

Equally misplaced is IDCMA's claim (p. 29 n.72) that the Commission's proposal would breach the "standstill" clause included in the GATS Decision on Negotiations in Basic Telecommunications. This provision requires only "that no participant shall apply any measure affecting trade in basic telecommunications in such a manner as would improve its negotiating position and leverage."⁶³ As the U.S. has made no offer or request in the NGBT concerning the unbundling of CPE by any type of carrier, dominant or nondominant, the adoption of the Commission's proposal can provide no increased U.S. leverage in those negotiations.⁶⁴

CONCLUSION

For all of the reasons set forth above, the Commission should exercise its statutory authority to forbear from enforcing the tariff filing requirements of Section 203 of the Communications Act for interexchange services provided by nondominant carriers, but should

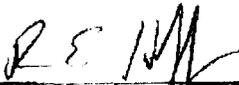
⁶³ Decision on Negotiations on Basic Telecommunications, Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations (April 15, 1994), H.R. Doc. 103-316, 103d Cong., 2d Sess., Vol. 1 at 1706 (1994), ¶ 7.

⁶⁴ Additionally, the National Telecommunications and Information Administration ("NTIA"), on behalf of the Executive Branch, has emphasized that "[t]he standstill provision would seem to cover measures that are applied solely to create barriers to increase leverage in the negotiations." Market Entry and Regulation of Foreign-Affiliated Entities, FCC Docket No. 95-22, Reply Comments of the National Telecommunications and Information Administration (filed May 12, 1995), at 8 (emphasis supplied). NTIA also noted that its comments reflected the views of the Departments of Commerce, Defense, Justice, State, Treasury, and the Office of the U.S. Trade Representative. Id. at 1.

not prohibit such carriers from filing tariffs. In addition, the Commission should eliminate its rules prohibiting nondominant interexchange carriers from bundling interexchange services with CPE, or with enhanced services.

Respectfully submitted,

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May 24, 1996

**LIST OF COMMENTERS
POLICY & RULES CONCERNING THE
INTERSTATE, INTEREXCHANGE MARKETPLACE**

Ad Hoc Coalition of Corporate Telecommunications Managers
Ad Hoc Telecommunications Users Committee, the California Bankers Clearing House Association, the New York Clearing House Association, ABB Business Services, Inc., and the Prudential Insurance Company of America ("Ad Hoc")
*Alabama Public Service Commission ("Alabama PSC")
State of Alaska ("Alaska")
America's Carriers Telecommunication Association ("ACTA")
American Computer and Electronics Corporation ("ACE*COMM")
American Petroleum Institute ("API")
American Public Communications Council ("APCC")
American Telegram Corporation ("American Telegram")
Ameritech
AMSC Subsidiary Corporation ("AMSC")
Association for the Study of Afro-American Life and History, Inc. ("ASALH")
AT&T Corp. ("AT&T")
Audits Unlimited, Inc.
Bell Atlantic Communications, Inc. and the Bell Atlantic telephone companies ("Bell Atlantic")
BellSouth Corporation ("BellSouth")
BT North America Inc. ("BTNA")
Business Telecom, Inc. ("BTI")
Cable & Wireless, Inc. ("CWI")
Capital Cities/ABC, Inc., CBS Inc., National Broadcasting Company, Inc., and Turner Broadcasting System, Inc. ("the Networks")
Casual Calling Coalition ("Casual Calling Coalition")
Cato Institute
Chrysler Minority Dealers Association ("CMDA")
Citizens for a Sound Economy Foundation ("Citizens for a Sound Economy")
Compaq Computer Corporation ("Compaq")
Competitive Telecommunications Association ("CompTel")
Consumer Electronics Retailers Coalition ("Coalition")
Consumer Federation of America and Consumers Union ("CFA/CU")
Department of Defense, Secretary of Defense
Eastern Telephone Systems, Inc. d/b/a Eastern Tel Long Distance Service, Inc. ("Eastern Tel")
Excel Telecommunications, Inc. ("Excel")
*Florida Public Service Commission ("Florida PSC")
Fone Saver, LLC
Frontier Corporation ("Frontier")
General Communication, Inc. ("GCI")
General Services Administration ("GSA")
GTE Service Corporation and its affiliated domestic telephone and interexchange companies ("GTE")

Independent Data Communications Manufacturers Association ("IDCMA")
Information Technology Association of America ("ITAA")
*Iowa Utilities Board ("Board")
LCI International Telecom Corp. ("LCI")
Louisiana Public Service Commission ("Louisiana PSC")
Dr. Robert Self d/b/a Market Dynamics
MBG Telecom Software ("MBG")
MCI Telecommunications Corporation ("MCI")
MFS Communications Company, Inc. ("MFS")
*Missouri Public Service Commission ("the MoPSC")
MOSCOM Corporation
National Association of Development Organizations; Paraquad;
 United Homeowners Association; National Hispanic Council on the Aging;
 Consumers First; National Association of Commissions for Women
*National Association of Regulatory Utility Commissioners ("NARUC")
National Bar Association
National Black Data Processors Association
Network Analysis Center, Inc. ("NAC")
NYNEX Telephone Companies ("NYNEX")
*Office of the Ohio Consumers' Counsel ("Ohio Consumers' Counsel")
Public Utilities Commission of Ohio ("Ohio")
Pacific Telesis Group
*Pennsylvania Office of Consumer Advocate ("PaOCA")
Pennsylvania Public Utility Commission ("Pennsylvania PUC")
*The Rural Telephone Coalition \
SBC Communications Inc. ("SBC")
Scheraga and Sheldon Associates
Sprint Corporation ("Sprint")
Systems Design & Development, Inc. ("SDD")
Telecommunications Information Services, Inc.
Telecommunications Management Information Systems Coalition ("TMISC")
Telecommunications Research and Action Center ("TRAC")
Telecommunications Resellers Association ("TRA")
Telesoft Corporation
Tennessee Attorney General
United States Telephone Association ("USTA")
Ursus Telecom Corp. ("UTC")
U S WEST, Inc. ("U S WEST")
UTC, The Telecommunications Association ("UTC")
WinStar Communications, Inc. ("WinStar")
WorldCom, Inc., d/b/a LDDS WorldCom ("LDDS")
XIOX Corporation

and B.S. degrees are from the University of Central Florida, *summa cum laude*.

2. Hubbard's professional work has centered on problems in public economics, industrial organization, natural resource economics, and monetary economics. He has authored more than seventy journal articles, edited a number of books, and authored a leading textbook in money and banking. Hubbard has served on the editorial boards of journals specializing in industrial economics. He has been an advisor or consultant to the Board of Governors of the Federal Reserve System, Congressional Budget Office, Federal Reserve Bank of New York, Internal Revenue Service, International Trade Commission, U.S. Department of Energy, and U.S. Department of the Treasury. In 1991-1993, he served as Deputy Assistant Secretary (Tax Analysis) of the U.S. Treasury Department where he was responsible for economic analysis of tax policy, the administration's revenue estimates, and health care policy issues. His *curriculum vitae* is attached as Attachment 2 with more biographical details and a listing of his writings.

3. William H. Lehr is an assistant professor of finance and economics at the Graduate School of Business of Columbia. Prior to joining the Columbia faculty in 1991, Lehr received his Ph.D. in economics from Stanford University. His M.B.A. (Wharton), M.S.E. (chemical engineering), B.S. (chemical engineering, *cum laude*), and B.A. (European history, *magna cum laude*) are from the University of Pennsylvania. He has significant professional experience in the telecommunications industry through positions at consulting firms and at MCI.

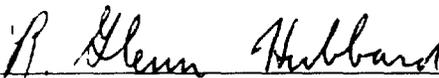
4. Lehr's research focuses on issues in telecommunications economics and policy. He has authored a number of professional articles on standard setting and networks. His *curriculum vitae* is attached as Attachment 3.

5. We have personally prepared the accompanying report, "An Analysis of Competition in U.S. Long-Distance Telephone Service." A copy of this report is appended to

this Affidavit as Attachment 1.

6. We declare under penalty of perjury that the foregoing, as well as all statements rendered in the attached report, are true and correct to the best of our knowledge and belief.

Executed on December 5, 1994.



R. Glenn Hubbard



William H. Lehr

ATTACHMENT 1

AN ANALYSIS OF COMPETITION IN U.S.
LONG-DISTANCE TELEPHONE SERVICE

by

R. Glenn Hubbard

Columbia University

and

William H. Lehr

Columbia University

December 5, 1994

I. Introduction and Summary

Four of the Regional Bell Operating Companies (RBOCs) -- Bell Atlantic Corp., BellSouth Corp., NYNEX, and Southwestern Bell Corp. -- have petitioned the court to vacate the decree in *United States of America v. Western Electric Company, Inc. and American Telephone and Telegraph Company* (Civil Action No. 82-0192). The petitioners argue that existing markets for interexchange telephone services are not competitive and that competition and industry performance would be improved by allowing the RBOCs to enter long-distance markets.

We have been asked by AT&T to analyze trends in and the current state of competition in long-distance telephone service in the United States. We have also been asked to evaluate arguments that RBOC entry in the interexchange market would increase quality and reduce prices of long-distance services. As part of that task, we were asked to respond to allegations advanced by some of the expert witnesses filing affidavits in support of the RBOCs' arguments.

Our principal conclusions are two. First, markets for long-distance services exhibit vigorous competition, as evidenced by falling prices relative to access costs, aggressive promotional and discounting programs, and dramatic improvement in quality. Second, ownership and control of a long-distance carrier by an RBOC may well magnify rather than reduce exploitable market power. Offsetting this risk, there are no significant costs associated with postponing a decision until evidence on the state of competition in markets for local-exchange services is clearer.

Our report is organized as follows. Section II provides an overview of industry structure and profitability. Trends of falling prices and increasing quality are examined in section III. Section IV addresses specifically claims by Paul MacAvoy that markets for long-distance services are not competitive. We evaluate likely consequences of removing the line-of-business restriction in the Modified Final Judgment (MFJ) in section V. Section VI concludes.

II. The Long-Distance Market: An Overview of Industry Structure and Profitability

The history of long-distance service in the United States since the divestiture of AT&T in 1984 offers a record of declining prices, increased product offerings, and improved and expanded network facilities. This outstanding performance is due in large part to the intense and intensifying competition from a diverse group of interexchange carriers.¹ Indeed, the Federal Communications Commission (FCC) in 1991 affirmed its view that the long-distance industry

¹ For general reviews of the competitive trends in the long distance market, see Michael E. Porter, "Competition in the Long Distance Telecommunications Market," *Monitor Company*, September 1993; Robert E. Hall, "Long Distance: Public Benefits from Increased Competition," *Applied Economics Partners*: October 1993; and section VI of the accompanying *Affidavit* of Robert D. Willig and B. Douglas Bernheim.

was becoming increasingly competitive.²

The first tier of competition comes from the three major facilities-based competitors AT&T, MCI, and Sprint. MCI and Sprint, together with a number of other long-distance competitors, collectively referred to as the Other Common Carriers (OCCs), have reduced AT&T's market share from around 90 percent (of toll revenue) in 1984 to about 60 percent at the end of 1993.³ Specifically, AT&T, MCI, and Sprint had market shares in the first quarter of 1994 of 59.1 percent, 18.8 percent, and 9.6 percent, respectively.

AT&T's competitors emerged in response to two important trends which ultimately helped lead to the divestiture of AT&T in 1984. First, advances in technology during the preceding decades had significantly reduced the costs for long-distance relative to local-exchange services. Consumers realized most of these gains via long-distance telephone charges, which declined in real terms. Second, to avoid nominal increases in local telephone rates, policymakers constrained AT&T's ability to rebalance long-distance toll rates and monthly customer access charges to reflect underlying changes in costs. The net effect of this policy was to create a cross subsidy from long-distance to local-exchange services.

² See *Report and Order in the Matter of Competition in the Interstate Interexchange Marketplace*, Federal Communications Commission 6 FCC Rcd. No. 21: 5880-5918.

In addition, the Bureau of Economics of the Federal Trade Commission submitted a report to the FCC arguing "that the market for Basket 1 long-distance services, thought to be less competitive than Baskets 2 and 3, is nonetheless quite competitive." See *Reply Comment of the Staff of the Bureau of Economics of the Federal Trade Commission*, In the Matter of Revisions to Price Cap Rules for AT&T, Federal Communications Commission CC Docket No. 93-197, October 25, 1993, page 3; and Michael R. Ward, "Market Power in Long Distance Telecommunications" Working Paper, Federal Trade Commission, September 16, 1993.

³ See *Long Distance Market Shares: Second Quarter, 1994*, Industry Analysis Division, Federal Communication Commission, Washington, DC. September 1994, Chart 2.

The combination of lower costs and artificially high tariffs for toll service encouraged large-scale entry into long-distance services. However, regulatory barriers and fundamental differences in the economics of providing local-exchange services gave AT&T, with its monopoly control of local access facilities, an unfair competitive advantage vis-à-vis the OCCs. The Modified Final Judgment, which resulted in the divestiture of AT&T in 1984, was designed to open long-distance services to effective competition and to allow for more rational rebalancing of costs between toll and local services. Both the long-distance services of AT&T and the local services of newly spawned RBOCs continued to be subject to rate-of-return regulation in recognition of their dominant market positions.

In the years immediately following divestiture, the OCCs were able to expand their market shares rapidly by offering significant discounts from AT&T's still artificially high toll rates. AT&T's rates remained initially high in part because of the slow phasing in of fixed subscriber-line charges, which were intended to eliminate eventually the long-distance subsidy for non-traffic-sensitive access costs. The OCCs were aided further by the FCC's requirement that OCCs who were not yet provided with Equal Access Dial-1 facilities should receive a 55 percent discount for switched access charges relative to AT&T.⁴ This differential in access charges mandated by regulation allowed AT&T's competitors to offer substantial discounts that

⁴ Prior to divestiture, AT&T's long-distance competitors were interconnected with their customers via different and arguably inferior local access facilities: Customers who used AT&T only had to dial a "1" to reach a long distance switch, while customers who used MCI or Sprint had to dial a local number and then enter an access number before reaching a competitor's long distance switch. The FCC directed the newly formed RBOCs to make the necessary modifications to allow all long-distance carriers equivalent Equal Access Dial-1 facilities. Until Equal Access became available, the FCC mandated (under 47 C.F.R. § 69.113) that AT&T's competitors would pay 45 percent of what AT&T would pay for local access.

more than compensated for the lower quality access facilities available before equal access could be implemented, as is demonstrated by the rapid drop in AT&T's market share during the phase-in of Equal Access.

As long-distance rates moved closer to true costs and as wide availability of Equal Access facilities eliminated artificial access cost differentials, AT&T, Sprint, and MCI moved toward achieving competitive parity.⁵ This was also encouraged by the FCC's move to price cap regulation in 1989, which provided AT&T with greater incentives to invest in cost reductions and greater pricing flexibility to defend its market share.

There is also an important second tier of competition in long-distance markets. The 12.5 percent of the industry's revenues (as of the first quarter of 1994) not accounted for by AT&T, MCI, and Sprint includes several hundred carriers whose roles as suppliers are fulfilled by their own facilities, by capacity leased from other suppliers, and by reselling capacity owned by other long-distance carriers. Carriers such as LDDS, LCI, and WilTel are relatively large, each with annual revenues in excess of \$300 million. The market share of these groups grew at an average annual rate of about 19 percent from 1984 through the first quarter of 1994. Hence, the

⁵ Equal Access Progress (percentage of access lines converted):

1984 (fourth quarter)	3.2 percent
1985 (fourth quarter)	40.2 percent
1986 (fourth quarter)	63.8 percent
1987 (fourth quarter)	76.3 percent
1988 (fourth quarter)	83.4 percent
1989 (fourth quarter)	87.7 percent
1990 (fourth quarter)	90.4 percent
1991 (second quarter)	90.9 percent

(Source: Federal Communications Commission, *Trends in Telephone Service*, Industry Analysis Division, May 1994, Table 12). By the end of 1988, most major telecommunications markets had been converted. The remaining unconverted markets are typically in smaller and/or rural communities.

suppliers outside of AT&T, MCI, and Sprint constitute a significant competitive fringe. If prices exceeded competitive levels, resellers and smaller facilities-based suppliers could expand substantially and rapidly, particularly given the availability of fiber capacity in the lease market. In addition, arbitrage by resellers mitigates the scope for price discrimination among classes of consumers.

Assessing the competitiveness of the long-distance industry based on conventional measures of concentration would provide a misleading picture. The industry is clearly concentrated; under the present market-share guidelines used by the Department of Justice in screening mergers, AT&T would not be permitted to merge with either MCI or Sprint. However, high market concentration does not, by itself, imply market power. The more important question is whether there are significant barriers to entry in the industry.

In the current long-distance industry, there are no significant barriers to entry. Indeed, there has been substantial entry both before and increasingly following divestiture.⁶ The costs of creating a national facilities-based network to compete with existing carriers, including the

⁶ The viability of entry into long-distance service is demonstrated by the coverage of long-distance carriers purchasing equal access:

	<u>Number carriers serving four or more states</u>	<u>Change over preceding year</u>
1986	23	--
1987	26	3
1988	33	7
1989	55	22
1990	58	3
1991	68	10
1992	81	13
1993	98	17

Source: Federal Communications Commission, "Trends in Telephone Service," Washington, D.C.: May 1994.

costs of inducing long-distance customers to switch from those carriers, are significant. However, if prices were sufficiently above their competitive levels, additional entry would occur.

In addition to the prospect of large-scale entry in the form of competing national networks, entry is also possible in market niches. Such entry could be executed by reselling services of or leasing current fiber capacity of existing long-distance carriers, or even by building smaller-scale facilities to service selected routes. The potential for resale has enabled potential competitors to circumvent sunk network costs of entry into the wholesale long-distance market.⁷ Indeed, successful resellers have ultimately acquired significant regional and national positions as carriers; prominent examples include Allnet and LDDS. Hence, if the prices of long-distance service provided by AT&T, MCI, and Sprint were too high — or the quality of that service too low — small-scale entry would occur to exploit profit opportunities. The absence of entry beyond what we currently see is a reflection of the success of competition.

Another indication of the increasing competition for customers in long-distance markets is the extent of promotions and discount plans and of advertising and marketing efforts. Indeed, promotions have been vigorous since the late 1980s.⁸ While MCI and Sprint first followed AT&T's lead in promotions, in the 1990s, they have introduced new discounted optional calling plans. The plans introduced by AT&T, MCI, and Sprint have generally been expanded over

⁷ Indeed, as Willig and Bernheim note, resellers seeking to sell to residential customers can acquire capacity by purchasing bulk wholesale services. Hence, to the extent the market for wholesale services is competitive (and Willig and Bernheim argue that this is the case), there are no barriers to resellers' entry in retail services. See the accompanying *Affidavit* of Robert D. Willig and B. Douglas Bernheim, note 1, *supra*.

⁸ See Michael E. Porter, note 1, *supra*, Exhibit 15.

time. Indeed, more than 25 broadly available promotional or discounting plans were announced by AT&T, MCI, or Sprint from January 1989 through June 1994 (along with hundreds of more narrowly targeted programs).

At the same time, advertising by long-distance carriers has grown significantly since 1989, from about 1.7 percent of revenues to approximately 3 percent of revenues by 1993. Much of this sales and marketing expenditure has been directed toward increasing customers' awareness of calling options, thereby promoting competition.

While discounts and promotions have been widespread, it has been argued that such offerings cannot be used as evidence of aggressive competition. In particular, some have questioned the relevance of long-distance discount and promotional programs on the grounds that these only benefit customers who are relatively heavy users of long-distance services; *i.e.*, aggressive competition is limited to only a small segment of the customer base.⁹ This concern is not valid. As a matter of fact, such programs have not been narrowly targeted, even though it is natural in any industry — competitive or otherwise — for firms to concentrate their marketing efforts initially on the most valuable customers in the marketplace. These high-volume customers are less costly to serve because many customer-related costs, such as customer service and billing, do not vary with the size of a particular customer's bill (but do vary with the aggregate volume of calls carried). In addition, high-volume customers are more likely to switch carriers for a given discount because the value of a per minute discount increases with

⁹ See *Affidavit* of Richard L. Schmalensee, Motion of Bell Atlantic Corp., BellSouth Corp., NYNEX Corp., and Southwestern Bell Corp. to Vacate the Decree, *United States of America v. Western Electric Company, Inc. and American Telephone and Telegraph Company*, Civ. No. 82-0192.

the total cost of calling and is more likely to offset any fixed costs borne by customers electing to switch long-distance carriers. These reasons in large part account for the prevalence of volume discounts for high-volume customers, and are common explanations for such discounts across a range of industries in which competition is aggressive.

As evidence of the extent to which competition has evolved, long-distance carriers now offer simple, very broad-based promotional and discounting plans for low-volume customers. In AT&T's "True USA" program, for example, a customer whose AT&T bill exceeds \$25 receives a discount of 20 percent; customers spending between \$10 and \$25 receive a discount of 10 percent. Fully 66 percent of AT&T's residential customers are eligible in any quarter to benefit from this promotion. To summarize, promotional and discounting plans have become more encompassing as competition has strengthened. Claims that promotions focus solely on high-volume customers are false.

For evidence that price promotions and advertising are inducing customers to switch long-distance carriers, one can examine the quarter-to-quarter fluctuations in market shares; shifts in market shares for a given firm of 0.5 percent or more are not uncommon. Even these fluctuations mask significant customer churn, which is increasing over time. During 1992, approximately 15 percent of residential customers changed carriers over the course of the year. During 1993, the percentage rose to approximately 20 percent. As of September 1994, AT&T projects that almost 26 percent of the industry's residential customers will change carriers during 1994.¹⁰

Finally, a financial indicator of whether the long-distance industry is earning supernormal

¹⁰ These calculations are based on information supplied by AT&T.

profits is provided by the firms' returns on assets. A return on assets invested that exceeds returns in other industries provides a signal to prospective entrants that short-term profits may be earned by entry. We use as a measure of return on assets operating income from long-distance operations, after taxes, divided by assets used in long-distance service. In 1993, AT&T earned \$2.38 billion (defined in this way). Because AT&T's assets in long-distance operations were \$21.6 billion, its rate of return on assets was about 11.0 percent in 1993. MCI and Sprint had rates of return on assets of 9.1 percent and 9.0 percent, respectively, during 1993. By comparison, the average rate of return on assets in 1992 for manufacturing firms in the Standard and Poor's Compustat database was 11.6 percent.

To summarize, while AT&T has the largest share of the domestic long-distance market, profit performance in the industry indicates significant competition. Indeed, it is the success of this competition — in reducing profits from prospective entry — that provides the only substantial limitation to entry.

III. Price and Quality Outcomes in the Long-Distance Industry

Contemporary analysis of industry competitiveness centers on outcomes for "price," expressed as the price of existing products and services and the quality of those products and services. That is, the process of competition acts to reduce prices and/or increase quality of the good or service being produced. Pressures in a competitive industry ensure that prices do not generate supernormal profits.

A. *Pricing Outcomes in the Long-Distance Industry*

The principal focus of the extent to which an industry is competitive is properly on pricing outcomes. It is the substantial decline in the price of long-distance telephone service that is the principal benefit to consumers from the industry's structural transformation. One must keep in mind, however, that no single trajectory of prices over time is required in a competitive industry. Changes in price reflect not only shifts in market structure or the level of competition but also changes in input costs, technology, and regulatory practices. In the long-distance market, inflation-adjusted prices have fallen significantly since 1984. Moreover, this fall in prices has been roughly continuous in the decade following divestiture.

Several expert witnesses for the RBOCs assert that price decreases have not been significant. For example, Paul MacAvoy claims that the decline in long-distance prices halted in recent years. Lester Taylor argues that price decreases were solely a function of declines in access charges. Jerry Hausman, Richard Schmalensee, and Taylor have claimed that prices have declined for business services, but not for residential services. Available evidence does not support these assertions.¹¹

Figure 1 illustrates trends in the price of long-distance as captured in the U.S. government's price indices (prepared by the Bureau of Labor Statistics, BLS), the component of the Consumer Price Index (CPI) for interstate toll calls and the component of the Producer Price Index (PPI) for interstate message toll service. The figure presents the trends since 1983,

¹¹ See *Affidavits* of Jerry A. Hausman, Paul W. MacAvoy, Richard L. Schmalensee, and Lester Taylor, Motion of Bell Atlantic Corp., BellSouth Corp., NYNEX Corp., and Southwestern Bell Corp. to Vacate the Decree, *United States of America v. Western Electric Company, Inc. and American Telephone and Telegraph Company*, Civ. No. 82-0192.

with figures expressed as ratios to a general price index (the implicit price deflator for gross domestic product, GDP) in order to measure relative price changes. The CPI and PPI toll indices declined over 50 percent relative to the GDP deflator during the period from 1983 through 1993. During the latter part of this period, from 1988 through 1993, the BLS indices declined approximately 20 percent.

While price declines of this magnitude are impressive, they understate the fall in long-distance telephone prices. While the BLS attempts, properly, to maintain an index of transactions prices and not list prices, price indices generally suffer from biases introduced by failures to capture the use of new products or services (*e.g.*, promotional and discounting plans in long-distance service) and the change in the mix of products or services purchased (*e.g.*, switching by purchasers toward cheaper, more recently introduced services). For example, the PPI is based on products which have been in existence since the mid-1970s, and excludes important discount plans. In the case of the CPI, promotional and discounting plans introduced after the 1984 divestiture are not included. These considerations point toward an overstatement of transactions prices and an understatement of the fall in prices since 1984, as we discuss later.

To make this point more succinctly, one can contrast trends in average revenue per minute for AT&T with those for the CPI and PPI toll indices. As Figure 2 shows, average revenues per minute for AT&T for residential and business MTS, other outbound business services, and 800 services have declined significantly relative to the official telephone price indices since 1990.

One factor explaining the decline in long-distance telephone prices is the decline in the component of marginal cost relating to access charges paid to local telephone companies by long-

distance carriers. The industry-average access charges per minute of telephone conversation fell by 20 percent, adjusted for inflation, between 1990 and 1993. Table 1 presents estimated access charges per conversation minute from 1990 through 1993. Net of the fall in access charges, AT&T's average revenue per minute fell from 12 percent to 23 percent in real terms over the same period, depending on which service grouping one considers. Table 2 presents data on AT&T's average revenue per minute before and after deducting access charges.¹² As Figure 3 shows, AT&T's prices, adjusted for inflation and access charges, fell since 1990 for regular long-distance service, switched business services (*i. e.*, services such as WATS, SDN, etc.), and toll-free inbound calling calls. These patterns refute the contention that declines in average revenue per minute are attributable only to particular market segments. Hence, the decline in long-distance telephone prices exceeds the decline in access charges paid to the local-exchange carriers for each market segment.

The data summarized in Figure 3 correspond approximately to the service groupings, or "baskets," identified as part of the Federal Communications Commission's (FCC) "price cap" regulation.¹³ The price caps set a benchmark for AT&T's prices relative to: the general price level (the GNP deflator), offset by productivity growth (taken to be 3 percent per annum) and access charges and other factors determined by regulators. The formula is set such that real prices within each basket must decline each year for each of the major service categories: residential and business long-distance calls (Basket 1), toll-free inbound ("800") calls (Basket

¹² Because these data are proprietary to AT&T, Table 2 has been included in a confidential appendix submitted to the Department of Justice.

¹³ Federal Communications Commission, *Policy and Rules Concerning Rates for Dominant Carriers*, CC Docket No. 87-313 (1989).

2), and advanced business services (Basket 3).

Hausman has argued that the fact that Basket 1 services are priced near the price ceiling for those services, while prices of business services have fallen more rapidly, is *prima facie* evidence of the exercise of market power through price discrimination.¹⁴ There are two problems with this argument. First, as a logical matter, to the extent that the price cap correctly anticipates productivity gains and changes in the cost of providing service (*i.e.*, if price caps approximate competitive prices), one would expect AT&T to price near the price cap. Such a pattern would simply indicate that regulators did a good job at establishing caps in 1989, because prices were already near competitive levels in 1989 and subsequent adjustments have accommodated productivity gains realized by AT&T

Second, prices may be close to the price caps for Basket 1 services because the FCC set the price cap for Basket 1 artificially low. In particular, the method chosen by the FCC to allocate access costs under price caps has lowered the Basket 1 cap relative to the caps for Baskets 2 and 3.¹⁵ The average rate of return for AT&T's Basket 1 was 8.1 percent over the 1989-1992 period, substantially less than the 12 percent return permitted in 1988, the last full year of rate-of-return regulation¹⁶ and less than the allowed rate of return on investments for

¹⁴ See *Affidavit* of Jerry A. Hausman, note 11, *supra*, section III B.

¹⁵ See the analysis in Peter Pitsch, "A Brief History of Competition in the Long Distance Communications Market," Mimeograph, September 1994. In their *Affidavit* for AT&T in this proceeding, Robert D. Willig and B. Douglas Bernheim argue that this regulatory distortion may induce "lock-step" pricing by AT&T, MCI, and Sprint for innocuous reasons.

¹⁶ See Joel E. Lubin, Letter to Donna R. Searcy, Secretary, Federal Communications Commission, *Re: Price Cap Performance Review for AT&T*, August 14, 1992, Exhibit A.

regulated local telephone entities of approximately 11 percent.¹⁷

To summarize: Inflation-adjusted prices of long-distance telephone service have declined substantially since 1984. In addition, declines in price have exceeded the reductions in access charges received by local telephone companies. Third, long-distance telephone prices have fallen for a range of products. The benefits of competition have come in large part through price reduction. Future declines in long-distance prices will reflect ongoing increases in productivity or reductions in access charges directed by regulation.

B. Quality Outcomes in Long-Distance Service

Long distance competition can take place through changes in quality as well as price. AT&T, Sprint, MCI, and the other OCCs have invested heavily in upgrading their network facilities and improving the efficiency of their marketing and customer service organizations. Investments in new facilities such as fiber optics, digital switching and Signalling System 7 have both lowered operating costs and improved service quality.¹⁸ These technologies have reduced call setup times, network blocking and transmission line noise, resulting in higher-quality service for all customers. In addition to improvement of the quality of conventional long-distance service, the competing firms in the industry have introduced new services for both small and large customers. These include credit-card calling, voice-mail, video-conferencing, and a host

¹⁷ See National Association of Regulatory Utility Commissioners, *Utility Regulatory Policy in the United States and Canada, Compilation 1992-1993*, Table 52, page 116.

¹⁸ From 1989 through 1993, total fiber system route-miles for interexchange carriers grew by 25 percent. See Jonathan M. Kraushaar, "Fiber Deployment Update: End of Year 1993," Washington, D.C.: Federal Communications Commission, Industry Analysis Division — Common Carrier Bureau (May 1994, Table 1).