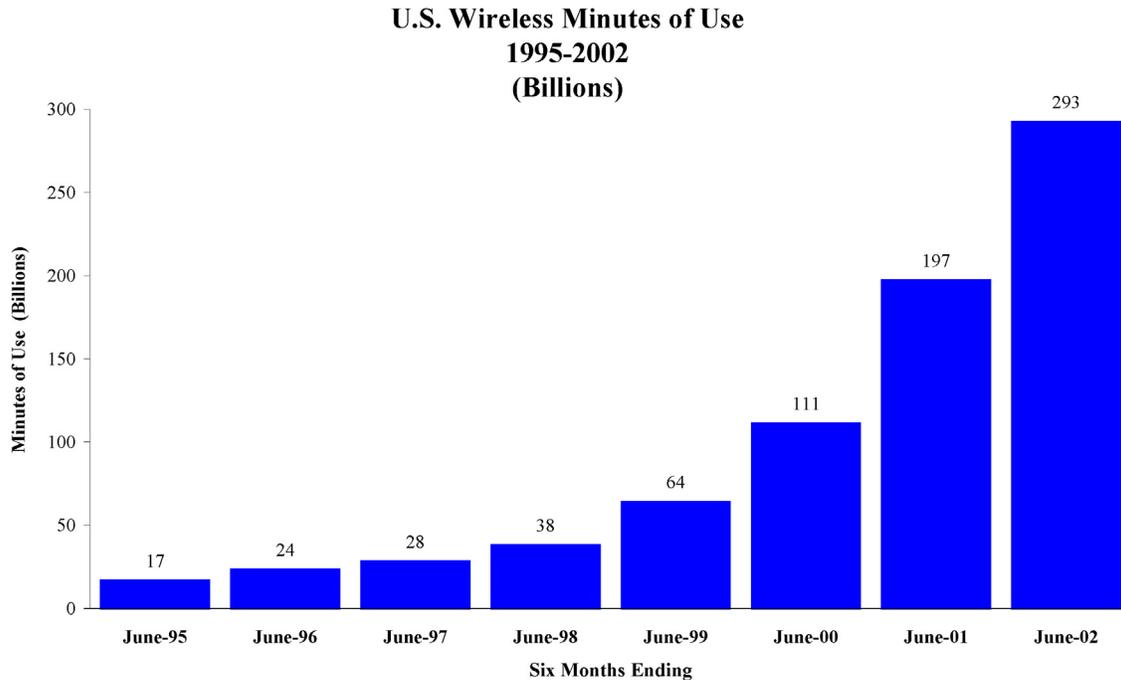
21. With shares measured on a revenue basis, the HHI for wireline services in 1995 was roughly 3,400. Revenue-based forecasts for wireline long distance shares for 2005 are not available. However, to the extent that BOCs have been successful in attracting AT&T subscribers, who typically generate below-average revenue per subscriber, then the revenue-based HHI for 2005 would be expected to be below the reported subscriber based figure.

2. Wireline long distance service faces substantial and growing competition from wireless services and new technologies

28. Standard measures of subscriber shares and concentration based on wireline subscribers overstate the concentration of long distance services and implicitly understate the increase in competition in recent years. This is because wireline long distance services now face substantial competition from wireless services, e-mail and instant messaging. These services were in their infancy in 1995, but have contributed to a substantial loss in long distance minutes carried on wireline networks in recent years. In the current environment, a unilateral attempt by an ILEC to raise prices charged for long distance would be expected to result not only in a loss of customers to rival wireline providers but also a substantial loss in minutes of long distance calling time to other service “platforms.”

29. The penetration of wireless services has grown with extraordinary speed in recent years. Between June 1995 and June 2002, the number of subscribers to wireless services in the United States increased by nearly 400 percent, from 28 million to 135 million. Total wireless minutes of use increased even more dramatically over this period. Between 1995 and 2002, total wireless minutes of use increased by more than 1,600 percent. (See Figure 3.)

Figure 3:



Source: CTIA's Wireless Industry Indices, December 2002, pp. 202-203.

30. The emergence of new pricing mechanisms in wireless service plans has contributed to rapid growth in the use of wireless services for long distance calls. These include “bucket” plans (which offer a given number of minutes for a flat monthly rate) that effectively reduce the marginal costs of long distance calls to zero for many consumers. Recent analyst reports focus on substitution between wireline and wireless long distance use:

[W]ith changes in wireless pricing – more bucket plans with huge (or unlimited) bundles of night and weekend minutes, including long distance – there is growing evidence that wireless is starting to have more and more of an impact on the wireline telecom service providers.²²

Wireless MOU cannibalization has been particularly fierce in recent years as the bucket pricing is essentially giving away free long distance during the primary “consumer” hours (after 9PM and on weekends). We expect this to continue...²³

22. Merrill Lynch, “Wireless Svc: Landline Substitution Becoming More Meaningful,” April 22, 2002, p. 3.

23. Lehman Brothers, “AT&T,” November 18, 2002, p. 4.

31. The Cellular Telecommunications Industry Association (CTIA) estimates that in 2002 interstate long distance calls accounted for nearly 25 percent of wireless traffic.²⁴ This, in turn, implies that wireless service accounts for roughly 29 percent of originating interstate long distance traffic.²⁵

32. It is also widely recognized that e-mail and instant messaging provide a substitute for certain long distance calls. These forms of communication were used little if at all in 1995, but now account for billions of messages daily.

- The number of adults online, and thus with access to e-mail and instant messaging, increased from 17.5 million in 1995 to 137 million in 2002.²⁶ The number of high speed Internet lines increased from 2.8 million in December 1999 to nearly 20 million in December 2002.²⁷
- Estimates of the number of e-mail messages vary widely. According to one conservative estimate, the number of e-mail messages sent in the U.S. and Canada were expected to nearly triple between 2000 to 2003, from 6.1 billion per day to 13.7 billion per day.²⁸

24. Wireless Carrier Interstate Traffic Studies, presented in a letter from Michael Altschul of CTIA to the FCC, September 30, 2002.

25. This figure is calculated using data on total wireless minutes of use, inbound and outbound wireless calls, interstate switched access minutes, dial equipment minutes and total voice traffic reported in the CTIA's December 2002 Wireless Industry Indices survey, along with data from a CTIA survey of wireless long distance usage of five national carriers as presented in a letter from Michael Altschul of the CTIA to the FCC, September 30, 2002. The calculation assumes that the share of landline call volume that respectively terminates with (i) landline and (ii) wireless subscribers is equal to the shares of landline and wireless minutes.

26. http://cyberatlas.internet.com/big_picture/geographics/article/0,,5911_1011491,00.html (Nielsen Cyberatlas).

27. FCC, High-Speed Services for Internet Access: Status as of December 21, 2002, June 2003, Table 1

28. International Data Corporation data, eMarketer, April 23, 2001.

- In addition, instant messaging services are becoming more attractive alternatives for long distance calls. For example, Microsoft and Apple have both released test versions of their instant messaging software that incorporate both voice and video. The final Microsoft version is expected to be available free of charge, while the Apple version will be available free with Apple's new operating system.²⁹

33. The explosive growth in wireless services and e-mail has resulted in a substantial decline in wireline long distance usage in recent years, despite substantial declines in retail prices (which are discussed below). For example:

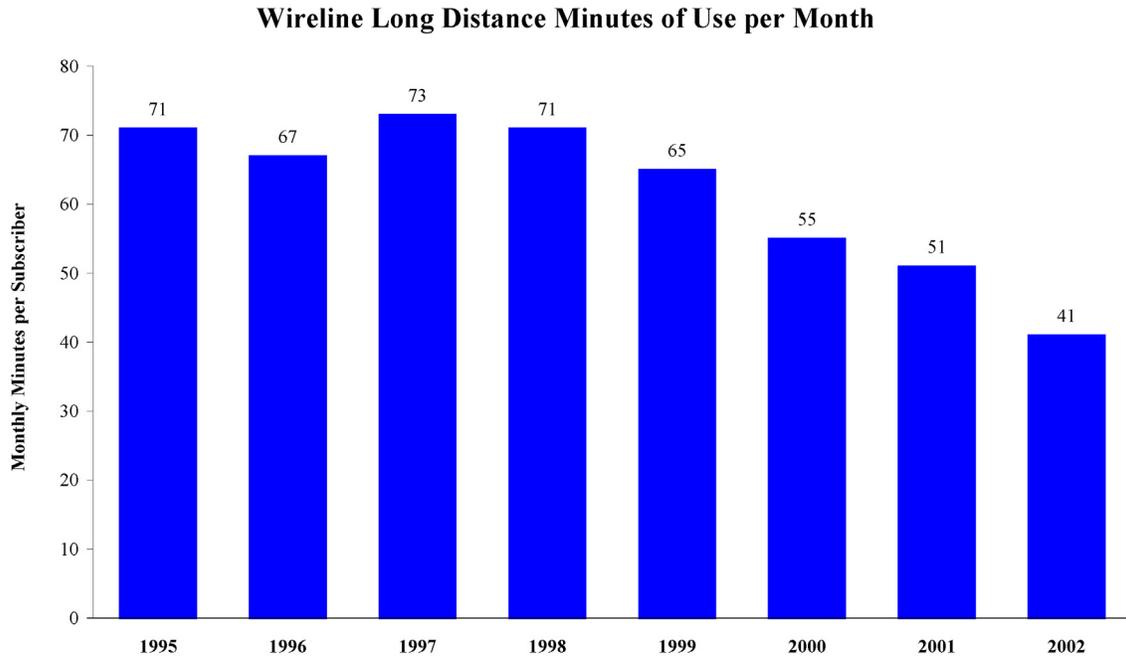
- As shown in Figure 4, FCC data indicate that the average wireline interLATA interstate usage fell from 71 minutes per month in 1995 to 41 minutes per month in 2002, a decline of 42 percent.³⁰
- As summarized in a recent Merrill Lynch analyst report, "[w]hereas two years ago an average wireline consumer LD customer made seven calls per week averaging eight minutes per call, now that same customer makes five calls a week averaging somewhat more than seven minute per call."³¹

29. David Pogue, "Video Chat Software Revisited," New York Times, June 26, 2003.

30. FCC, Statistics of the Long Distance Telecommunications Industry, May 2003, Table 20.

31. Merrill Lynch, "Wireline Services: Landline Substitution: Becoming More Meaningful," April 22, 2002, p. 2.

Figure 4:



Source: FCC's Statistics of the Long Distance Telecommunications Industry, May 2003, p. 37.
Note: Wireline long distance data reflect interLATA interstate calls.

34. Analysts estimate that the growth of wireless services and the Internet account for an even larger reduction in traffic carried by wireline long distance service providers than losses due to the entry of BOCs into the provision of long distance service.

- According to Lehman Bros., AT&T's consumer business lost roughly \$3.5 billion in revenue between 2001 and 2002. They estimate that "70% of that is due to wireless and Internet substitution (email etc.)" and that competition from BOCs accounts for "less than a third of the total."³²
- According to Merrill Lynch, "[w]ireless is evidently driving a substantial migration of LD minutes (impacting RBOC switched access minutes of use). AT&T ... indicated that consumer long distance calling volumes in 4Q02

32. Lehman Brothers, "AT&T," November 18, 2002, p. 4.

declined at a low double-digit rate driven by competition and a continued substitution.”³³

- Merrill Lynch also reports that Sprint’s “consumer LD voice volumes for wireline subscribers were down 10% YoY [year over prior year]. Sprint apportioned 75% of the impact to wireless substitution and the remaining 25% to email traffic. We estimate that AT&T’s consumer LD revenue will decline 25% YoY in 2002, with more than half of the decline coming from wireless. ... Clearly, people are not talking less, and we believe the majority of these ‘lost’ wireline minutes are in fact moving over to wireless.”³⁴

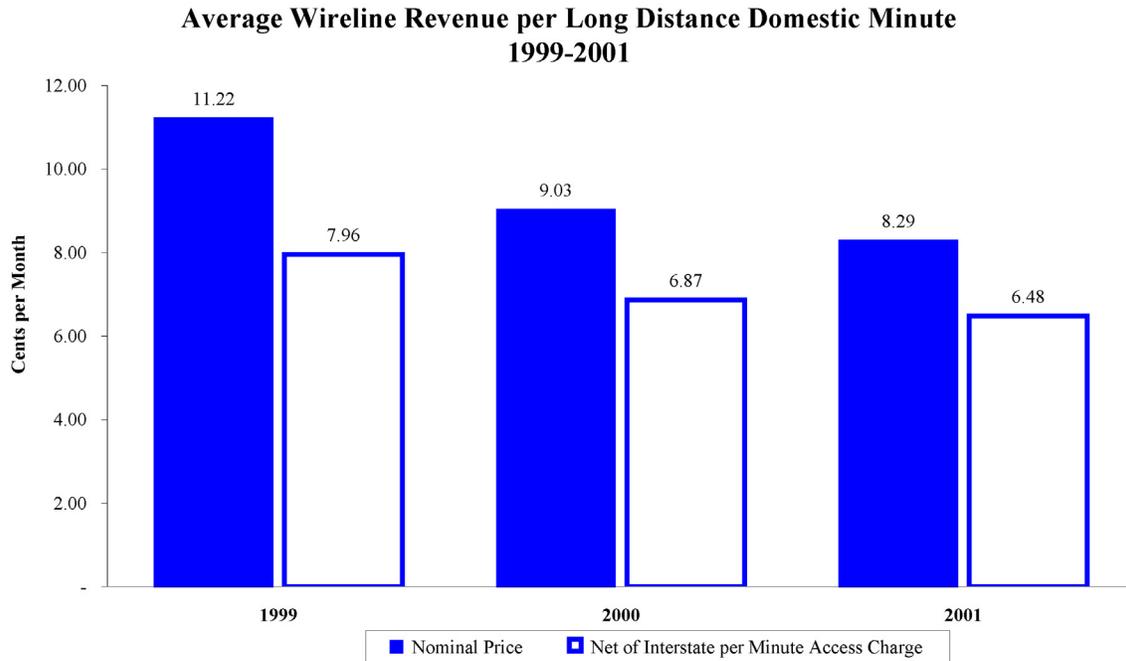
3. Long distance prices and spending have declined in recent years

35. Not surprisingly, the increases in long distance competition in recent years have resulted in declining prices. As shown in Figure 5, FCC data indicate that average revenue per minute for interstate long distance calls with wireline carriers fell from 11.2 cents per minute in 1999 to 8.3 cents per minute in 2001, the most recent data available. Net of minute-based access charges, average long distance prices fell from 8.0 cents per minute in 1999 to 6.5 cents per minute in 2001.

33. Merrill Lynch, “BellSouth Corp.”, January 27, 2003, p. 5.

34. Merrill Lynch Capital Markets, “Wireless Svc: Landline Substitution: Becoming More Meaningful.” April 22, 2002, p. 3.

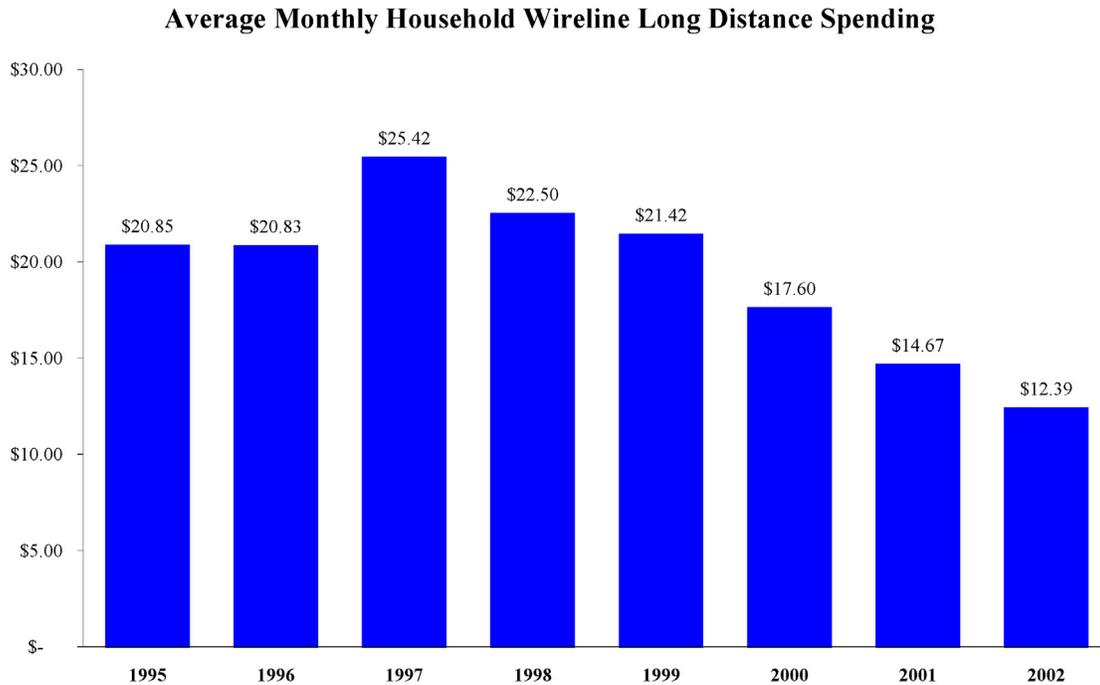
Figure 5:



Source: FCC's Statistics of the Long Distance Telecommunications Industry, May 2003, Table 5; Trends in Telephone Service, May 2002, Table 1.2.

36. The combination of the decline in price and the decline in long distance usage described above, has resulted in a large decline in consumer long distance spending in recent years. As shown in Figure 6, average monthly household spending on long distance carriers fell from \$20.85 in 1995 to \$12.39, a decline of nearly 40 percent. In inflation-adjusted terms, the decline is even larger, approximately 50 percent.

Figure 6:



Source: FCC, Statistics of the Long Distance Telecommunications Industry, May 2003, Table 13.

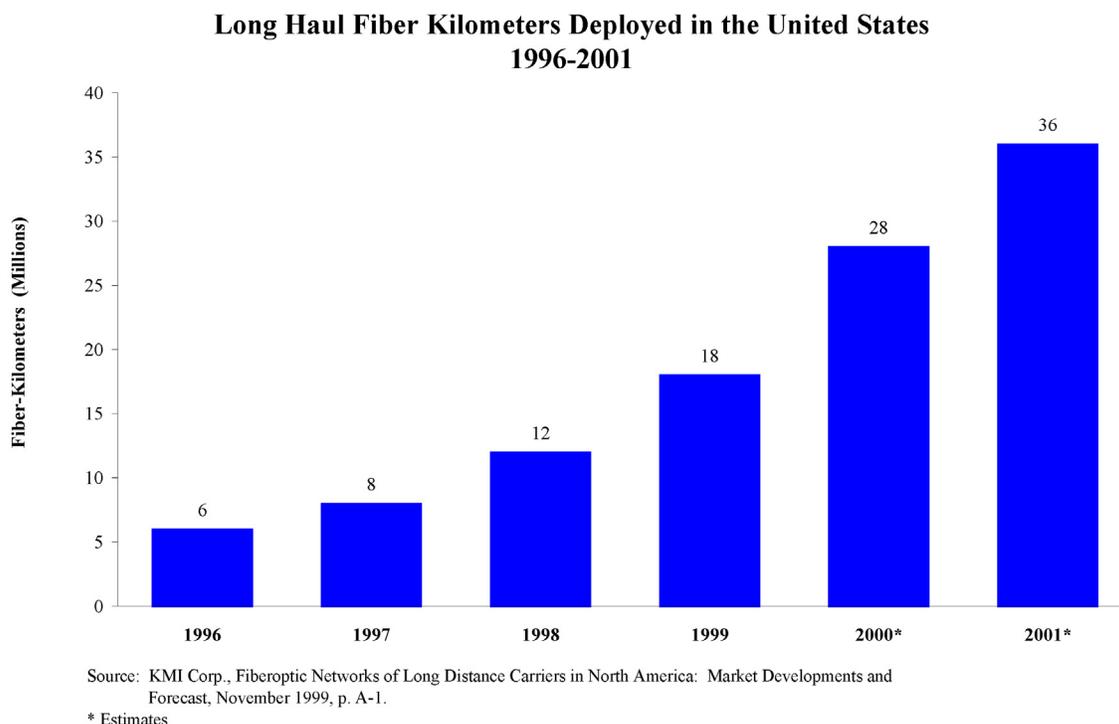
4. There has been a massive increase in transmission capacity in recent years.

37. The FCC’s 1995 AT&T Non-Dominance Order stressed that there is capacity available for industry expansion and that long distance carriers have the ability to do so.³⁵ Since that time, there have been massive increases in fiber optic capacity throughout the United States as several new, national fiber optic networks have been deployed.

38. According to 1999 estimates, the number of fiber-kilometers of fiber optic cable deployed in the United States was expected to increase from 5.9 million in 1996 to 35.9 million in 2001. (See Figure 7.) This includes new networks deployed by Qwest, Level 3, Williams, IXC, and a variety of others as well as expansion by existing network providers. As is widely recognized, this massive expansion produced a “glut” that resulted in a number of bankruptcies. Nonetheless, this fiber capacity remains in place leaving existing carriers and entrants the ability to rapidly expand.

35. AT&T Non-Dominance Order, ¶58.

Figure 7:



39. Even the growth in fiber deployment implicitly understates the increase in telecommunications capacity due to the continuing development of electronics capable of carrying larger amounts of information in a given optical fiber. For example, in the FCC's 1998 MCI WorldCom Order, the FCC noted that new network technologies, such as Dense Wave Division Multiplexing (DWDM) alone were expected to allow a 100-fold increase in U.S. fiber backbone capacity between 1997 and 2000.³⁶ Since that time, new network technologies permit even greater increases in capacity. In 1998, Ciena's DWDM equipment transmitted up to 240 Gb/s.³⁷ The current version of Ciena's DWDM product transmits up to 1.6 Tb/s, more than a six-fold increase.³⁸

36. FCC, MCI WorldCom Order, FCC 98-225, September 14, 1998, ¶64.

37. Ciena Press Release, "Sprint Increases Network Capacity, Performance with Deployment of Ciena's Scaleable 40-Channel Multiwave 4000," March 16, 1998.

38. Ciena CoreStream Dense Wavelength Division Multiplexing System, <http://www.ciena.com/products/transport/longhaul/corestream/index.asp>.

40. In discussing the increase in the capacity of new telecommunications equipment, the FCC concluded in its 1998 MCI WorldCom order that “[a]s a result, existing carriers can expand capacity to constrain a unilateral exercise of market power by any other carrier, and new carriers likely will be able to constrain any coordinated exercise of market power by the incumbents.”³⁹

5. Long term industry trends toward increased competition are expected to continue

41. While the long distance industry continues to respond to the entry of BOCs and the growth of intermodal competition from wireless services and e-mail, additional changes – such as Voice over Internet Protocol (VoIP) and bundling of local and long distance services -- are starting to bring yet more competition to the industry.

42. For example, new services using “Voice Over Internet Protocol” (VoIP) technology have been introduced. These services promise to deliver another alternative to the wireline long distance (and local) networks by using the Internet to carry voice messages. FCC Chairman Powell noted that “... 2002 saw the introduction of reliable Internet telephony services as companies such as Vonage are providing an alternative to analog wired telephony over a broadband connection.”⁴⁰

43. VoIP services are also expected to speed deployment of cable telephony, resulting in further intermodal competition for wireline long distance suppliers. Cox, Cablevision, Time Warner and Comcast have all begun trials of VoIP based telephone service.⁴¹ Deutsche Bank highlights the VoIP’s potential significance in promoting cable telephony:

39. FCC, MCI WorldCom Order, ¶64.

40. Written Statement of Michael Powell before the Committee on Commerce, Science, and Transportation, United States Senate, January 14, 2003.

41. Morgan Stanley, “Industry Report, Wireline Telecom Services – Trend Tracker: Bottom Line Better,” May 23, 2003, p. 16.

We maintain our view that cable telephony, as well as a more broadly-defined “triple-play” bundle, represents the greatest longer-term threat to wireline operators. ... Although the [cable] industry has waited on VoIP for a good part of the last decade, it appears highly likely that a competitive product could finally emerge sometime in late 2003 or early 2004. Thus, in 2005, the operating incentive could easily catch-up with technology, providing cable operators with both the opportunity and means to become a force in the telecom industry.⁴²

44. As this example suggests, there is every indication that the dramatic and pro-competitive changes in industry conditions observed since the FCC declared AT&T to be a non-dominant carrier in 1995 are continuing. Morgan Stanley, for example, recently concluded that “[w]e expect the long distance industry to continue its free-fall as the twin forces of excessive competition and lack of demand continue indefinitely.”⁴³

IV. EXPIRATION OF STRUCTURAL SEPARATION RULES WOULD NOT ENABLE ILECS TO HARM COMPETITION BY MANIPULATING ACCESS TO THEIR LOCAL NETWORKS

45. As noted above, the FNPRM asks for comments on various theories which have been raised by ILECs’ long distance rivals, who suggest that expiration of structural separation requirements would enable ILECs to harm competition by (i) engaging in non-price discrimination in providing local network access to rival long distance suppliers,⁴⁴ (ii) engaging in a “price squeeze” designed to drive their rival long distance carriers from the market; and (iii) shifting costs from their long distance subsidiaries to local business units.⁴⁵ We find that there is

42. Deutsche Bank, “Wireline – Mid Year Review: Last Man Standing,” May 27, 2003, p.27.

43. Morgan Stanley, “Wireline Telecom Services – Trend Tracker: Bottom Line Better,” May 23, 2003, p. 7.

44. “We also seek comment on whether allowing BOCs and independent LECs to provide interexchange service on an integrated basis will diminish the ability of regulators and interexchange competitors to detect such discrimination.” FNPRM, ¶31.

45. “We seek comment on the incentives and abilities of these carriers to misallocate their costs, discriminate, and engage in predatory price squeezes to such an extent that they may increase their market share and attain market power in the interstate and international interexchange markets. ... We ask whether the carriers’ incentives and abilities increase if they provide interstate and international interexchange services on an integrated basis.” FNPRM, ¶29.

no basis for each of these concerns. Moreover, as discussed in Section V below, even if such concerns existed, dominant carrier regulations are ill-suited to address them.

A. EXPIRATION OF STRUCTURAL SEPARATION REQUIREMENTS WOULD NOT ENHANCE ILECS' INCENTIVE OR ABILITY TO ENGAGE IN NON-PRICE DISCRIMINATION AGAINST RIVALS IN PROVIDING NETWORK ACCESS

46. The incentive and ability for ILECs to engage in non-price discrimination in providing rival long distance carriers access to local telephone networks depends on the ability of long distance firms and regulators to detect such actions as well as the penalties that result if discrimination is detected. Expiration of the structural separation requirements, however, affects only how ILECs structure their internal operations, not their incentive or ability to engage in non-price discrimination.

47. In order for discrimination to succeed, it must be effective enough to cause customers to switch to ILEC long distance services from those provided by other firms but, at the same time, must avoid detection by regulators and sophisticated rivals, such as AT&T, Sprint and MCI. These firms operate nationally and thus have numerous benchmarks available to evaluate whether an individual ILEC is engaging in non-price discrimination.

48. There is no basis to conclude that elimination of structural separation rules would alter ILECs' incentive to engage in non-price discrimination. For example, elimination of structural separation rules does not reduce the penalties associated with discrimination, which include fines, the potential loss of the authority to provide long distance services, and exposure to antitrust penalties.

49. In addition, a variety of other regulatory safeguards against unreasonable non-price discrimination by ILECs against long distance rivals would remain in effect following expiration of structural separation requirements. These include:

- Equal access requirements (to the extent the Commission determines they remain necessary) and non-discrimination provisions of Section 251 of the Telecommunications Act;⁴⁶
- Nondiscrimination requirements under Sections 201 and 202 of the Telecommunications Act.⁴⁷
- Prohibitions on discrimination under various state statutes.⁴⁸

50. Moreover, the reporting requirements imposed on BOCs to measure their provision of access services remain in effect after expiration of the separate subsidiary requirements. These include BOCs' obligations to disclose "network changes affecting competing service providers' performance or ability to provide telecommunications services, as well as changes that would affect the incumbent LEC's interoperability with other service providers."⁴⁹ ILECs also are subject to rigorous measurements that detail their performance in providing unbundled network elements, interconnection and related services.⁵⁰

B. EXPIRATION OF STRUCTURAL SEPARATION REQUIREMENTS WOULD NOT ENHANCE ILECS' INCENTIVE OR ABILITY TO PURSUE A PREDATORY "PRICE SQUEEZE"

51. The FNPRM requests comment on whether expiration of structural separation requirements would increase ILECs' incentive or ability to harm competition by engaging in a predatory "price squeeze."

52. A predatory "price squeeze" is said to occur when an ILEC sets retail prices for long distance service that are sufficiently near (or even below) the prices it charges its long

46. See FCC, Non-Accounting Safeguards Order, 11 FCC Rcd. 21905, December 24, 1996, ¶271.

47. *Id.*, ¶211.

48. *Id.*, footnote 509.

49. *Id.*, ¶208.

50. See, for example, FCC, Qwest 271 Order for Minnesota, FCC 03-142, June 26, 2003, ¶10, Appendices B and C (performance measures).

distance rivals for access to its local network that equally efficient rivals will be driven from the market. This can be accomplished by an ILEC lowering its retail long distance prices, raising access prices charged to its long distance rivals, or both.

53. A price squeeze is a competitive concern if it is used to predate. In pursuing this strategy the ILEC sacrifices revenue with the goal of driving its rivals from the market and later recouping its investment in the form of higher retail prices. However, there is no basis for concern that expiration of the structural separation requirement will affect ILECs' incentive or ability to pursue a predatory "price squeeze."

54. The foremost reason is that it is widely recognized that predation is rarely a profitable strategy.⁵¹ As noted above, firms that engage in predation incur some short-run losses in order to obtain longer-term gains. In order for predation to be successful, it is essential that attempts by the surviving firm to raise price (after driving its rivals from the market) do not result in entry. If entry occurs, firms will not be able to sustain the increase in price necessary to make predation a profitable strategy.

55. It is highly unlikely that a predatory strategy would succeed in the long distance industry. First, the industry includes several large, well-established rivals which include both wireline long distance carriers and wireless service providers. In addition, much industry investment consists of fixed assets, such as copper plant, fiber optic plant, switches and other equipment. These assets are likely to remain available to a new entrant, even if existing long distance companies are driven from the market. Thus, it would be difficult for a firm engaging

51. See, for example, D. Carlton and J. Perloff, Modern Industrial Organization, Third Edition, pp. 334-342, which concludes (p. 342): "Given all the theoretical difficulties with successful predatory pricing, it is not surprising that economists and lawyers have found few instances of successful price predation in which rivals are driven out of business and prices then rise."

in predation to prevent firms from entering the industry by purchasing these assets after the predator attempted to raise price in order to recoup its investment.⁵²

56. The current bankruptcies in the telecommunication industry highlight this point. In particular, the assets of firms now in bankruptcy firms typically have not exited the industry. Instead, bankrupt telecommunications firms (such as MCI WorldCom) are expected to remain in the industry and to emerge as effective competitors (with greatly reduced debt). As Morgan Stanley summarizes:

As the monthly operating results demonstrate, WorldCom is alive and competing. The company at the very least will re-emerge and try to give it a go. In an environment of limited demand and a possible shrinking pie in 2003, Sprint and AT&T have to contend with WorldCom's continuing seat at the table.⁵³

57. Even if an ILEC could eliminate competition through predatory pricing, it is unlikely that the ILEC would be able to recoup its losses because it would likely face re-regulation as the result of its new monopoly status. In addition, it could face large penalties under antitrust laws. Thus, it is highly unlikely that ILECs could ever recoup investments in predation and thus it is highly unlikely that any such strategy would be pursued.

58. In any event, there is no basis to conclude that elimination of structural separation requirements has any impact on the ability of the Commission or ILECs' long distance rivals to scrutinize ILEC pricing and detect predation.

**C. EXPIRATION OF STRUCTURAL SEPARATION REQUIREMENTS
WOULD NOT ENHANCE ILECS' INCENTIVE OR ABILITY TO
ENGAGE IN COST SHIFTING**

59. The FCC has also expressed concern about an ILECs' ability to shift costs from its long distance division to its local service subsidiary. The FCC discusses two potential

52. The FCC recognizes this point in LEC Non-Dominance Order, ¶107.

53. Morgan Stanley, Wireline Telecom Services – Trend Tracker: Bottom Line Better, May 23, 2003, p. 31.

concerns: (i) cost shifting may be used to facilitate a price squeeze; and (ii) cost shifting may be used to evade regulation and raise the price of regulated services.⁵⁴ This section shows that there is no basis for either concern.

1. Expiration of structural separation requirements will not enable ILECs to engage in predatory conduct by improperly shifting costs

60. For the purposes of determining whether an ILEC is to be classified as a “dominant” long distance carrier, the FCC has previously recognized that the only relevant issue is whether cost shifting can be used to facilitate predation and drive rival long distance carriers from the market.

For purposes of determining whether the BOC interLATA affiliates should be classified as dominant, however, we must consider only whether the BOCs could improperly allocate costs to such an extent that it would give the BOC interLATA affiliates ... the ability to raise prices by restricting their own output. We conclude that, in reality, such a situation could occur only if a BOC's improper allocation enabled a BOC interLATA affiliate to set retail interLATA prices at predatory levels (i.e., below the costs incurred to provide those services), drive out its interLATA competitors, and then raise and sustain retail interLATA prices significantly above competitive levels.⁵⁵

61. There is no basis for concern that the expiration of structural separation requirements would enable ILECs to engage in predatory conduct by improperly shifting costs from long distance to local operations. This is because there is no logical connection between a firm’s ability to shift costs and its incentive or ability to pursue a predatory strategy.

62. As discussed above, predation requires a firm to sacrifice profits (relative to the level that otherwise would prevail) during the period in which its rivals are driven from the

54. The FCC summarizes this concern in its LEC Non-Dominance Order (¶103): “[I]mproper allocation of costs by a BOC is of concern because such action may allow a BOC to recover costs from subscribers to its regulated services that were incurred by its interLATA affiliate in providing competitive interLATA services. In addition to the direct harm to regulated ratepayers, this practice can distort price signals in those markets and may, under certain circumstances, give the affiliate an unfair advantage over its competitors.”

55. FCC, LEC Non-Dominance Order, ¶103.

market. In the unlikely event that such a strategy was profitable, the firm could finance its “investment” in a number of ways, including using earnings from a structurally separate subsidiary or even through borrowing in financial markets. A firm’s ability to shift costs is not necessary to “fund” predatory conduct. Nonetheless, for reasons described above, it is very unlikely that any predatory strategy could succeed in the telecommunications industry, and thus it is unlikely that any would be attempted.

2. It is unlikely that expiration of separate subsidiary rules will enable ILECs’ to evade regulation by shifting costs

63. It is unlikely that expiration of structural separation rules would give firms the incentive or ability to evade regulation by shifting significant costs from their long distance to local operations. As noted above, the FCC acknowledges that the evasion of regulation alone does not raise competitive concerns unless it is likely to give rise to predation -- which is highly unlikely in this industry. Furthermore, as discussed below, application of dominant carrier is inappropriate for addressing concerns that ILECs can evade regulations by shifting costs.

64. Nonetheless, it is important to note there is now little if any incentive for integrated carriers to avoid regulation by shifting costs because prices for regulated rates for local services, including exchange access and local exchange services, are largely set independently of the costs reported by ILECs. If shifting costs from long distance to local operations does not enable firms to generate higher revenue through higher prices of regulated services, there is no incentive to do so.

65. For example, interstate access charges today are governed by the CALLS order (Coalition for Affordable Local and Long Distance Service).⁵⁶ Under this order, a five-year

56. FCC, Order in the Matter of Access Charge Reform Price Cap Performance Review for Local Exchange Carriers Low-Volume Long Distance Users Federal-State Joint Board On Universal Service, CC Docket No. 96-262, CC Docket No. 94-1, CC Docket No. 99-249, CC Docket No. 96-45, May 31, 2000.

schedule of access rates was established that lowered traffic-specific rates to \$.0055 per minute with further adjustments over time based on productivity trends.

66. Furthermore, prices for local exchange services and intrastate access services are subject to price cap formulas or other forms of incentive regulation and thus are not directly affected by changes in reported costs. For example, a number of states simply apply the CALLS rate for interstate access charges in setting intrastate access charges. While price cap and incentive regulation formulas differ from state to state, such regulations lessen or eliminate the relationship between an ILEC's reported costs and the prices it can charge for regulated services. According to a June 20, 2003 Communications Daily white paper, nearly all states use price caps, revenue caps or related forms of incentive regulation.⁵⁷ Only six states, which account for roughly five percent of the U.S. population, continue to regulate BOCs using rate of return regulation (although additional states continue to use rate of return regulation to regulate some independent ILECs). Even in states where rate of return regulation is still used, however, regulators can look to areas where price caps are used as benchmarks in establishing regulated rates, as well as other regulatory safeguards.

D. ELIMINATION OF SEPARATE SUBSIDIARY REQUIREMENTS FOR OTHER ILEC BUSINESSES HAS NOT RESULTED IN HARM TO COMPETITION

67. Available evidence indicates that removal (or absence) of structural separation requirements for various ancillary ILEC businesses has not adversely affected competition. These experiences provide no basis for concern that expiration of structural separation requirements relating to ILECs' long distance will harm consumers.

57. "Retail Rate Regulation of Local Exchange Providers in the U.S.," Special White Paper Supplement to Communications Daily, June 20, 2003.

68. In the past, the FCC required that ILECs provide a variety of ancillary services, including customer premises equipment (CPE) and enhanced services, through separate subsidiaries. The FCC's concerns motivating these restrictions were similar to those discussed in the FNPRM with respect to ILEC provision of long distance services. In the Computer III order in 1986, the FCC summarized concerns that motivated the structural separation requirements:

We were particularly concerned that major carriers could use their control over basic services to discriminate against others' competitive services and products. We were also concerned that these carriers could misallocate costs from unregulated to regulated activities, allowing them to impose unfair burdens on regulated ratepayers and improperly cross-subsidize their competitive offerings.⁵⁸

69. The FCC later removed these structural separation requirements relating to CPE and enhanced services after concluding that the costs of such restrictions outweighed their benefits, concluding that nonstructural safeguards were sufficient to address their concerns.

We conclude that in light of the high costs of mandatory structural separation the public interest would be better served by providing the BOCs with more flexibility in organizing their CPE and network services operations, while relying on effective, alternative methods to prevent improper cross-subsidization and discrimination.⁵⁹

70. At the time that structural separation requirements were eliminated in 1987, rate of return regulation was prevalent and there were much stronger incentives than today for ILECs to engage in cost shifting. Nonetheless, we are aware of no evidence (or even claims) of competitive harm from the elimination of the structural separation requirements relating to CPE and enhanced services more than 15 years ago.

71. In addition, the FCC previously allowed separate subsidiary requirements relating to ILEC provision of interLATA information services to expire⁶⁰ and has permitted ILECs to

58. FCC, Computer III Order, 104 FCC 2d 958, June 16, 1986, ¶12.

59. BOC Structural Relief Order, 2 FCC Rcd. 143, January 12, 1987, ¶2.

60. FCC, Order in the Matter of Request for Extension of the Sunset Date of the Structural, Non-Discrimination and other Behavioral Safeguards Governing Bell Operating Company Provision of In-Region, InterLATA Information Services, FCC 00-40, February 8, 2000.

provide intraLATA toll services on an integrated basis with local services. The non-price discrimination, price squeeze and cost shifting concerns raised by the FCC in the FNPRM regarding long distance services would seem to equally apply to these services. We are unaware of any evidence that expiration of these rules has adversely affected competition in the provision of these services.

V. IMPOSITION OF DOMINANT CARRIER REGULATION WOULD NOT ADDRESS THE FCC'S STATED CONCERNS AND WOULD HARM CONSUMERS

72. The FNPRM asks whether, and to what extent, dominant carrier regulation of interstate interexchange services is suited to achieving the Commission's objectives. In its notice, the FCC recognizes that dominant carrier regulation -- which could require ILECs to file tariffs and may subject ILEC long distance service to retail price cap regulation -- is not well suited to addressing the competitive concerns that have been raised:

[t]he regulatory requirements on a carrier classified as dominant in a particular market generally are designed to prevent a carrier from raising prices by restricting its output rather than to prevent a carrier from raising its prices by raising its rivals' costs; therefore, application of these regulations to a carrier that does not have the ability to leverage its market power by restricting its own output could lead to incongruous results.⁶¹

73. The Commission's evaluation of the limitations of dominant carrier regulation in addressing its concerns is well founded. Given the current status of the long distance industry and existing safeguards, the imposition of dominant carrier regulation would not only be inappropriate, but would impose unwarranted costs and distortions on the industry.

A. THE FCC'S COMPETITIVE CONCERNS ARE NOT ADDRESSED BY DOMINANT CARRIER REGULATION

74. As discussed earlier, the FCC has expressed concerns about the extent to which sunset of structural separation rules would enable ILECs to engage in non-price discrimination or

61. FNPRM ¶38.

predation against their long distance rivals. While we conclude above that there is no basis for these concerns, even if there were, dominant firm regulation would not address them.

75. First, tariffs and price caps would not address concerns about non-price discrimination by ILECs against their long distance rivals. As discussed above, the incentive and ability of ILECs to engage in non-price discrimination depends critically on the ability of customers, rivals and regulators to detect it. As noted earlier, successful discrimination requires that these actions be noticeable to consumers (in order to induce them to switch to ILEC-supplied services) but must escape notice by competitors and regulators.

76. However, neither tariffs nor price caps affect the ability of consumers, rivals or regulators to detect non-price discrimination.⁶² Even if an ILEC could engage in non-price discrimination against a competitor, regulation of the ILEC's long distance prices would not affect its ability to do so. As discussed earlier, regulators and long distance providers now have many years of experience in monitoring ILEC obligations with equal access and other non-discrimination requirements and the national scope of the major long distance companies leaves them numerous benchmarks for evaluating the performance of a given ILEC in providing interconnection with their local networks.

77. Second, price caps and tariffs would not address predation concerns. As discussed earlier, successful predation requires that a firm accept short-term losses while driving its rivals from the market. However, dominant carrier regulations would not prevent this conduct. As noted above, the FCC recognizes that tariff requirements and/or price cap regulations are typically intended to prevent companies from setting prices that are considered too high, not to prevent firms from lowering prices. If tariffs or price caps were to deter firms

62. Instead, tariffs or price cap regulation, at best, may deter a BOC from raising price if discrimination was successful. (LEC Non-Dominance Order ¶87)

from reducing prices (and we are not aware of any suggestion in the FNPRM that this is the FCC's goal), there would be obvious anticompetitive consequences of discouraging legitimate price competition.

78. While the FCC has suggested in the past that tariffs supported by detailed cost data may help identify predation,⁶³ such behavior should be readily identifiable in the absence of tariffs. For example, the execution of a price squeeze requires that ILECs charge retail prices at a sufficiently low level that an equally efficient rival will be driven from the market. It is likely that any such attempt could be readily detected by ILECs' rivals and regulators, especially given access charge reforms in recent years that have greatly lowered usage sensitive access charges (while raising fixed charges).⁶⁴ Given what we understand to be the relatively low marginal (or variable) costs facing long distance suppliers, execution of a price squeeze would require that the ILEC set a very low retail price, which should be readily identifiable.

B. INAPPROPRIATE APPLICATION OF DOMINANT CARRIER REGULATION CAN ADVERSELY AFFECT COMPETITION

79. The FCC has correctly acknowledged in prior proceedings that there are significant costs associated with establishing tariffs and other regulations and that inappropriate application of dominant carrier regulation may adversely affect competition.

[T]he fact that these measures might help to deter a BOC or its interLATA affiliate from engaging in certain types of anticompetitive conduct is not, by itself, a sufficient basis for imposing dominant carrier regulations on the BOC interLATA affiliates. We should also consider whether and to what extent these regulations would dampen competition...⁶⁵

63. *Id.*, ¶87.

64. FCC, CALLS Order, FCC 00-193, May 31, 2000 ¶¶29-30; FCC, Trends in Telephone Service, May 2002, Table 1.2.

65. LEC Non-Dominance Order, ¶ 87.

80. The FCC has previously found that tariffing requirements can harm competition by facilitating tacit collusion through the exchange of pricing information.⁶⁶ The FCC also recognizes that tariffs encourage ILECs' rivals to challenge ILECs' rates "in order to impede [BOCs'] ability to compete."⁶⁷

81. The FCC has found, correctly in our view, that these regulations can deter competition in a variety of additional ways, including (i) discouraging the introduction of innovative new service offerings; (ii) reducing the ability of firms to engage in price competition, including offering secret discounts; (iii) liming the ability of firms to rapidly respond to changes in market conditions; and (iv) deterring firms from developing customer-specific service offerings.⁶⁸

VI. CONCLUSION

82. Permitting BOCs and independent ILECs to integrate their long-distance and local exchange operations will not adversely affect competition. As a result, there is no economic basis for imposing dominant firm regulation on BOCs or independent ILECs.

83. Competition in the provision of long distance service has increased dramatically since 1995 when the FCC determined that AT&T should not be subject to dominant carrier regulation.

- BOCs' in-region share of wireline long distance service is expected to remain well below AT&T's 1995 share and, on a national basis, each BOC is expected to account for less than 10 percent of wireline services.

66. *Id.*, ¶89.

67. *Id.*

68. Policy and Rules Concerning the Interstate, Interexchange Marketplace, 11 FCC Rcd. 20, 730 at ¶¶23, 53.

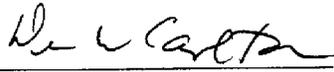
- Competition from wireless services, e-mail and instant messaging – as well as massive increases in industry capacity -- has resulted in large declines in wireline long distance usage and declining prices.

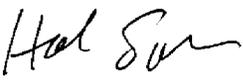
84. In addition, ILECs would not be able to harm competition in the provision of long distance service by manipulating access to their local networks in the absence of structural separation regulations.

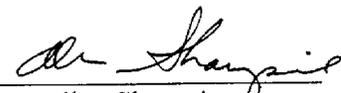
- Elimination of structural separation rules does not alter the ability of customers, rival long distance providers or regulators to detect discrimination and thus does not affect BOCs' incentive or ability to engage in non-price discrimination.
- There is no basis to conclude that elimination of structural separation rules would enable ILECs to engage in a predatory price squeeze. Predation is rarely a profitable strategy and its is especially unlikely in the telecommunications industry because entry (or re-regulation) would preclude recoupment.
- There is no basis to conclude that elimination of structural separation rules would enable firms to fund predation, or even evade regulation, by shifting costs.

85. Finally, dominant carrier rules do not address the competitive concerns raised by the Commission. These rules are designed largely to prevent anticompetitive price increases, but competitive concerns relating to manipulation of access focus primarily on predatory price reductions and non-price discrimination.

I declare under penalty of perjury that the foregoing is true and correct to the best of our knowledge and belief.


Dennis W. Carlton


Hal Sider


Allan Shampine

June 30, 2003

APPENDIX 1. CURRICULUM VITAE

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LEXECON INC., Chicago, Illinois (1977 - present): President, 1997 - 2001.

UNIVERSITY OF CHICAGO, Graduate School of Business (1984 - present): Professor of Economics.

UNIVERSITY OF CHICAGO, Law School (1980 - 1984): Professor of Economics.

UNIVERSITY OF CHICAGO, Department of Economics: Assistant Professor (1976 - 1979): Associate Professor (1979 - 1980).

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Massachusetts, Department of Economics (1975 - 1976): Instructor in Economics.

OTHER PROFESSIONAL EXPERIENCE

HARVARD UNIVERSITY, Public Policy Summer Course in Economics (1977): Professor.

BELL TELEPHONE LABORATORIES (Summers 1976, 1977).

JOINT CENTER FOR URBAN STUDIES OF M.I.T. AND HARVARD UNIVERSITY, Cambridge, Massachusetts (1974 - 1975).

CHARLES RIVER ASSOCIATES, Cambridge, Massachusetts (Summers 1971, 1972): Research Assistant.

FIELDS OF SPECIALIZATION

Theoretical and Applied Microeconomics
Industrial Organization

ACADEMIC HONORS AND FELLOWSHIPS

M.I.T., National Scholar Award, 1968
Edwards Whitacker Award, 1969
Detur Book Prize, 1969
John Harvard Award, 1970
Phi Beta Kappa, 1971
National Science Foundation Fellowship, 1972 - 1975
Recipient of Post-doctoral Grant from the Lincoln Foundation, 1975
National Science Foundation Grant, 1977 - 1985
Recipient of the 1977 P.W.S. Andrews Memorial Prize Essay, best essay in the field of Industrial Organization by a scholar under the age of thirty
Ph.D. Thesis chosen to appear in the Garland Series of Outstanding Dissertations in Economics
Alexander Brody Distinguished Lecture, Yeshiva University, 2000

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

Co-editor, Journal of Law and Economics, 1980 - present
Associate Editor, Regional Science and Urban Economics, 1987 - 1997
Associate Editor, The International Journal of Industrial Organization, 1991 - 1995
Member, American Economics Association, Econometrics Society
National Bureau of Economic Research, Research Associate
Member, Advisory Committee to the Bureau of the Census, 1987 - 1990
Editorial Board, Intellectual Property Fraud Reporter, 1990 - 1995
Consultant on Merger Guidelines to the U.S. Department of Justice, 1991 - 1992
Accreditation Committee, Graduate School of Business, Stanford University, 1995
Visiting Committee, MIT, Department of Economics, 1995 - present
Resident Scholar, Board of Governors of the Federal Reserve System, Summer, 1995
Member, Advisory Board, Economics Research Network, 1996 - present
Member, Steering Committee, Social Science Research Council, Program in Applied Economics, 1997 - 1999
Participant in meetings with Committee of the Federal Reserve on Payment Systems, June 5, 1997
Participant in roundtable discussions on "The Role of Classical Market Power in Joint Venture Analysis," before the Federal Trade Commission, November 19, 1997 and March 17, 1998.
Member, Advisory Board of Antitrust and Regulation Abstracts, Social Science Research Network, 1998 - present
Participant in the Round Table on the Economics of Mergers Between Large ILECS before the Federal Communications Commission, February 5, 1999.
Advisory Board, Massachusetts Institute of Technology, Department of Economics, 1999 - present
Chairman, FTC Round Table on Empirical Industrial Organization (September 11, 2001)
Professor, George Mason Institute for Judges, October 2001

BOOKS

“Market Behavior Under Uncertainty,” Ph.D. Thesis, Massachusetts Institute of Technology (September 1975); Garland Publishing (1984).

Modern Industrial Organization, Scott, Foresman & Co., co-authored with Jeffrey Perloff, first edition (1990), second edition (1994), translated into Chinese, French, Hungarian and Italian; Addison Wesley Longman, third edition (2000).

RESEARCH PAPERS

“The Equilibrium Analysis of Alternative Housing Allowance Payments,” (with Joseph Ferreira) Chapter 6 of Analysis of a Direct Housing Allowance Program, The Joint Center for Urban Studies of M.I.T. and Harvard University, (July 1975).

“Theories of Vertical Integration,” presented at Fourth Annual Telecommunications Conference. Appears in a volume of Proceedings of the Fourth Annual Telecommunications Conference, Office of Telecommunications Policy, (April 1976).

“Uncertainty, Production Lags, and Pricing,” American Economic Review, (February 1977).

“Selecting Subsidy Strategies for Housing Allowance Programs,” (with Joseph Ferreira) Journal of Urban Economics, (July 1977).

“Peak Load Pricing With Stochastic Demand,” American Economic Review, (December 1977). (Reprinted in Economic Regulation edited by P.L. Joskow, Edward Elgar Publishing Limited, 1998.)

“The Distribution of Permanent Income,” Income Distribution and Economic Inequality, edited by Zvi Griliches, et al. (Halsted Press, 1978).

“Market Behavior with Demand Uncertainty and Price Inflexibility,” American Economic Review, (September 1978).

“Why New Firms Locate Where They Do: An Econometric Model,” in Studies in Regional Economics, edited by W. Wheaton, (Urban Institute, 1980).

“Vertical Integration--An Overview,” in Congressional Record Hearings on the Communications Act of 1978. Bill H.R. 13105, (August 3, 1978).

“Vertical Integration in Competitive Markets Under Uncertainty,” Journal of Industrial Economics, (March 1979). Awarded the P.W.S. Memorial Prize for the best essay in the field of Industrial Organization by a scholar under the age of thirty.

“Valuing Market Benefits and Costs in Related Output and Input Markets,” American Economic Review, (September 1979).

- “Contracts, Price Rigidity and Market Equilibrium,” Journal of Political Economy, (October 1979).
- “Benefits and Costs of Airline Mergers: A Case Study,” (with W. Landes and R. Posner) Bell Journal of Economics, (Spring 1980). (Reprinted in “Air Transport” in Classics In Transport Analysis series, edited by Kenneth Button and Peter Nijkamp, 2001.)
- “The Limitations of Pigouvian Taxes as a Long Run Remedy for Externalities,” (with G. Loury) Quarterly Journal of Economics, (November 1980).
- “The Law and Economics of Rights in Valuable Information: A Comment,” Journal of Legal Studies, (December 1980).
- “Price Discrimination: Vertical Integration and Divestiture in Natural Resources Markets,” (with J. Perloff) Resources and Energy, (March 1981).
- “The Spatial Effects of a Tax on Housing and Land,” Regional Science and Urban Economics, (November 1981).
- “Comments on Weicher,” Journal of Law and Economics, (December 1981).
- Comment, in Sherwin Rosen ed. Studies in Labor Markets, University of Chicago Press, (1981).
- “Planning and Market Structure,” in The Economics of Information and Uncertainty, edited by J.J. McCall, University of Chicago Press, (1982).
- “The Disruptive Effect of Inflation on the Organization of Markets,” in Robert Hall, ed. The Economics of Inflation, University of Chicago Press, (1982).
- “A Reexamination of Delivered Pricing,” Journal of Law and Economics, (April 1983).
- “Futures Trading, Market Interrelationships, and Industry Structure,” American Journal of Agricultural Economics, (May 1983).
- “The Location and Employment Choices of New Firms: An Econometric Model with Discrete and Continuous Endogenous Variables,” The Review of Economics and Statistics, (August 1983).
- “The Need for Coordination Among Firms With Special Reference to Network Industries,” (with J. M. Klammer) University of Chicago Law Review, (Spring 1983).
- “The Regulation of Insider Trading” (with D. Fischel), Stanford Law Review, (May 1983).
- “Economic Goals and Remedies of the AT&T Modified Final Judgement” (with W. Lavey), Georgetown Law Review, (August 1983).
- “Equilibrium Fluctuations When Price and Delivery Lags Clear the Market,” Bell Journal of Economics, (Autumn 1983).

- “Futures Markets: Their Purpose, Their History, Their Growth, Their Successes and Failures,” Journal of Futures Markets, (September 1984). (Reprinted in Futures Markets edited by A.G. Malliaris and W.F. Mullady, Edward Elgar Publishing Limited, 1995; and in Classic Futures: Lessons from the Past for the Electronics Age, edited by Lester Telser, Risk Books, 2000.)
- “Energy and Location,” Energy Costs, Urban Development, and Housing, Brookings Institution, (1984).
- “The Limitation of Pigouvian Taxes As A Long Run Remedy for Externalities: Extension of Results,” (with G. Loury) Quarterly Journal of Economics, (August 1986).
- “The Rigidity of Prices,” American Economic Review, (September 1986).
- “The Theory and The Facts of How Markets Clear: Is Industrial Organization Valuable for Understanding Macroeconomics?” in Handbook of Industrial Organization, eds. Schmalensee and Willig, (1989).
- “Market Power and Mergers in Durable Good Industries,” (with R. Gertner), Journal of Law and Economics, (October 1989).
- Comments on Vertical Integration and Market Foreclosure, Brookings Papers on Economic Activity, (December 19, 1989).
- Book Review of Tirole's The Theory of Industrial Organization, Journal of Political Economy, (June 1990).
- “The Genesis of Inflation and the Costs of Disinflation: Comment,” Journal of Money, Credit & Banking, (August 1991, Part 2).
- “The Theory of Allocation and its Implications for Marketing and Industrial Structure: Why Rationing is Efficient,” Journal of Law and Economics, (October 1991).
- “The Economics of Cooperation and Competition in Electronic Services Network Industries,” in Economics of Electronic Service Networks, Wildman Steven ed., Praeger Press, (1992).
- “Merger Policy and Market Definition Under the EC Merger Regulation,” Conference on Antitrust in a Global Economy, Fordham Corporate Law Institute, (1994).
- “The Antitrust Economics of Credit Card Networks,” (with A. Frankel) Antitrust Law Journal, (Winter 1995).
- “Economic Organization and Conflict,” Journal of Institutional and Theoretical Economics, (March 1995).
- “Antitrust and Higher Education: Was There a Conspiracy to Restrict Financial Aid?” (with G. Bamberger and R. Epstein) The Rand Journal of Economics, (Vol. 26, No. 1, Spring 1995, pp. 131-147).

- “The Competitive Effects of Line-of-business Restrictions in Telecommunications,” (with K. Arrow and H. Sider), Managerial and Decision Economics, (Vol. 16, pp. 301-321, 1995). (Reprinted in Deregulating Telecommunications - The Baby Bells Case for Competition, edited by Richard S. Higgins and Paul H. Rubin, John Wiley & Sons Ltd., 1995.)
- “The Antitrust Economics of Credit Card Networks: Reply to Evans and Schmalensee,” (with A. Frankel), Antitrust Law Journal, (Spring 1995).
- “Antitrust and Payment Technologies,” (with A. Frankel), Review, Federal Reserve Bank of St. Louis (November/December 1995).
- “Antitrust Policy Toward Mergers When Firms Innovate: Should Antitrust Recognize the Doctrine of Innovation Markets?” Testimony before the Federal Trade Commission Hearings on Global and Innovation-based Competition (October, 1995).
- “You Keep on Knocking But You Can't Come In: Evaluating Restrictions on Access to Input Joint Ventures,” (with S. Salop), Harvard Journal of Law & Technology, (Volume 9, Summer, 1996). (Reprinted in e-Commerce Antitrust & Trade Practices, Practising Law Institute, 2001.)
- “Comments on Causes and Consequences of Airline Fare Wars,” Micro Brookings Papers on Economic Activity, (1996).
- “A Critical Assessment of the Role of Imperfect Competition in Macroeconomics,” in Market Behaviour and Macro Economic Modeling, Brakman, Van Ees, & Kuipers (eds.), MacMillan Press (1997).
- “Price Rigidity,” Business Cycles and Depressions, David Glasner ed., Garland Publishing, Inc., (1997).
- “Communication Among Competitors: Game Theory and Antitrust,” (with R. Gertner and A. Rosenfield), George Mason Law Review, (1997). (Reprinted in e-Commerce Antitrust & Trade Practices, Practising Law Institute, 2001.)
- “Comments on Born and Viscusi,” Brookings Papers on Economic Activity: Microeconomics, (1998).
- “Antitrust and Higher Education: MIT Financial Aid (1993)” (September 1997) (with G. Bamberger), The Antitrust Revolution, (Oxford University Press), 3rd edition (1999).
- “Market Power and Vertical Restraints in Retailing: An Analysis of FTC v. Toys 'R' Us,” (with H. Sider), The Role of the Academic Economist in Litigation Support, edited by Daniel Slottje, North Holland, (1999).
- “The Economics of Religion, Jewish Survival and Jewish Attitudes Toward Competition on Torah Education,” (with A. Weiss), Journal of Legal Studies, (2001).
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- “The Choice of Organizational Form in Gasoline Retailing and The Costs of Laws Limiting that Choice,” (with A. Blass), Journal of Law and Economics, (October 2001).
- “Should The Merger Guidelines Be Scrapped? Introduction to a Debate,” in Symposium On The Antitrust Analysis Of Mergers: Merger Guidelines vs. Five Forces, 33 U. WEST L.A. L. REV. 2001.
- “Contracts that Lessen Competition -- What is Section 27 for, and How Has it Been Used?” (with David Goddard), in Mark N. Berry and Lewis T. Evans eds., Competition Law at the Turn of the Century: A New Zealand Perspective, Victoria University Press (2003).
- “Free Riding and Sales Strategies for the Internet,” (with J. Chevalier), The Journal of Industrial Economics, (December 2001).
- “The Competitive Effects of Fannie Mae,” (with D. Gross and R. Stillman) Fannie Mae Papers, Volume I, Issue 1, January 2002.
- “The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries,” (with M. Waldman), The Rand Journal (Vol. 33, No. 2, Summer 2002).
- Interview, Economists’ Roundtable, Antitrust Magazine, Spring 2003.
- “Airline Networks and Fares,” (with G. Bamberger), Handbook of Airline Economics, McGraw Hill (forthcoming).
- “Intellectual Property, Antitrust and Strategic Behavior,” (with R. Gertner), Innovation Policy and the Economy, Volume 3, MIT Press (forthcoming).
- “The Control of Externalities in Sports Leagues: An Analysis of Restrictions in the National Hockey League,” (with A. Frankel and E. Landes), Journal of Political Economy, (forthcoming).
- “The Relevance for Antitrust Policy of Theoretical and Empirical Advances in Industrial Organization”, March, 2003, George Mason Law Review, (forthcoming).
- “An Empirical Investigation of the Competitive Effects of Domestic Airline Alliances,” (with G. Bamberger, and L. Neumann), Journal of Law and Economics, (forthcoming).

UNPUBLISHED PAPERS

- “Modeling the Housing Allowance Program,” M.A. Thesis, Massachusetts Institute of Technology (September 1974).
- “The Cost of Eliminating a Futures Market and The Effect of Inflation on Market Interrelationships,” (1984).

“The Empirical Importance of Delivery Lags as an Explanation of Demand,” (1984).

“Statistical Supplement to The Antitrust Economics of Credit Card Networks: Reply to Evans and Schmalensee Comment, 63 Antitrust Law Journal 903 (1995),” (with Alan Frankel), (May 1997).

“Competition, Monopoly, and Aftermarkets,” (with M. Waldman), Working Paper No. 8086, National Bureau of Economic Research, January 2001.

“An Empirical Assessment of Predation in the Airline Industry,” (with G. Bamberger).

EXPERT TESTIMONIAL EXPERIENCE

Testimony of Dennis W. Carlton in Re: “Vertical Integration--An Overview.” Congressional Record Hearings on the Communications Act of 1978: Proceedings before the House on Bill H.R. 13105, August 3, 1978.

Testimony of Dennis W. Carlton, William M. Landes and Richard A. Posner in Re: Competitive Effects of the Proposed North Central-Southern Airline Merger: Proceedings before the Civil Aeronautics Board, Docket No. 33136, Exhibit NC/SO-T-7, October 13, 1978 and October 9, 1979.

Testimony of Dennis W. Carlton in Re: McNeilab, Inc.: Proceedings before the United States Department of Justice, Drug Enforcement Administration, Docket No. 78-13, March 13, 1980 and May 1980 (Oral).

Testimony of Dennis W. Carlton in Re: Acco Industries, Inc. v. Kresl Power Equipment, Inc.: In the U.S. Court of Appeals For the Seventh Circuit, Docket No. 80-2024, March 29, 1980.

Deposition, Testimony, and Rebuttal Testimony of Dennis W. Carlton in Re: Ethyl Corporation: Proceedings before the Federal Trade Commission, Docket No. 9128, November 10 & 11, 1980 (Deposition), November 13 & 14, 1980 (Testimony), and February 20, 1981 (Rebuttal).

Deposition of Dennis W. Carlton in Re: Independence Tube Corporation v. Copperweld Corporation, Regal Tube Company, The Yoder Company v. David F. Grohne (counter-defendant): In the U.S. District Court for the Northern District of Illinois, Eastern Division, No. 76 C 4201, January 24, 1981.

Affidavit of Dennis W. Carlton in Re: Ellis Banking Corporation, Ellis First National Bank of Bradenton, and Ellis First Security Bank v. Barnett Banks of Florida, Inc., Barnett Bank of Manatee County, and Westside National Bank of Manatee County: In the U.S. District Court for the Middle District of Florida, Tampa Division, No. 81-693-Civ-T-H, July 28, 1981.

Deposition and Economic Report of Dennis W. Carlton in Re: Schneider Industrial Sales and Service Company, William Schneider and Mary Emily Schneider v. Acco Industries, Inc.: In the U.S. District Court for the District of New Jersey, April 19, 1982.

Deposition and Testimony of Dennis W. Carlton in Re: City of Batavia, et al. v. Commonwealth Edison Company: Proceedings before the U.S. District Court, Northern District of Illinois, Eastern Division, No. 76 C 4388, May 17, 18 & 25, 1982 (Deposition), and July 22, 1982 (Testimony).

Deposition of Dennis W. Carlton in Re: M. K. Metals Inc., et al. v. National Steel Corporation: In the U.S. District Court for the Northern District of Illinois, Eastern Division, No. 79 C 1661, September 15, 1983.

Declaration and Deposition of Dennis W. Carlton in Re: Carter Hawley Hale Stores, Inc. v. The Limited, Inc., et al.: In the U.S. District Court, Central District California, No. CV 84 22000 AWT (JRX), April 21, 1984 (Declaration), and April 23, 1984 (Deposition).

Verified Statements and Testimony of Dennis W. Carlton in Re: Denver & Rio Grande Western Railroad v. Santa Fe Southern Pacific Corporation et al.: Proceedings before the Interstate Commerce Commission, Docket No. 30400, August 28, 1984, November 14, 1984, and May 22, 1985, (Statements), and January 30, 1985, and June 19, 1985, (Testimony).

Affidavit of Dennis W. Carlton and William M. Landes in Re: United States of America v. Western Electric Company, Inc. and American Telephone and Telegraph Company: In the United States District Court for the District of Columbia, December 19, 1984.

Statement of Carlton, DeMuth, Landes, and Rosenfield in Response to the National Telecommunications Information Administration (NTIA) Request for Comments in Connection with the Comprehensive Study of the Structure and Regulation of the U.S. Telecommunications Industry, March 29, 1985.

Deposition and Affidavit of Dennis W. Carlton in Re: L&W Industries, Inc. v. American Standard, Inc.: In the U.S. District Court, Eastern District of Wisconsin, Civil Action No. 81-C-1409, May 14, 1985 (Deposition) and August 30, 1985 (Affidavit).

Testimony of Dennis W. Carlton in Re: E. I. Du Pont De Nemours and Company's Thebaine Import Application: Proceedings before the U.S. Department of Justice, Drug Enforcement Administration, Docket No. 84-51, May 31, 1985.

Testimony of Dennis W. Carlton, William M. Landes and Sam Peltzman in Re: Joint Application of Pan American World Airways, Inc. and United Airlines, Inc., Pacific Division Transfer Case: Proceedings before the U.S. Department of Transportation, Docket No. 43065, August 7, 1985.

Deposition of Dennis W. Carlton in Re: General Motors "THM 200" Transmission Litigation: Proceedings before the U.S. District Court, Northern District of Illinois, Eastern Division, No. 79 C 1249, 80 C 2151 and 85 C 4805, July 2, 1986.

Affidavit of Dennis W. Carlton in Re: Norwest Bank Fire Case: Proceedings before the U.S. District Court, Fourth Judicial District, State of Minnesota, Court File No. 83-08122, August 28, 1986.

Affidavit of Dennis W. Carlton in Re: Policy and Rules Concerning Rates for Dominant Carriers: Before the Federal Communications Commission, Washington, D.C., Docket No. 87-313, October 16, 1987.

Deposition of Dennis W. Carlton in Re: Research Institute for Medicine and Chemistry, Inc. v. Wisconsin Alumni Research Foundation: In the U.S. District Court, Western District of Wisconsin, Case No. 85-C-1060-D, October 20 & 21, 1986.

Affidavit and Deposition of Dennis W. Carlton in Re: United States Football League, et al. v. National Football League, et al.: In the U.S. District Court, Southern District of New York, 84 Civ. 7484 (PKL), November 24, 1986 (Affidavit), February 26, 1986 and December 4, 1986 (Deposition).

Verified Statements of Dennis W. Carlton in Re: Coal Trading Corporation, et al. v. The Baltimore and Ohio Railroad Co., et al.: Before the Interstate Commerce Commission, ICC Docket No. 38301S, December 16, 1986 and September 8, 1987.

Testimony of Dennis W. Carlton in Re: The Application of Pacific Bell, a Corporation, for Authority to Increase Certain Intrastate Rates and Charges Applicable to Telephone Services Furnished within the State of California, California Public Utilities Commission, Application No. 85-01-034, December 19, 1986, and January 22 & 28, 1987.

Deposition of Dennis W. Carlton in Re: John H. Torphy v. Touche Ross & Co., et al.: In the Circuit Court Dane County, State of Wisconsin, Case No. 82-CV-4033, August 25, 1987.

Deposition of Dennis W. Carlton in Re: Martin Exploration Management Company, et al. v. Panhandle Eastern Corporation, et al.: In the U.S. District Court for the District of Colorado, Civil Action No. 86-Z-804, May 5, 6 & 18, 1988.

Deposition of Dennis W. Carlton in Re: The Dow Chemical Company v. Halliburton Company and The Dow Chemical Company v. Mississippi Power & Light Company: In the U.S. District Court for the Northern District of Mississippi Greenville Division, No. GC-78-31-GD-D and No. GC-78-32-GD-D, June 16, 1988.

Statements and Testimony of Dennis W. Carlton in Re: Trailer Train Company et al., Approval of Pooling of Car Service With Respect to Flat Cars: Before the Interstate Commerce Commission, Finance Docket No. 27590. (Sub-No. 1), July 7 & 14, 1988 (Statements) and July 25 & 26, 1988 (Testimony).

Testimony of Dennis W. Carlton in Re: Pontarelli Limousine, Inc. v. City of Chicago, Finance Docket No. 83-C-6716, September 25 & 26, 1989.

Deposition of Dennis W. Carlton in Re: Great Northern Nekoosa Corporation v. Georgia-Pacific Corporation: Before the United States District Court District of Connecticut, Civ. Action No. B-89-607-WWE, December 28, 1989 and January 15, 1990.

Testimony of Dennis W. Carlton in Re: The Matter of the Physicians and Surgeons Medical Malpractice Insurance Rates of St. Paul Fire & Marine Insurance Company: Before the State of Minnesota Office of Administrative Hearings for the Commissioner of Commerce, O.A.H. Docket No. 0-1004-3412-2, January 1990.

Deposition of Dennis W. Carlton in Re: Dale A. Ervin, et al. v. Amoco Oil Company, et al.: In the District Court, City and County of Denver, State of Colorado, No. 88-CV-11994, September 5, 1990.

Reply Affidavit of Dennis W. Carlton and George J. Stigler in Re: United States of American v. Western Electric Company Inc. and American Telephone and Telegraph Company: In the United States District Court for the District of Columbia, Civil Action No. 82-0192, January 10, 1991.

Testimony of Dennis W. Carlton in Re: Westreco, Inc. v. Commissioner of Internal Revenue: In the United States Tax Court, Washington, D.C. 20217, Docket No. 24078-88, January 29, 1991.

Deposition, Testimony, and Rebuttal Testimony of Dennis W. Carlton in Re: In the Matter of Marathon Oil Company and Phillips Petroleum Company: Before the Department of Revenue, State of Alaska, Case No. 89314, April 23 & 24, 1991 (Deposition), March 28, 1991, June 19, 1991 (Testimony), July 22, 1991 (Rebuttal Testimony) and October 3 & 4, 1991 (Oral).

Deposition of Dennis W. Carlton in Re: Martin Exploration Management Company, et al. v. Panhandle Eastern Pipeline Corporation, et al.: In the U.S. District Court for the District of Colorado, Civil Action No. 91-N-110, February 5, 1992.

Deposition, Affidavit and Testimony of Dennis W. Carlton in Re: United States of America v. Brown University, et al.: In the U.S. District Court For the Eastern District of Pennsylvania, Civil Action No. 91-CV-3274, February 18 & 19, 1992 (Deposition), April 28, 1992 (Affidavit), and July 8 & 9, 1992 (Testimony).

Deposition of Dennis W. Carlton in Re: United States of America, People of The State of California, et al. v. J. B. Stringfellow, Jr., et al.: In the United States District Court Central District of California, No. CIV 83-2501 JMI, March 10 & 11, 1992.

Affidavit of Dennis W. Carlton in Re: SCFC ILC, Inc. d/b/a MountainWest Financial v. Visa U.S.A., Inc.: In the U.S. District Court for the District of Utah, Central Division, Civil No. 2:91-cv-047B, June 25, 1992.

Deposition and Testimony of Dennis W. Carlton in Re: Adcom, Incorporated, Cutrone Communications, Incorporated, Great Southern Communications Incorporated, Nola Communications Incorporated and Conrad Communications, Incorporated v. Nokia Corporation, Nokia-Mobira Oy, Nokia-Mobira, Incorporated, Nokia, Incorporated, Nokia Data Communications and Cue Paging Corporation: In the United States District Court for the Eastern District of Louisiana, Civil Action Number 90-4088, November 3 & 4, 1992 (Deposition), and February 9 & 10, 1993 (Testimony).

Statement, Supplemental Statement and Deposition of Dennis W. Carlton in Re: City of Dillingham, et al. v. Western Pioneer, Inc., et al., and City of Nome v. Western Pioneer, Inc., et al.: In the United States District Court for the District of Alaska, No. A89-014 Civil (Consolidated for Pre-Trial Proceedings with No. N89-004 Civil), November 6, 1992 (Statement and Supplemental Statement) and November 24, 1992 (Deposition).

Verified Statement of Dennis W. Carlton in Re: Kansas City Southern Industries, Inc., The Kansas City Southern Railway Company and K&M Newco, Inc. -- Control -- MidSouth Corporation, MidSouth Rail Corporation, MidLouisiana Rail Corporation, SouthRail Corporation and TennRail Corporation, Before the Interstate Commerce Commission, Finance Docket No. 32167, May 1993.

Verified Statements and Deposition of Dennis W. Carlton in Re: Union Pacific Corporation, Union Pacific Railroad Company and Missouri Pacific Railroad Company -- Control -- Chicago and North Western Holdings Corp. and Chicago and Northwestern Transportation Company: Before the Interstate Commerce Commission, Finance Docket No. 32133, May 24, 1993, June 21, 1993, and November 24, 1993 (Statements), and March 17, 1994, and July 26, 1994 (Deposition).

Verified Statement of Dennis W. Carlton in Re: Application of TTX Company and Certain Common Carriers by Railroad For Approval of Amendment of Pooling Agreement and Car Contract Extending Their Terms, Before the Interstate Commerce Commission, Finance Docket No. 27590 (Sub-No. 2), November 19, 1993.

Deposition of Dennis W. Carlton in Re: Merck & Co., Inc. v. Alcon Laboratories, Inc., In the United States District Court for the District of Delaware, No. C.A. 92-691, December 14, 1993.

Deposition and Affidavit of Dennis W. Carlton in Re: Northwest Airlines, Inc. v. American Airlines, Inc., Before the United States District Court, District of Minnesota, Fourth Division, C.V. No. 4-91-539, February 22 & 23, 1994, May 16 & 17, 1995, and July 8, 1997 (Deposition); and February 20, 1995 and May 9, 1996 (Affidavit).

Testimony of Dennis W. Carlton in Re: Florida Power & Light Company: Before the Federal Energy Regulatory Commission, Docket Nos. ER93-465-000, ER93-507-000, ER-93-922-000, and EL94-12-000, April 5, 1994, October 19, 1994, and June 22, 1995.

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Affidavit and Testimony of Dennis W. Carlton and Alan S. Frankel in Re: Leonard R. Kahn v. Emerson Electric Co., a Missouri corporation; Hazeltine Corporation, a Delaware corporation; and Motorola, Inc., a Delaware corporation; John Doe corporations 1-x; and John Does 1-x, individually: Before the United States District Court, for the Eastern District of New York, 92 Civ. 3063 (ADS), October 20, 1994 (Affidavit), and May 22, 1995 (Testimony).

Deposition and Testimony of Dennis W. Carlton in Re: Federal Trade Commission v. B.A.T. Industries P.L.C., Brown and Williamson Tobacco Corporation; American Brands, Inc.; and American Tobacco Company, Before the United States District Court, Southern District of New York, C.V. No. 94 Civ. 7849, November 20, 1994 (Deposition), and December 14, 1994 (Testimony).

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Declaration of Dennis W. Carlton in Re: Donnelly Corporation v. Gentex Corporation: In the United States District Court for the Western District of Michigan, Southern Division, Case No. 1:93 CV 530, October 20, 1995.

Testimony of Dennis W. Carlton before the Federal Trade Commission Hearings on Global and Innovation-based Competition, October 25, 1995.

Report and Deposition of Dennis W. Carlton in Re: Brand Name Prescription Drugs Antitrust Litigation, In the United States District Court for the Northern District of Illinois, Eastern Division, MDL No. 997, November 20, 1995 (Report), December 18 & 19, 1995 (Deposition).

Expert Report and Deposition of Dennis W. Carlton in Re: Johnson Matthey v. General Motors (Antitrust Counterclaim), District Court for the Eastern District of Wisconsin, No. 93 C 0931, January 9, 1996 (Expert Report), February 14, 1996 (Deposition).

Brief of Evidence, Summary of Evidence, and Testimony of Dennis W. Carlton on Behalf of Defendants in Re: Shell (Petroleum Mining) Company Limited and Todd Petroleum Mining Company Limited v. Kapuni Gas Contracts Limited and Natural Gas Corporation of New Zealand Limited, In the High Court of New Zealand, Auckland Registry, Commercial List, CL 5/94, April 2, 1996 (Brief of Evidence), July 18, 1996 (Summary of Evidence), and July 18-19, 1996 (Testimony).

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Verified Statement, Depositions, Verified Reply Statement, and Verified Rebuttal Statement of Dennis W. Carlton in Re: CF Industries, Inc. v. Koch Pipeline Company, L.P.: In the United States of America Before the Department of Transportation Surface Transportation Board, No. 41685, November 7, 1997 (Verified Statement), December 19, 1997 (Deposition), January 8, 1998 (Verified Reply Statement), February 3, 1998 (Deposition), and February 20, 1998 (Verified Rebuttal Statement).

Expert Witness Report, Deposition and Affidavits of Dennis W. Carlton in Re: Industrial Silicon Antitrust Litigation: In the United States District Court for the Western District of Pennsylvania, No. 95-2104, January 9, 1998 (Expert Witness Report), February 10-11, 1998 (Deposition), April 8, 1998 (Affidavit), and June 29, 1998 (Affidavit).

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Expert Report and Deposition of Dennis W. Carlton in Re: Bepco, Inc., et al v. AlliedSignal Inc. and AlliedSignal Truck Brake System Co.: In the United States District Court for the Middle District of North Carolina, Winston-Salem Division, No. 6:96CV00274, February 3, 1998 (Expert Report) and March 3, 1998 (Deposition).

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Prepared Answering Testimony and Exhibits of Dennis W. Carlton on Behalf of Oklahoma Gas and Electric Company in Re: American Electric Power Company, Inc. and Central and South West Corporation: United States of America Before the Federal Energy Regulatory Commission, FERC Docket Nos. ER98-40-000, ER98-2770-000, ER98-2786-000, April 27, 1999 (with G. Bamberger).

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Declaration of Dennis W. Carlton in Re: Merger of Qwest Communications International Inc. and U S WEST, Inc.: Before the Federal Communications Commission, CC Docket No. 99-272, October 18, 1999 (with Hal Sider).

Prepared Direct Testimony, Deposition and Cross-Examination of Dr. Dennis W. Carlton on behalf of Sierra Pacific Power Company in Re: United States of America Before the Federal Energy Regulatory Commission: Docket Nos. ER99-28-001, ER99-28-003, EL99-38-002 and ER99-945-002, November 17, 1999 (Prepared Direct Testimony), January 10, 2000 (Deposition), and April 26 and May 1, 2000 (Cross-Examination).

Expert Report and Deposition of Dennis W. Carlton in Re: United States of America v. Northwest Airlines Corporation and Continental Airlines, Inc.: In the United States District Court for the Eastern District of Michigan, Southern Division, Civil Action No. 98-74611, January 27, 2000 (Expert Report) and June 7, 2000 (Deposition).

Declaration and Ex Parte Declaration of Dennis W. Carlton in Re: Joint Applications of MCI WorldCom, Inc., and Sprint Corporation for Consent to Transfer Control: Before the Federal Communications Commission, CC Docket No. 99-333, February 18, 2000 (Declaration with H. Sider), and May 10, 2000 (Ex Parte Declaration with H. Sider).

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Affidavit, Deposition and Reply Affidavit of Dennis W. Carlton in Re: Gregory F. Daniel, M.D., et al., v. American Board of Emergency Medicine, et al: In the United States District Court for the Western District of New York, Civil Action No. 90-CV-1086A, March 3, 2000 (Affidavit), April 17 and 18, 2000 (Deposition), and July 12, 2000 (Reply Affidavit).

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Report, Rebuttal Report and Deposition of Dennis W. Carlton in Re: Rambus Inc. v. Infineon Technologies AG, Infineon Technologies North America Corp., Infineon Technologies, Inc., Infineon Technologies Holding North America Corp., and Infineon Technologies Corp.: In the United States District Court for the Eastern District of Virginia, Richmond Division, Civil Action No. 3:00CV524, December 20, 2000 (Report), January 19, 2001 (Rebuttal Report), and February 6, 2001 (Deposition).

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Expert Report, Deposition and Testimony of Dennis W. Carlton in Re: Amgen Inc. v. Ortho Pharmaceutical Corp.: Endispute Arbitration, Chicago, Illinois, August 31, 2001 (Expert Report), November 27-28, 2001 (Deposition), and May 9-10, 2002 (Testimony).

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Expert Report and Deposition of Dennis W. Carlton in Re: Cigarette Price-Fixing Litigation and related cases, Holiday Wholesale Grocery Company, et al. v. Philip Morris Incorporated, et al.: In the United States District Court for the Northern District of Georgia, Atlanta Division, No. 1:00-CV-0447-JOF, MDL No. 1342, December 19, 2001 (Expert Report) and January 23, 2002 (Deposition).

Expert Report and Deposition of Dennis W. Carlton in Re: Flat Glass Antitrust Litigation: In the United States District Court for the Western District of Pennsylvania, No. 97-550, MDL NO. 1200, December 20, 2001 (Expert Report) and February 4-6, 2002 (Deposition).

Expert Report, Supplemental Expert Report, and Deposition of Dennis W. Carlton in Re: Symbol Technologies et al v. Lemelson Medical et al and Cognex Corporation v. Lemelson Medical et al: In the United States District Court, District of Nevada, CV-S-01-701-PMP (RJJ) and CV-S-01-702-PMP (RJJ), December 14, 2001 (Expert Report), May 7, 2002 (Supplemental Expert Report), and October 3, 2002 (Deposition).

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Declaration of Dennis W. Carlton in Re: In the Matter of Applications for Consent to the Transfer of Control of Licenses, Comcast Corporation and AT&T Corp., Transferors, to AT&T Comcast Corporation, Transferee: Before the Federal Communications Commission, Washington, D.C., MB Docket No. 02-70, April 26, 2002

Declaration of Dennis W. Carlton and Robert H. Gertner In Re Shirley Robinson, et al., v. Bell Atlantic Corporation d/b/a Verizon Communications, et al., United States District Court Eastern District of Kentucky, Lexington Division, Case No. 01-98. (08/30/02)

Expert Report and Deposition of Dennis W. Carlton in Re: Duramed Pharmaceuticals, Inc. v. Wyeth-Ayerst Laboratories, Inc.: In the United States District Court, Southern District of Ohio, Western Division at Cincinnati, Civil Action No. C-1-00-735, August 19, 2002 (Expert Report) and September 24, 2002 (Deposition).

Expert Report and Deposition of Dennis W. Carlton in Re: Philip Morris, Inc.: In the United States District Court for the District of Columbia, No. 99-CV-02496 (GK), May 10, 2002 (Expert Report) and September 10, 2002 (Deposition).

Affidavit of Dennis W. Carlton in Re: USG Corporation, a Delaware Corporation, et al., In the United States Bankruptcy Court for the District of Delaware, Case No. 01-2094 (RJN), August 20, 2002 (Affidavit).

Expert Report, Expert Rebuttal Report, and Discovery Deposition of Dennis W. Carlton in Re: Sarah Futch Hall, d/b/a Travel Specialist, et al., on behalf of themselves and all others similarly situated v. United Airlines, Inc., et al.: In the United States District Court for the Eastern District of North Carolina Southern Division, No. 7:00-CV-123-BR(1), October 4, 2002 (Expert Report), November 13, 2002 Expert Rebuttal Report, and November 21, 2002 (Discovery Deposition).

Initial Report of Dennis W. Carlton and Hal Sider in Re: Sunrise International Leasing Corp., v. Sun Microsystems Inc., In the United States District Court for the District of Minnesota, Civil Action No. 01-CV-1057 (JMR/FLN), March 27, 2003 (Initial Report).

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EDUCATION

Ph.D., UNIVERSITY OF WISCONSIN, Madison, Wisconsin: Economics, 1980.

M.A., UNIVERSITY OF WISCONSIN, Madison, Wisconsin: Economics, 1978.

B.A., UNIVERSITY OF ILLINOIS, Urbana, Illinois: Economics, 1976.

EMPLOYMENT

LEXECON INC., Chicago, Illinois (October 1985 - present): 1985-90: Economist; 1990-1999: Vice President; 1999-current: Senior Vice President.

U.S. COMMISSION ON CIVIL RIGHTS, Washington, D.C., (August 1984 - October 1985): Co-Director: Project on Minority Income Trends.

OFFICE OF POLICY: U.S. DEPARTMENT OF LABOR, Washington, D.C., (May 1982 - August 1984): Economist.

PRESIDENT'S TASK FORCE ON FOOD ASSISTANCE (on leave from U.S. Department of Labor), Washington, D.C., (September 1983 - February 1984): Research Associate.

OFFICE OF RESEARCH AND EVALUATION; BUREAU OF LABOR STATISTICS, Washington, D.C., (September 1980 - May 1982): Economist.

UNIVERSITY OF WISCONSIN, Madison, Wisconsin (1978 - 79): Teaching Assistant.

UNIVERSITY OF WISCONSIN, Madison, Wisconsin (1976 - 78): Science Writer.

FIELDS OF SPECIALIZATION

Applied Microeconomics
Econometrics
Industrial Organization
Telecommunications
Labor Economics

ARTICLES

- “Have Mergers of Large Local Exchange Carriers Led to Discrimination Against Rivals? An Empirical Investigation” July 2002 (forthcoming, ABA publication on the use of econometrics in litigation, with Dennis Carlton and Thomas Stemwedel).
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- “Unemployment Incidence and Duration: 1968-1982,” American Economic Review (June 1985).
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- “Work-Related Accidents and the Production Process,” Journal of Human Resources (Winter 1985).
- “Labor Force Participation and the Relative Earnings of Black and White Males: 1940-80,” with Andy Sparks, (paper presented at the World Congress of the Econometric Society, 1985).
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- “The Changing Makeup of the Military and the Effect on Labor Force Data,” Monthly Labor Review (July 1984), with Cheryl Cole.

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“Consumers and Product Safety: Market Processes and Imperfections,” Policy Studies Journal (February 1983), with Eugene Smolensky.

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The Economic Progress of Black Men in America, U.S. Commission on Civil Rights (1986).

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Report of the President's Task Force on Food Assistance, Curran Press, Alexandria, Virginia (1984).

MISCELLANEOUS

University-Industry Dissertation Fellowship, University of Wisconsin, 1979-80.

Referee for:

Journal of Human Resources	National Science Foundation
Journal of Industrial Economics	Policy Studies Journal
Journal of Labor Economics	Review of Economics and Statistics
Journal of Law and Economics	Social Science Research Council
Journal of Legal Studies	U.S. Department of Health and Human Services
National Commission on Employment Policy	Antitrust Law Journal

TESTIMONIAL EXPERIENCE

Sunrise International Leasing Corporation v. Sun Microsystems, Inc., United States District Court for the District of Minnesota, No. 01-CV-1057 (JMR/FLN). Affidavit on behalf of Sun Microsystems, March 2003 (with Dennis Carlton), relating to damage issues.

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Vitamin Antitrust Litigation, MDL No. 1285, Declaration on behalf of opt-out plaintiffs, November 2002 (with William Landes and Gustavo Bamberger), relating to niacin damage issues.

Mesler v. Prudential Insurance, et al., Circuit Court of Cook County, Illinois, No. 99 L 37, November 2002, on behalf of Prudential Insurance, et al. (Deposition testimony, January 30, 2003; March 6, 2003).

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Dean Foods, Kraft Foods, Ralston Purina Company, Nabisco, Inc. and McKee Foods v. Eastman Chemical, et al., United States District Court, Northern District of California, San Francisco Branch. Supplemental Declaration on behalf of Dean Foods, et al., June 2002.

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Reply Declaration Re: Joint Application of Northpoint Communications and Verizon Communications for Authority to Transfer Control of Blanket Authorization to Provide Domestic Interstate Telecommunications Services as a Non-Dominant Carrier: Before the Federal Communications Commission, Washington DC, Docket No. 00-157, October 17, 2000 (with Dennis Carlton), on behalf of Verizon and Northpoint.

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Ex Parte Comments to Federal Communications Commission, CC Docket No. 99-272, in the matter of the Merger of Qwest Communication International Inc. and U S WEST, February 2000, on behalf of Qwest and U S WEST.

Lemon, Myer, Duncan et al. v. International Union of Operating Engineers, et al., U.S. District Court for the Eastern District of Wisconsin, Case No. 97-C-0857. Affidavit on behalf of International Union of Operating Engineers (December 1999); deposition (January 2000); Supplemental Report (February 2000).

Declaration before the Federal Communications Commission, CC Docket No. 99-272, in the matter of Merger of Qwest Communications International Inc. and U S WEST, Inc., October 18, 1999 (with Dennis Carlton), on behalf of Qwest and U S WEST.

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Testimony before the Department of Public Service of the State of West Virginia in the Matter of Application of WorldCom, Inc., Corp., for Approval to Transfer Control of MCI Communication to WorldCom, Inc. (June 17, 1998); oral testimony (July 2, 1998), on behalf of WorldCom.

Testimony before the Department of Public Service Regulation, Public Service Commission of the State of Montana, Docket No. D97.10.191, in the Matter of the Application of WorldCom, Inc. and MCI Communications Corporation for Approval to Transfer Control of MCI Communications Corporation to WorldCom, Inc., May 12, 1998, on behalf of WorldCom.

Testimony before the Public Utilities Commission of the State of Colorado, Docket No. 97A-494T, in re Application of WorldCom, Inc. for Approval to Transfer Control of MCI Communications Corporation to WorldCom, Inc., pre-filed direct testimony (March 25, 1998), cross-examination (April 2, 1998); on behalf of WorldCom.

Affidavit before the Florida Public Service Commission, Docket No. 971375-TP, Petition of WorldCom, Inc. for Approval to Transfer Control of MCI Communications Corporation to WorldCom, Inc., February 27, 1998 (with Dennis Carlton); on behalf of WorldCom.

Affidavit before the New York State Public Service Commission, Case 97-C-1804, Petition of WorldCom, Inc. for Approval to Transfer Control of MCI Communications Corporation to WorldCom, Inc., February 16, 1998 (with Dennis Carlton); on behalf of WorldCom.

Second Declaration before the Federal Communication Commission, CC Docket No. 97-211, in the Matter of Application of WorldCom, Inc. and MCI Communications Corporation for Transfer of Control of MCI Communications Corporation to WorldCom, Inc., March 19, 1998 (with Dennis Carlton); on behalf of WorldCom and MCI.

Shuller v. United States, U.S. District Court for the Eastern District of Pennsylvania, Civil Action No. 97-3820, Expert report in February, 1998; on behalf of U.S. Department of Justice.

Declaration before the Federal Communication Commission, CC Docket No. 97-211, in the Matter of Applications of WorldCom, Inc. and MCI Communications Corporation for Transfer of Control of MCI Communications to WorldCom, Inc., January 25, 1998 (with Dennis Carlton); on behalf of WorldCom and MCI.

Smith v. Amtrak, Circuit Court of Cook County, IL, Case 92 L 10525. Deposition in November 1997, trial testimony in January 1998; on behalf of Smith.

Johnson and Lehl v. City Colleges of Chicago, U.S. District Court for the Northern District of Illinois Eastern Division Case No. 96 C 0862. Expert report in July 1997, deposition testimony in November 1997; on behalf of City Colleges of Chicago.

Gelumbauskas v. Precision Gear, U.S. District Court, Northern District of Illinois Eastern Division, Case No. 96 C 0862. Expert report in April 1997; on behalf of Gelumbauskas.

Galvan v. U.S. Industries, Expert Report on December 27, 1997, deposition testimony in January 1997; on behalf of U.S. Industries.

Sprint Communications Company L.P. v. Network 2000 Communications Corporation, Expert report on July 15, 1996, deposition testimony in July, August 1996; affidavit on November 9, 1996; on behalf of Sprint.

Beazer East v. CSX Transportation, Inc., U.S. District Court for the Western District of Pennsylvania Case No. 93 0861, Expert report in April 1996; deposition testimony in June 1996; on behalf of CSX.

Report submitted in May 1996 to the National Association of Insurance Commissions on behalf of National Association of Independent Insurers.

Carbon Dioxide Industry Litigation, U.S. District Court for Central District of Florida MDL940. Expert report in October 1994 (with William M. Landes); supplemental report (with William M. Landes and Richard Leftwich) in May 1995; deposition testimony in July 1995; on behalf of opt-out plaintiffs.

AVR, Inc. v. Cemstone Products Corp., U.S. District Court, District of Minnesota, Third Division, File CIV 3-92-551. Expert report in October 1994; supplemental affidavits in December 1994, January 1995; on behalf of Cemstone.

W. Borysiewicz v. M. Gilblair, Circuit Court of Cook County, Illinois. Deposition testimony in August 1994; trial testimony in September 1994; on behalf of Borysiewicz.

NAACP et. al. v. American Family Mutual Insurance Co., U.S. District Court, Eastern District of Wisconsin, Civil Action No. 90-C-0759. Deposition testimony in July 1994 and November 1994; on behalf of American Family.

G. Bowan v. The Sales Force Companies, U.S. District Court for The Western District of Missouri, Case No. 92-0496-CV-W-2. Affidavit in February 1993; on behalf of Sales Force.

Wisconsin Central Transportation Corporation -- Continuance in Control -- Fox Valley and Western Ltd., Finance Docket 32036. Verified Statement to the Interstate Commerce Commission in September 1992 (with Andrew M. Rosenfield); on behalf of the Wisconsin Central.

Castaneda v. Baron Wire and Steel Inc., Circuit Court of Cook County, Illinois, Municipal Department, Second District. Deposition testimony in February 1992; on behalf of Castaneda.

Morgan v. ServiceMaster, U.S. District Court for the Northern District of Illinois, Case No. 89-C-0581. Report in August 1991 (with Sherwin Rosen); on behalf of ServiceMaster.

Sepich v. Mueller, U.S. District Court for the Central District of Illinois, U.S. District Court, Case No. 88-2353. Report in March 1991 (with Sherwin Rosen); on behalf of Mueller.

N. Savakis v. Beatrice Company, U.S. District Court for the N.E. District of Illinois Eastern Division, No. 89 C5790. Deposition testimony in June 1990; on behalf of Beatrice.

Times Herald Printing Company v. A.H. Belo Corp. and Dallas Morning News Company, District Court of Harris County Texas, 280th Judicial District. Deposition testimony in April 1990; on behalf of Dallas Morning News.

Turner v. IDS Financial Services, Inc., U.S. District Court for the District of Minnesota, File No. 88-521. Report in November 1989; on behalf of IDS.

McLendon et al. v. Continental Group et. al, U.S. District Court for the District of New Jersey, Civil Action No. 83-1340 (SA). Trial testimony in February 1989, testimony before Special Master in February 1990; testimony before Special Master (with Sherwin Rosen) in August 1990; on behalf of Continental Group.

Application of Illini Carrier L.P. before Illinois Commerce Commission. Testimony in April 1988 regarding application to provide natural gas transportation services; on behalf of Illini Carrier.

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EDUCATION

Ph.D. UNIVERSITY OF CHICAGO: Economics, 1996
(Full scholarship from the University)

M.A. UNIVERSITY OF CHICAGO: Economics, 1993
(Full scholarship from the University)

B.S. SOUTHERN METHODIST UNIVERSITY: Economics and Systems Analysis,
Mathematics Minor, 1991
(Summa Cum Laude, Honors, Departmental Distinction)

EMPLOYMENT

LEXECON, INC., Chicago, Illinois: Economist (1996 - present)

UNIVERSITY OF CHICAGO: Teaching Assistant (1994 – 1996)

DEGOLYER SPECIAL COLLECTIONS LIBRARY (May - July 1991)

BARNES & NOBLE (May - July 1989)

UNIVERSITY OF TEXAS, Research Assistant to Dr. Brian Berry (May - July 1987)

OTHER PROFESSIONAL EXPERIENCE

Member of the *American Economics Association*

Associate member of the *American Bar Association*

Referee for the *American Journal of Agricultural Economics* and *Journal of Business*.

Coordinated the *Conference on Valuing Non-Market Goods*, University of Chicago (July 21-22, 1995)

Assisted in coordinating the *Conference on Research in Health Economics*, University of Chicago (October 21-22, 1994)

Assisted in organizing the *Economic Policy and Public Finance Workshop*, University of Chicago (1993 - 1996)

Presented papers on information externalities and technology diffusion at the *Economics and Public Policy Workshop* (3) and *Price Theory Workshop* (1), University of Chicago (1995, 1996)

Presented *The Impact of Technology on the Modern Labor Market* at the 68th Annual Meeting of the Southwestern Social Science Association (March 29, 1990)

Independent research projects with Drs. Slottje and Hayes, Southern Methodist University (1987 - 1991)

ACADEMIC HONORS

Graduated Summa Cum Laude, Honors, Department Distinction

Phi Beta Kappa

Alpha Lambda Delta (Treasurer, honorary society recognizing academic achievement)

Phi Eta Sigma (honorary society recognizing academic achievement)

Omicron Delta Epsilon (international honor society in economics)

Kappa Mu Epsilon (honor society in mathematics)

Award for Excellence (given to the outstanding senior in the Economics Department as decided by the vote of the faculty)

Presidential Scholarship (full scholarship, Southern Methodist University)

National Merit Scholar (honorary)

Full Scholarship (University of Chicago)

Hyer Society (honorary society of Southern Methodist University)

Honor Roll (1987-1991)

AREAS OF SPECIALIZATION

Telecommunications

Technology Diffusion

Urban Economics

Agricultural Economics

Environmental Economics

PUBLICATIONS

BOOKS

Down to the Wire: Studies in the Diffusion and Regulation of Telecommunications Technologies, (Editor) Nova Science Press (forthcoming 2003).

ARTICLES

“The Evolution of Telecommunications Switching in the Central Office,” in Down to the Wire: Studies in the Diffusion and Regulation of Telecommunications Technologies, Nova Science Press (forthcoming 2003).

Handicapping Countries in the Race to Digital Switching, Progress in Economics, edited by Frank Columbus (forthcoming 2003).

The Welfare Implications of Advertising and Extension Under Uncertainty (with George Tolley) Technological Forecasting & Social Change, 70 (2003).

Determinants of the Diffusion of U.S. Digital Telecommunications, Journal of Evolutionary Economics, 11 (2001).

Compensating for Information Externalities in Technology Diffusion Models, 80 American Journal of Agricultural Economics, 2 (1998).

Contributed to two catalogs at DeGolyer Special Collections Library (1991).

The Impact of Technology on the Modern Labor Market, 11 Southwestern Journal of Economic Abstracts, 1 (1990).

RESEARCH PAPERS

An Evaluation of Technology Diffusion Models and Their Implications, *Ph.D. Dissertation, University of Chicago* (1996).

A New Direction in Mixed Income Housing, submitted to Chicago Housing Authority (1993).

UNPUBLISHED PAPERS

A Survey of the Economics of Information, Focussing on Water (1992).

Petroleum Price Shocks and Rationality, B.S. Honors Paper (1991).

EXPERT TESTIMONY

Reply Declaration Re: 2000 Biennial Regulatory Review Spectrum Aggregation Limits for Commercial Mobile Radio Services, Before the Federal Communications Commission, Washington DC, WT Docket No. 01-14, May 14, 2001, Reply Declaration (with Robert Gertner).

Declaration Re: 2000 Biennial Regulatory Review Spectrum Aggregation Limits for Commercial Mobile Radio Services, Before the Federal Communications Commission, Washington DC, Docket No. 01-14, April 13, 2001, Declaration (with Robert Gertner).

Report to Directorate General IV of the European Commission: “Remedies in the United States,” in *Remedies in the United States*, in *Remedies in EU Competition Law: The Policy and Practice of the European Commission, A Report for Directorate General IV of the European Commission*, July 1998, Report (with James Langenfeld).