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FCC RELEASES STUDY ON TELEPHONE TRENDS

The FCC has released a report entitled Trends in Telephone Service. This report is designed to provide answers to some of the most frequently asked questions about the telephone industry -- questions asked by consumers, members of Congress, other government agencies, telecommunications carriers, and members of the business and academic communities. To this end, the report contains summary information about the size, growth, and development of the telephone industry, including data on market shares, minutes of calling, number of lines, and telephone subscribership. The report also provides information about access charges, telephone rates and price changes, consumer expenditures for service, complaints, employment, infrastructure, international telephone traffic, local competition, long distance carriers, and universal service programs.

This report is available for reference in the Common Carrier Bureau Public Reference Room, 2000 M Street, N.W., Room 575. Copies may be purchased by calling International Transcription Services, Inc. (ITS) at (202) 857-3800. The report can be downloaded [file name: TREND198.ZIP] from the **FCC-State Link** internet site at http://www.fcc.gov/ccb/stats on the World Wide Web. The report can also be downloaded from the **FCC-State Link** computer bulletin board at (202) 418-0241.

FCC

For further information, contact the Industry Analysis Division, Common Carrier Bureau, at (202) 418-0940.

TRENDS IN TELEPHONE SERVICE

Industry Analysis Division
Common Carrier Bureau
Federal Communications Commission
February 1998

This report is available for reference in the Common Carrier Bureau's Public Reference Room, 2000 M Street, N.W., Room 575. Copies may be purchased by calling International Transcription Services, Inc. (ITS) at (202) 857-3800. The report can be downloaded [file name TREND198.ZIP] from the **FCC-State Link** internet site at http://www.fcc.gov/ccb/stats on the World Wide Web. The report can also be downloaded from the **FCC-State Link** computer bulletin board system at (202) 418-0241.

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INTRODUCTION:

Trends in Telephone Service is published by the Industry Analysis Division of the Common Carrier Bureau of the Federal Communications Commission (FCC). We have designed this report to provide answers to some of the most frequently asked questions about the telephone industry -- questions asked by consumers, members of Congress, other government agencies, telecommunications carriers, and members of the business and academic communities. To this end, the report contains summary information about the size, growth, and development of the telephone industry, including data on market shares, minutes of calling, number of lines, and telephone subscribership. The report also provides information about telephone rates and price changes, consumer expenditures for service, access charges, long distance carriers, infrastructure, universal service programs, and international telephone traffic.

Trends in Telephone Service summarizes a variety of information contained in other reports that are published periodically by the Industry Analysis Division. In most cases, these other reports give much more detailed information than that provided here. These reports can be accessed from our internet site, as indicated in the appendix to this report. In addition, to facilitate further information gathering by consumers and others, we have listed additional sources of information in the appendix.

ACCESS CHARGES:

In the 1980s the FCC, in cooperation with a Federal-State Joint Board composed of both federal and state regulators, introduced sweeping changes to the way that interstate telephone services were priced.

As recently as the early 1980s, almost all interstate long distance service continued to be provided by AT&T. AT&T, in turn, charged prices above cost for long distance calls and shared the revenues with local telephone companies through a complicated process of allocating costs and distributing revenues. From AT&T's perspective, this revenue sharing was largely internal because it owned the Bell operating companies, which provided about three-quarters of the nation's local telephone service. The transfer of revenues from long distance service was an important source of revenues to local telephone companies and reduced pressures to raise local monthly rates.

By the early 1980s, more than half of the price of a long distance call was passed back to local telephone companies. Doing so was inefficient -- suppressing the demand for long distance calls and inducing large corporations to arrange private systems that bypassed the public switched network. Moreover, while such revenue sharing arrangements were perhaps sustainable in an industry where one firm monopolized both long distance and local service, they were not compatible with a competitive long distance industry.

The historic method of sharing revenues was replaced by a new system of access charges introduced in mid-1984. Access charges provided a uniform method for local telephone companies to charge for the origination and termination of interstate traffic on their local networks. Access charges had several major elements. Monthly subscriber line charges (SLCs) were introduced to recover a portion of the costs of local telephone lines that had historically been recovered through the prices charged for interstate long distance calls. Currently, at year-end 1997, the SLC is $6.00 monthly for most business lines and $3.50 for most residential lines. Local telephone companies were required to reduce their charges to long distance carriers -- dollar for dollar -- as SLCs were introduced. In addition to SLCs, other access charges, generally charged on a per-minute basis, were instituted to recover other local costs.

The rebalancing of prices between local service and interstate long distance calls during the 1980s had a fundamental impact on the telephone industry as the price of long distance service fell and the volume of long distance calling surged. Average monthly SLCs are shown in Table 1.1, and average per-minute rates charged to long distance carriers are shown in Table 1.2. The per-minute access rates charged by local telephone companies are generally higher for smaller companies. The range of access rates for the last half of 1997 is shown in Table 1.3.

TABLE 1.1

AVERAGE INTERSTATE SUBSCRIBER LINE CHARGE
(Dollars per Month Per Line, Charged to End Users) *

Rates in Effect		Residential and Single-Line Business	Non-Primary Residential	Multiline Business
From	To			
05/26/84	05/31/85	$0.00		$4.99
06/01/85	09/30/85	1.00		4.99
10/01/85	05/31/86	1.00		4.97
06/01/86	12/31/86	2.00		4.97
01/01/87	06/30/87	2.00		5.12
07/01/87	12/31/87	2.60		5.12
01/01/88	11/30/88	2.60		5.01
12/01/88	03/31/89	3.20		5.01
04/01/89	12/31/89	3.50		4.94
01/01/90	06/30/90	3.48		4.84
07/01/90	12/31/90	3.48		4.83
01/01/91	06/30/91	3.48		4.77
07/01/91	11/27/91	3.49		4.74
11/28/91	06/30/92	3.49		4.76
07/01/92	06/30/93	3.49		4.68
07/01/93	06/30/94	3.50		5.37
07/01/94	06/30/95	3.50		5.45
07/01/95	06/30/96	3.50		5.50
07/01/96	06/30/97	3.50		5.53
07/01/97	12/31/97	3.50		5.68
01/01/98	06/30/98	3.50	4.92	6.92

SOURCE: FEDERAL-STATE JOINT BOARD MONITORING REPORT, MAY 1997, AND ANNUAL FILINGS MADE EFFECTIVE JULY 1, 1997 AND JANUARY 1, 1998.

* Each local exchange carrier (LEC) develops its subscriber line charges (SLCs) on the basis of its interstate portion of local loop costs from the customer premise to the nearest central telephone office. This table shows the average (weighted by each company's number of subscriber lines) SLC by category for LECs that file pursuant to price cap regulation and the National Exchange Carrier Association (NECA) pool companies. The primary residential and single-line business customer SLC is capped at (cannot exceed) $3.50, the multiline business SLC is capped at $9.00, and the non-primary residential SLC which was formerly subject to the $3.50 cap is capped at $5.00.

TABLE 1.2

INTERSTATE CHARGES BY LOCAL TELEPHONE COMPANIES TO LONG DISTANCE CARRIERS
(National Average for Premium Service in Cents per Minute) *

Rates in Effect		Interstate Charges for Switched Access Service				
From	To	Carrier Common Line per Originating Minute*	Carrier Common Line per Terminating Minute*	Traffic Sensitive per Switched Minute	Non-Traffic Sensitive per Switched Minute	Total Charge per Conversation Minute
05/26/84	01/14/85	5.24 ¢	5.24 ¢	3.10 ¢	**	17.26 ¢
01/15/85	05/31/85	5.43	5.43	3.10	**	17.66
06/01/85	09/30/85	4.71	4.71	3.10	**	16.17
10/01/85	05/31/86	4.33	4.33	3.10	**	15.38
06/01/86	12/31 86	3.04	4.33	3.10	**	14.00
01/01/87	06/30/87	1.55	4.33	3.10	**	12.41
07/01/87	12/31/87	0.69	4.33	3.10	**	11.49
01/01/88	11/30/88	0.00	4.14	3.10	**	10.56
12/01/88	02/14/89	0.00	3.39	3.00	**	9.60
02/15/89	03/31/89	0.00	3.25	3.00	**	9.46
04/01/89	12/31/89	1.00	1.83	3.00	**	9.11
01/01/90	06/30/90	1.00	1.53	2.50	**	7.78
07/01/90	12/31/90	1.00	1.23	2.50	**	7.48
01/01/91	06/30/91	1.00	1.14	2.40	**	7.18
07/01/91	06/30/92	0.88	1.06	2.40	**	6.97
07/01/92	06/30/93	0.79	0.95	2.40	**	6.76
07/01/93	06/30/94	0.88	1.16	2.20	**	6.66
07/01/94	06/30/95	0.84	1.08	2.10	0.28 ¢	6.89
07/01/95	06/30/96	0.74	0.89	1.96	0.21	6.16
07/01/96	06/30/97	0.72	0.89	1.95	0.17	6.04
07/01/97	12/31/97	0.64	0.84	1.74	0.11	5.26
01/01/98	06/30/98	0.70	0.26	1.34	0.57	4.92

SOURCE: FEDERAL-STATE JOINT BOARD MONITORING REPORT, MAY 1997 AND FILINGS MADE EFFECTIVE JULY 1, 1997 AND JANUARY 1, 1998.

* These rates are the average of price cap and NECA pool companies. Revenues of these companies comprise approximately 95% of the industry total. The rates are weighted averages of the carriers. Carrier common line (CCL) charges are weighted by CCL minutes. The other access charges are weighted by local switching minutes.

** Included with other traffic sensitive charges.

TABLE 1.3
AVERAGE ACCESS RATE PER MINUTE BY CARRIER
(Price-Cap Companies and NECA)

Company *	Rates Effective January 1, 1998				Total Charge per Conversation Minute **	1996 Minutes of Use (Millions)		
	Originating Carrier Common Line	Terminating Carrier Common Line	Switched Traffic Sensitive	Switched Non-Traffic Sensitive		CCL Originating	CCL Terminating	Local Switching
Ameritech	$0.0042	$0.0002	$0.011800	$0.006004	$0.0411	17,976	29,724	47,719
Bell Atlantic	0.0037	0.0000	0.009400	0.004980	0.0334	23,188	43,657	66,989
Bell South	0.0129	0.0025	0.010300	0.005882	0.0495	26,849	40,621	67,941
NYNEX	0.0067	0.0005	0.019800	0.005428	0.0594	20,870	32,812	54,597
Pacific Telesis	0.0001	0.0000	0.009100	0.006736	0.0324	12,028	22,981	36,243
Southwestern	0.0019	0.0000	0.012900	0.006435	0.0416	14,251	24,099	38,736
U S West	0.0006	0.0000	0.012800	0.007354	0.0419	16,746	35,325	52,362
GTE	0.0160	0.0129	0.014800	0.004951	0.0706	17,471	27,200	45,257
Aliant	0.0004	0.0000	0.017000	0.006832	0.0493	232	434	670
Frontier	0.0113	0.0022	0.016500	0.006594	0.0616	825	1,465	2,299
Southern New England	0.0048	0.0000	0.015700	0.004802	0.0473	3,069	4,804	7,882
Sprint Local Tel. Cos.	0.0120	0.0061	0.012900	0.004836	0.0553	8,006	11,983	20,277
Citizens	0.0237	0.0223	0.015400	0.008834	0.0972	1,065	1,251	2,355
Cincinnati Bell	0.0062	0.0002	0.010600	0.004618	0.0380	1,030	1,684	2,717
NECA	0.0100	0.0150	0.042200	0.001800	0.1167	10,887	12,281	12,452
Total Minutes						174,495	290,322	458,497
Average CCL Rates Weighted by Minutes	$0.0070	$0.0026	$0.013400	$0.005700	$0.0492			

SOURCE: FEDERAL-STATE JOINT BOARD MONITORING REPORT, MAY 1997, AND ANNUAL FILINGS EFFECTIVE JANUARY 1, 1998. CCL MINUTES FOR PACIFIC TELESIS AND US WEST ARE FROM 1996 ARMIS 43-01 REPORTS FILED AT THE COMMISSION.

* Rates are the composites of all regions and subsidiaries of each local exchange carrier.

** This column equals 107% of the originating CCL rate + 100% of the terminating CCL rate + 107% of the traffic sensitive (for originating access) + 100% of non-traffic sensitive rates (for terminating access)*2.

CELLULAR TELEPHONE SERVICE:

The Federal Communications Commission licenses cellular telephone companies but does not impose reporting requirements on the cellular industry. The Cellular Telecommunications Industry Association periodically publishes summary information on the industry, a selection of which is shown in Tables 2.1 and 2.2.

The cellular industry has grown dramatically. Table 2.1 shows that there were 92,000 subscribers in 1984, as compared to 49 million as of June 1997. As seen in Table 2.2, the industry's annual revenues rose from less than $1 billion in 1984 to over $20 billion in 1996, and for the first six months of 1997 were approximately $13 billion. The table also shows that the industry employed 97,039 employees as of June 1997, as compared to 1,404 in 1984, and that there was a significant drop in the average monthly bill from $96.83 at the end of 1987 to $43.86 in mid-1997.

TABLE 2.1

CELLULAR TELEPHONE SUBSCRIBERS

		NUMBER OF SYSTEMS	SUBSCRIBERS
1984	DECEMBER	32	91,600
1985	JUNE	65	203,600
	DECEMBER	102	340,213
1986	JUNE	129	500,000
	DECEMBER	166	681,825
1987	JUNE	206	883,778
	DECEMBER	312	1,230,855
1988	JUNE	420	1,608,697
	DECEMBER	517	2,069,441
1989	JUNE	559	2,691,793
	DECEMBER	584	3,508,944
1990	JUNE	592	4,368,686
	DECEMBER	751	5,283,055
1991	JUNE	1,029	6,390,053
	DECEMBER	1,252	7,557,148
1992	JUNE	1,483	8,892,535
	DECEMBER	1,506	11,032,753
1993	JUNE	1,523	13,067,318
	DECEMBER	1,529	16,009,461
1994	JUNE	1,550	19,283,506
	DECEMBER	1,581	24,134,421
1995	JUNE	1,581	28,154,415
	DECEMBER	1,627	33,785,661
1996	JUNE	1,629	38,195,466
	DECEMBER	1,740	44,042,992
1997	JUNE	2,005	48,705,553

SOURCE: CELLULAR TELECOMMUNICATIONS INDUSTRY ASSOCIATION.

TABLE 2.2

CELLULAR TELEPHONE SERVICE: SURVEY RESULTS

		NUMBER OF SYSTEMS RESPONDING	PERCENT OF INDUSTRY SURVEYED	EMPLOYEES	SIX-MONTH REVENUES (THOUSANDS)	AVERAGE MONTHLY BILL
1984	DECEMBER	32	100.0%	1,404	$178,085	
1985	JUNE	65	100.0%	1,697	176,231	
	DECEMBER	101	100.0%	2,727	306,197	
1986	JUNE	122	96.0%	3,556	360,585	
	DECEMBER	160	95.3%	4,334	462,467	
1987	JUNE	192	88.0%	5,656	479,514	
	DECEMBER	297	97.2%	7,147	672,005	$96.83
1988	JUNE	409	99.9%	9,154	886,075	95.00
	DECEMBER	496	99.1%	11,400	1,073,473	98.02
1989	JUNE	513	99.1%	13,719	1,406,463	85.52
	DECEMBER	546	98.8%	15,927	1,934,132	89.30
1990	JUNE	554	98.8%	18,973	2,126,362	83.94
	DECEMBER	663	98.2%	21,382	2,422,458	80.90
1991	JUNE	905	96.4%	25,545	2,653,505	74.56
	DECEMBER	1,005	96.5%	26,327	3,055,017	72.74
1992	JUNE	1,129	96.3%	30,595	3,633,285	68.51
	DECEMBER	1,189	93.4%	34,348	4,189,441	68.68
1993	JUNE	1,110	92.2%	36,501	4,819,259	67.31
	DECEMBER	1,287	92.3%	39,775	6,072,906	61.48
1994	JUNE	1,242	92.7%	45,606	6,519,030	56.65
	DECEMBER	1,371	93.2%	53,902	7,710,890	56.21
1995	JUNE	1,330	93.9%	60,624	8,740,352	52.42
	DECEMBER	1,392	93.0%	68,165	10,331,614	51.00
1996	JUNE	1,346	92.2%	73,365	11,194,247	48.84
	DECEMBER	1,422	92.4%	84,161	12,440,724	47.70
1997	JUNE	1,785	94.9%	97,039	13,134,551	43.86

SOURCE: CELLULAR TELECOMMUNICATIONS INDUSTRY ASSOCIATION.

COMPLAINTS:

Telephone service differs from many other services because consumers don't always know the price or even the vendor of the service they used until well after the service has been rendered. Some companies have taken advantage of this uncertainty by "slamming" consumers (becoming the customers' telephone service provider without their knowledge or consent), using hidden charges, or using other deceptive practices.

When this happens, consumers often file a complaint with the FCC. During 1996, the Consumer Protection Branch of the FCC's Common Carrier Bureau's Enforcement Division processed 35,095 written complaints and inquiries.

The Consumer Protection Branch serves a complaint by issuing an "Official Notice of Informal Complaint" to all companies identified in the complaint that are in the FCC's jurisdiction, or that may assist in the resolution of the complaint. Service of a complaint does not always indicate wrongdoing. Table 3.1 lists the number of complaints served on each of the 83 companies served with 50 or more complaints during 1996.

Revenue information is included for a number of the listed companies. Long distance carriers with revenues over $109 million and incumbent local exchange carriers subject to the reporting requirements of the Commission are required to file public revenue figures. Carriers with less than $109 million in operating revenues are also required to file revenue figures, but these figures are not made public. Where possible, other sources of public information were used to identify a company's revenue.

The complaint ratio for each company is the number of complaints served divided by its total communications-related revenue (measured in millions of dollars). If a company served with more than 100 complaints in 1996 had less than $109 million in revenue and we could not determine its revenue from another public source, we calculated its complaint ratio based on $109 million of revenue. Our $109 million estimate for these carriers protects their privacy, but it also understates their true complaint ratios. Dividing their complaints by their true revenues would result in higher complaint ratios.

Of the 35,095 complaints processed by the Consumer Protection Branch in 1996, 36% involved slamming issues, 13% involved pay-per-call services, and 12% involved operator service provider rates and services. The remaining complaints covered a range of issues including international telephone rates, unsolicited calls or faxes and telemarketing.

TABLE 3.1

COMPANIES SERVED WITH 50 OR MORE COMPLAINTS IN 1996

Company	Complaints per Million Dollars of Revenue	Complaints	Revenue (Millions)	Notes
Local Telephone Companies of the Following Holding Companies				
ALLTEL Corporation	0.08	88	$1,169	(1)
Ameritech Corporation	0.12	1,404	11,615	(1)
Bell Atlantic Corporation	0.18	2,292	12,699	(1)
BellSouth Corporation	0.11	1,640	14,413	(1)
Cincinnati Bell, Inc.	0.09	56	651	(1)
Citizens Utilities Company	0.29	57	198	(1)
GTE Corporation	0.16	2,200	13,336	(1)
NYNEX Corporation	0.25	3,082	12,487	(1)
Pacific Telesis Group	0.27	2,269	8,350	(2)
Southern New England Telecommunications Corporation	0.14	192	1,363	(1)
SBC Communications, Inc.	0.18	1,712	9,631	(2)
United Telephone Company - Sprint Corporation	0.05	269	5,117	(1)
U S WEST, Inc.	0.18	1,756	9,831	(1)
Weighted Ratio: Local Exchange Carriers	0.17			
Carriers, Resellers and Billing Agents				
Absolute Telecommunications, Inc.	1.83	199	109	(3)
American Telecommunications, Inc.		69		
American Telesource International, Inc.	4.83	70	15	(4)
American Telnet, Inc.		79		
AMNEX, Inc.	6.70	785	117	(5)
AT&T Corp.	0.10	3,999	39,264	(6)
Atlas Communications	1.69	184	109	(3)
Billing Information Concepts, Inc.	3.80	4,935	1,300	(4)
Brittan Communications Inc.	2.29	250	109	(3)
Cherry Communications	0.32	112	354	(6)
Cleartel Communications	1.19	130	109	(3)
Coastal Telephone Company		77		
Colorado River Communications		86		
Combined Companies, Inc.		59		
Communication TeleSystems	2.32	454	196	(6)
ConQuest Operator Service		63		
Corporate Services	0.93	101	109	(3)
Crown Communications	1.35	147	109	(3)
E-Tel	1.09	119	109	(3)
Eastern Telecommunications, Inc.	1.56	170	109	(3)
Equal Net Corporation	10.07	612	61	(5)
Excel Telecommunications, Inc.	0.32	352	1,091	(6)
Frontier Communications International	0.35	544	1,563	(6)
Future Telephone Communications	2.28	249	109	(3)
GE Capital Communications	1.08	118	109	(3)
Great Lakes Telecommunications Corporation	1.63	178	109	(3)
Heartline Communications, Inc.	9.02	983	109	(3)
Home Owners Long Distance	1.33	145	109	(3)

TABLE 3.1

COMPANIES SERVED WITH 50 OR MORE COMPLAINTS IN 1998 (CONT'D)

Company	Complaints per Million Dollars of Revenue	Complaints	Revenue (Millions)	Notes
Integrated Tele Services	1.38	150	$109	(3)
Integretel	4.04	1,565	388	(4)
Intellicall Operator Services	0.65	50	77	(8)
Inter Continental Telephone	1.10	120	109	(3)
International Telemedia Associates, Inc.		978		(7)
International Telnet		66		
JTK Technologies		75		
L.D. Services, Inc.	2.76	301	109	(3)
LCI International Worldwide Telecommunications	0.23	252	1,103	(6)
LDM Systems Inc.	8.63	246	29	(9)
Long Distance Services (Virginia)	7.26	791	109	(3)
Long Distance Services, Inc. (Michigan)	4.14	451	109	(3)
Matrix Telecom	1.38	150	109	(3)
MCI Telecommunications Corporation	0.17	2,815	16,372	(6)
Midcom Communications, Inc.	0.91	136	149	(6)
National Accounts Long Distance, Inc.	3.23	352	109	(3)
National Telecom, USA	1.37	149	109	(3)
National Telephone And Communications, Inc.		54		
Nationwide Long Distance, Inc.	3.55	387	109	(3)
Network Service Center	1.73	189	109	(3)
OAN Services, Inc.	2.13	1,396	655	(4)
Omega Telecommunications		63		
One -2- One Communications		88		
Operator Communications, Inc.	10.16	1,107	109	(3)
OPTICOM Operator Services aka One Call	5.61	639	114	(6)
Pantel Communications		67		
Pilgrim Telephone, Inc.	2.43	265	109	(3)
Polar Communications Corporation		89		
Quest Communications	1.26	137	109	(3)
Sprint Communications Company, L. P.	0.16	1,250	7,944	(6)
TELCAM	8.22	83	10	(9)
Telco Communications Group	0.59	251	429	(6)
Telephone Billing Service		392		(7)
Texas Amtel	1.04	113	109	(3)
The Furst Group	3.56	388	109	(3)
Trans National Telephone	2.29	250	109	(3)
USLD Communications	1.04	196	188	(6)
US Teleconnect	2.22	242	109	(3)
VarTec Telecom, Inc.	0.23	108	470	(6)
Winstar Gateway Network	29.12	990	34	(8)
WKP Communications		66		
WorldCom, Inc.	0.22	979	4,485	(6)
Weighted Ratio: Non-Local Exchange Carriers	0.39			

Source: Industry Analysis Division and Enforcement Division, *Common Carrier Scorecard.*

SOURCES OF REVENUE DATA FOR TABLE 3.1

(1) United States Telephone Association, Holding Company Report 1997
(2 *Statistics of Communications Common Carriers*. Table 2.1.
(3) Carrier's revenue was not publicly reported. Carriers with more than $109 million in telecommunications revenue were required to publicly report their revenue. To calculate a ratio, $109 million was assumed if the carrier had more than 100 complaints. As a result, the carrier's reported complaint ratio will be lower than its true complaint ratio.
(4) Calendar year 1996 revenues were provided by a company representative.
(5) Total 1996 revenue from SEC forms 10-K and/or 10-Q.
(6) *Long Distance Market Shares, Second Quarter 1997*, released October 10, 1997, Table 5.
(7) Company identifies itself as a billing agent, but did not disclose its revenues to the FCC.
(8) 1996 telecommunications revenue from SEC forms 10-K and/or 10-Q.
(9) Dun & Bradstreet report.

CONSUMER EXPENDITURES:

The Bureau of Labor Statistics conducts surveys of consumer expenditures, in part, to develop weights for CPI indexes. Table 4.1 shows expenditures for telephone service for all consumer units.

About 2% of all consumer expenditures are devoted to telephone service. This percentage has remained virtually unchanged over the past 15 years, despite major changes in the telephone industry and in telephone usage. Average annual expenditures on telephone service increased from $325 per household in 1980 to $708 in 1995.

The information on average telephone expenditures can be used to estimate the average monthly bills for households with telephone service. This average was about $62 per month for 1995. Monthly bills have increased significantly since 1980, due partly to higher local rates, but primarily to more long distance calling. Residential toll calling grew by about 10% a year between 1985 and 1989 -- a period when toll rates declined dramatically. The average American household now spends more on long distance service than on basic local service, reflecting the growth in long distance calling since the AT&T divestiture in 1984.

TABLE 4.1

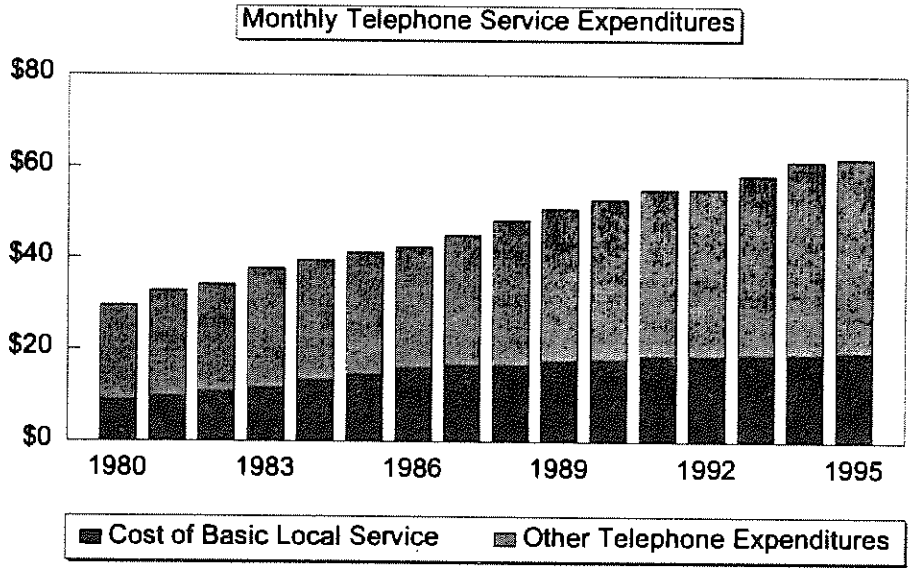
TELEPHONE SERVICE EXPENDITURES

Year	Annual Expenditures (Average for All Households)		Monthly Expenditures (Households with Telephone Service)		
	Telephone Expenditures	Percentage of Total Expenditures	Basic Local Service Charge *	Toll and Other Telephone Expenditures **	Total Telephone Expenditures
1980	$325	1.9 %	$8.74	$21	$30
1981	360	2.1	9.71	23	33
1982	375	2.1	10.75	23	34
1983	415	2.1	11.58	26	38
1984	435	2.0	13.35	26	40
1985	455	1.9	14.54	27	41
1986	471	2.0	16.13	26	43
1987	499	2.0	16.66	28	45
1988	537	2.1	16.57	32	48
1989	567	2.0	17.53	33	51
1990	592	2.1	17.79	35	53
1991	618	2.1	18.66	36	55
1992	623	2.1	18.70	37	55
1993	658	2.1	18.94	39	58
1994	690	2.2	19.07	42	61
1995	708	2.2	19.49	42	62

Source: Bureau of Labor Statistics.

* Monthly service charges for unlimited local service, taxes, and subscriber line charges.

** Calculated as total monthly bill minus the cost of basic local service. Figures may not add due to rounding. The "Toll and Other" category is primarily toll, but also includes charges for equipment, additional access lines, connection, touch-tone, call waiting, 900 service, directory listings, etc.



EMPLOYMENT:

The Bureau of Labor Statistics (BLS) publishes monthly data regarding the total number of employed workers in the communications industry. Specifically, BLS compiles employment statistics for the entire telephone communications industry (Standard Industrial Classification (SIC) 481) and for a subset of this industry, telephone communications minus radiotelephone (SIC 4813). The difference between these two figures yields the number of employees in the radiotelephone industry (SIC 4812).

SIC 4813 includes establishments primarily engaged in furnishing telephone voice and data communications, except radiotelephone and telephone answering services. SIC 4812 includes establishments primarily engaged in providing two-way radiotelephone communication services, such as cellular telephone service. It also includes telephone paging and beeper services. Neither of these categories includes employees from establishments primarily engaged in furnishing telephone answering services, manufacturing equipment, or engineering and research services.

Table 5.1 and the associated graph show the annual average employment figures in the telephone communications industry separately for SIC 4812 and SIC 4813 from 1951 to 1996. Since 1990, employment in the telephone communications industry has grown modestly. Most of the growth in employment over this period is the result of substantial increases in the radiotelephone (cellular, beepers, paging, etc.) industry, which grew at an annual average growth rate of approximately 20%.

BLS also calculates an annual telecommunications industry labor productivity index. The BLS index of labor productivity relates output to the employee hours expended in producing that output. This index, presented in Table 5.2, rose an average 5.8% per year from 1951-1995, with 1995 being the most recent data available. This average labor productivity factor is higher than the average in other industries (typically somewhere around 3 to 4%). This higher than average annual growth rate may be the result of telephone companies utilizing more efficient, advanced technology and increases in human capital. Table 5.2 and the associated graph illustrate the rising trend in telecommunications labor productivity since 1951.

TABLE 5.1

ANNUAL AVERAGE NUMBER OF EMPLOYEES IN THE TELEPHONE COMMUNICATIONS INDUSTRY (in thousands)

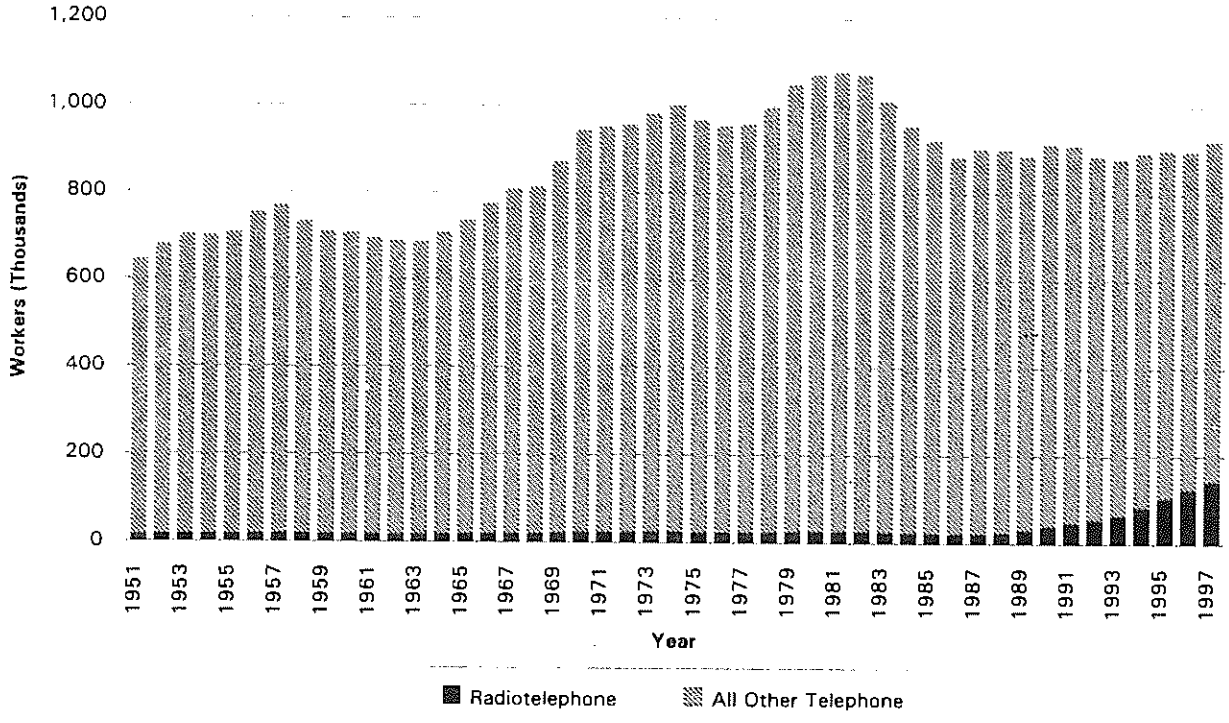
Year	Radiotelephone	All Other Telephone	Year	Radiotelephone	All Other Telephone	Year	Radiotelephone	All Other Telephone
1951	15.2	628.8	1967	19.0	787.5	1983 1/	23.8	986.5
1952	16.0	662.4	1968	19.2	793.2	1984	22.4	931.0
1953	16.6	685.6	1969	20.5	849.5	1985	21.6	899.1
1954	16.5	682.3	1970	22.2	919.9	1986 1/	20.7	862.7
1955	16.6	690.1	1971	22.4	929.2	1987	21.1	880.8
1956	17.7	733.5	1972	22.5	933.6	1988	23.2	877.9
1957	18.1	750.1	1973	23.2	958.0	1989 1/	29.9	856.0
1958	17.2	714.9	1974	23.6	977.2	1990	38.2	874.8
1959	16.7	690.4	1975	22.8	943.8	1991	45.6	863.6
1960	16.6	689.4	1976	22.5	930.7	1992	53.1	832.1
1961	16.3	677.0	1977	22.6	934.7	1993	63.1	815.9
1962	16.2	671.3	1978	23.4	971.4	1994	81.0	812.4
1963	16.2	669.3	1979	24.8	1023.4	1995 2/	102.5	797.2
1964	16.6	689.5	1980	25.3	1046.9	1996 2/	122.8	774.9
1965	17.3	717.9	1981	25.3	1052.0	1997 3/	141.3	780.4
1966	18.3	755.1	1982	25.3	1046.5			

1/ Due to Bell operating company employee strikes in 1983, 1986, and 1989, which lasted one month each, the reported annual average number of workers for those particular years is an average of the eleven months in which workers did not strike.

2/ The 1996 and 1997 figures include recent Bureau of Labor Statistic revisions.

3/ The 1997 figures are based on preliminary figures covering January through November of 1997.

Annual Average Number of Employees in the Telephone Communications Industry From 1950 - 1996



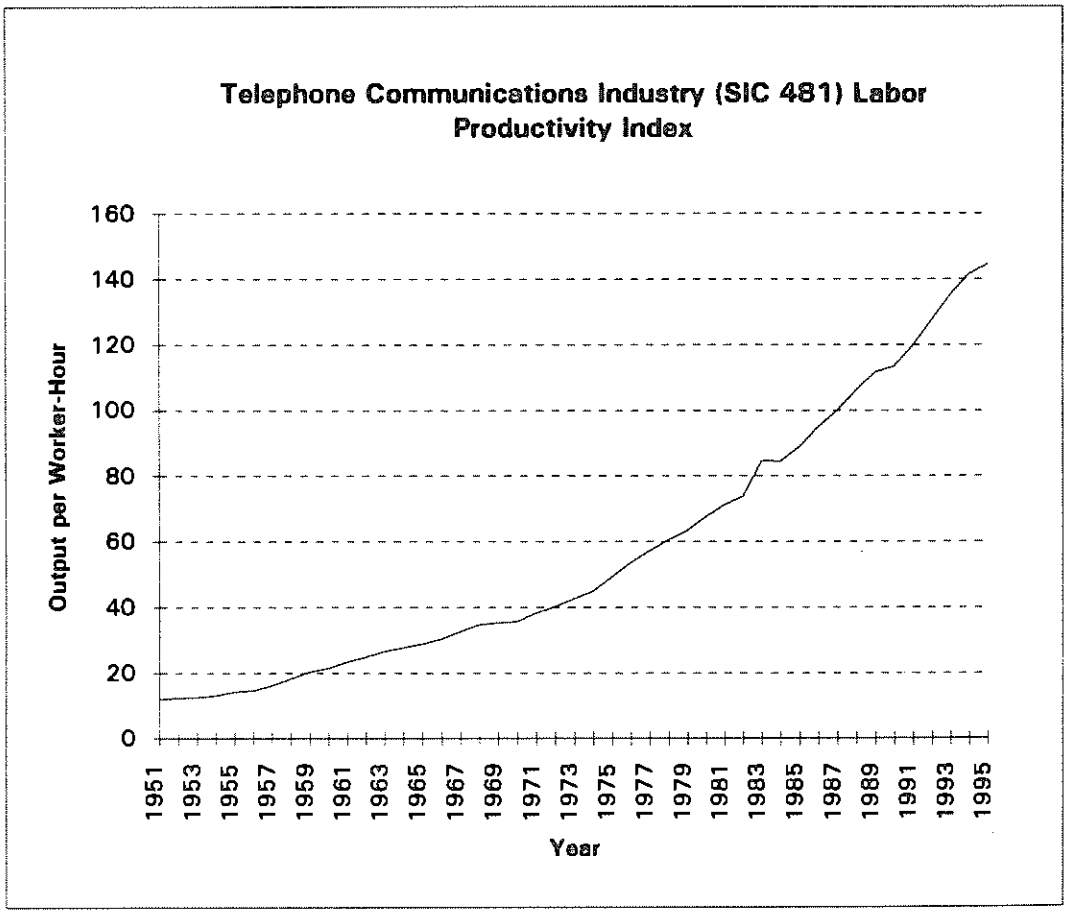
Source: Bureau of Labor Statistics.

TABLE 5.2

LABOR PRODUCTIVITY INDEX FOR THE TELEPHONE COMMUNICATIONS INDUSTRY MEASURED IN OUTPUT PER HOUR (OPH)

(Base year 1987 = 100)

Year	OPH Index	Year	OPH Index	Year	OPH Index
1951	12.0	1966	30.3	1981	71.1
1952	12.4	1967	32.6	1982	73.8
1953	12.6	1968	34.7	1983	84.6
1954	13.2	1969	35.3	1984	84.5
1955	14.3	1970	35.6	1985	88.9
1956	14.6	1971	38.3	1986	95.0
1957	16.1	1972	40.1	1987	100.0
1958	18.2	1973	42.7	1988	106.2
1959	20.3	1974	45.0	1989	111.6
1960	21.4	1975	49.3	1990	113.3
1961	23.3	1976	53.6	1991	119.8
1962	24.8	1977	57.3	1992	127.7
1963	26.6	1978	60.6	1993	135.2
1964	27.8	1979	63.5	1994	141.6
1965	28.9	1980	67.6	1995	144.6



Source: Bureau of Labor Statistics.

EQUAL ACCESS:

The BOCs serve slightly more than 75% of the nation's telephone lines and are obligated to offer equal access (i.e., "1-plus" dialing) to all long distance carriers. The BOCs have converted almost all of their lines to equal access, although there are a few lines at smaller, older offices where equal access is being provided as the offices are converted to more modern equipment. Independent telephone companies, which serve almost 25% of the nation's lines, have converted almost 98% of their lines.

Table 6.1 shows the number of telephone lines and the percentage of these lines converted to equal access since divestiture. BOCs converted almost half of their lines between December 1984 and December 1985, and an additional 40% in the next three years. Including independents, the United States reached 99% equal access conversion by mid-1996.

Table 6.2 shows the number of central office wire centers in each state that had been converted to equal access as of November 1, 1997. The table is derived from NECA's Tariff 4 database, which is updated by local exchange carriers. In some cases, there is a lag between an office converting to equal access and that change being reflected in the database. Thus, in some cases, the data continue to show some offices not yet converted to equal access even in states where equal access is reported to be available to all customers. Because the non-equal access offices tend to be smaller offices, the percentage of converted lines is significantly greater than the percentage of converted offices.

TABLE 6.1
DEVELOPMENT OF EQUAL ACCESS
(PRESUBSCRIBED ACCESS LINES IN THOUSANDS)

	BELL COMPANIES		OTHER COMPANIES		TOTAL	
	LINES	% EQUAL ACCESS	LINES	% EQUAL ACCESS	LINES	% EQUAL ACCESS
1984 JUNE	84,321	0	26,278	0.00	110,599	0.0
DECEMBER	85,457	4	26,633	1.00	112,090	3.1
1985 JUNE	86,609	27	26,992	2.48	113,601	21.1
DECEMBER	87,777	51	27,355	3.45	115,132	39.6
1986 JUNE	88,960	62	27,724	13.64	116,684	50.4
DECEMBER	90,159	74	28,098	27.99	118,257	63.3
1987 JUNE	91,374	78	28,477	37.68	119,851	68.2
DECEMBER	92,606	85	28,860	47.77	121,467	75.9
1988 JUNE	93,520	87	29,145	51.58	122,665	78.9
DECEMBER	94,813	91	29,548	56.32	124,361	83.0
1989 JUNE	96,632	93	30,115	59.59	126,747	85.4
DECEMBER	98,214	94	30,268	60.75	128,482	86.2
1990 JUNE	99,815	95	30,962	63.77	130,777	87.6
DECEMBER	100,993	97	31,416	70.63	132,409	90.6
1991 JUNE	102,027	97	31,870	73.45	133,896	91.7
DECEMBER	103,102	98	32,185	77.52	135,287	93.4
1992 JUNE	104,060	99	32,643	80.67	136,704	94.5
DECEMBER	105,744	99	32,981	84.50	138,725	95.8
1993 JUNE	107,084	99	33,531	86.64	140,615	96.3
DECEMBER	108,847	100	33,963	89.12	142,809	97.1
1994 JUNE	110,583	100	34,646	90.60	145,229	97.6
DECEMBER	113,092	100	35,387	92.20	148,479	98.0
1995 JUNE	114,827	100	35,518	94.40	150,335	98.6
DECEMBER	116,344	100	36,258	95.70	152,602	98.9
1996 JUNE	119,119	100	36,883	96.80	156,002	99.2
DECEMBER	120,910	100 *	37,763	97.60	158,672	99.4

SOURCE: NATIONAL EXCHANGE CARRIER ASSOCIATION.

*99.99% OF BELL LINES HAVE BEEN CONVERTED TO EQUAL ACCESS.

TABLE 6.2

CENTRAL OFFICES CONVERTED TO EQUAL ACCESS

(as of November 1, 1997)

	Bell Company Central Offices			Other Central Offices			Bell & Other Central Offices	
	Equal Access	Non-Equal Access	% Equal Access	Equal Access	Non-Equal Access	% Equal Access	Total Offices	% Equal Access
Alabama	149	0	100.0 %	209	10	95.4 %	368	97.3 %
Alaska	0	0	N.A.	40	215	15.7	255	15.7
Arizona	156	0	100.0	78	29	72.9	263	89.0
Arkansas	144	0	100.0	240	36	87.0	420	91.4
California	715	0	100.0	386	14	96.5	1115	98.7
Colorado	187	2	98.9	94	24	79.7	307	91.5
Connecticut	1	0	100.0	142	0	100.0	143	100.0
Delaware	33	0	100.0	0	0	N.A.	33	100.0
District of Columbia	37	0	100.0	0	0	N.A.	37	100.0
Florida	213	0	100.0	275	17	94.2	505	96.6
Georgia	253	0	100.0	236	14	94.4	503	97.2
Guam	0	0	N.A.	16	0	100.0	16	100.0
Hawaii	0	0	N.A.	90	12	88.2	102	88.2
Idaho	83	0	100.0	102	16	86.4	201	92.0
Illinois	260	54	82.8	671	78	89.6	1063	87.6
Indiana	169	5	97.1	395	23	94.5	592	95.3
Iowa	152	0	100.0	666	19	97.2	837	97.7
Kansas	186	0	100.0	380	37	91.1	603	93.9
Kentucky	180	0	100.0	201	18	91.8	399	95.5
Louisiana	234	0	100.0	91	14	86.7	339	95.9
Maine	145	1	99.3	112	9	92.6	267	96.3
Maryland	221	0	100.0	1	0	100.0	222	100.0
Massachusetts	283	2	99.3	3	0	100.0	288	99.3
Michigan	329	30	91.6	332	42	88.8	733	90.2
Minnesota	193	0	100.0	535	22	96.1	750	97.1
Mississippi	208	0	100.0	51	12	81.0	271	95.6
Missouri	268	0	100.0	337	150	69.2	755	80.1
Montana	81	0	100.0	149	56	72.7	286	80.4
Nebraska	78	0	100.0	350	48	87.9	476	89.9
Nevada	22	28	44.0	53	21	71.6	124	60.5
New Hampshire	126	1	99.2	27	2	93.1	156	98.1
New Jersey	217	0	100.0	27	1	96.4	245	99.6
New Mexico	72	0	100.0	71	52	57.7	195	73.3
New York	591	1	99.8	299	18	94.3	909	97.9
North Carolina	144	0	100.0	349	25	93.3	518	95.2
North Dakota	49	0	100.0	143	109	56.7	301	63.8
Ohio	237	17	93.3	523	91	85.2	868	87.6
Oklahoma	236	0	100.0	285	37	88.5	558	93.4
Oregon	97	0	100.0	212	17	92.6	326	94.8
Pennsylvania	407	0	100.0	404	50	89.0	861	94.2
Puerto Rico	0	0	N.A.	89	0	100.0	89	100.0
Rhode Island	30	0	100.0	0	0	N.A.	30	100.0
South Carolina	119	0	100.0	158	2	98.8	279	99.3
South Dakota	50	0	100.0	200	16	92.6	266	94.0
Tennessee	204	0	100.0	148	33	81.8	385	91.4
Texas	660	1	99.8	941	39	96.0	1641	97.6
Utah	82	0	100.0	51	37	58.0	170	78.2
Vermont	92	2	97.9	37	7	84.1	138	93.5
Virgin Islands	0	0	N.A.	0	6	0.0	6	0.0
Virginia	233	0	100.0	246	7	97.2	486	98.6
Washington	143	0	100.0	259	10	96.3	412	97.6
West Virginia	150	0	100.0	79	10	88.8	239	95.8
Wisconsin	139	1	99.3	506	2	99.6	648	99.5
Wyoming	30	0	100.0	29	28	50.9	87	67.8
Total United States	9,088	145	98.4 %	11,318	1,535	88.1 %	22,086	92.4 %

* The information in this table is based on the NECA FCC Tariff No. 4 database. Some companies do not report information on their remote switches in Tariff No. 4. As a result, central office counts may be lower than reported in other sources.

INTERNATIONAL TELEPHONE SERVICE:

International telecommunications has become an increasingly important segment of the telecommunications market. International telephone calling -- propelled by technological innovation, increased international trade and travel, and stable or declining international telephone rates -- has skyrocketed. The number of calls increased from 200 million in 1980 to 3.5 billion in 1996. In 1996, Americans spent about $14 billion on international calls. International private line revenues have also increased since 1980, but telex and telegraph services declined substantially over the same period. These trends are shown in Table 7.1.

U.S. and foreign carriers compensate each other when one carries traffic that the other bills. The number of calls billed in the United States increased at a faster pace than calls billed in foreign countries, contributing to rapid increases in net settlement payments to foreign carriers. These net payments from the United States to other countries reached $5.6 billion in 1996. On average, carriers billed $.74 per minute for international calls in 1996 and paid $.43 per billed minute in settlements. Trends in settlement payments are shown in Table 7.2. On average, for all traffic, carriers retained $.30 for each international minute that they handled in 1996.

International traffic data is available on a country-by-country basis. Table 7.3 summarizes traffic by region of the world. Five markets -- Canada, Mexico, the United Kingdom, Germany, and Japan -- currently account for about half of the international calls billed in the United States.

Since 1985, when MCI first entered the market in competition with AT&T, numerous carriers have begun to provide international service. Forty-seven carriers provided international telecommunications service in 1996 by using their own facilities or lines leased from other carriers. These carriers billed $15 billion for international services, of which $14 billion was for telephone service. Table 7.4 shows the U.S.-billed revenues for each of the 47 carriers. Together, AT&T, MCI, and Sprint account for 95% of the facilities-based international service billed in the United States.

In addition to the 42 carriers that owned or leased facilities, about 300 carriers reported the resale of international message telephone service. These carriers reported $3.5 billion of resale revenue in 1996. The revenues for the fifty largest resellers are shown in Table 7.5.

TABLE 7.1

INTERNATIONAL SERVICE FROM UNITED STATES TO FOREIGN POINTS
(Minute, message, and revenue amounts shown in millions)

	Telephone Service					Other Services			
			Billed Revenue			Billed Revenue			
	Minutes	Messages	Total	Per minute *	Per call	Telex	Telegraph	Private Line	Misc.
1980	1,569	199	$2,097	$1.34	$10.53	$325	$63	$115	
1981	1,857	233	2,239	1.21	9.61	350	62	126	
1982	2,187	274	2,382	1.09	8.70	363	56	138	
1983	2,650	322	2,876	1.09	8.92	379	54	154	
1984	3,037	387	3,197	1.05	8.71	384	46	156	
1985	3,350	411	3,435	1.03	8.37	415	45	172	
1986	3,917	482	3,891	0.99	8.07	390	42	175	
1987	4,460	570	4,559	1.02	8.00	360	35	191	
1988	5,190	667	5,507	1.06	8.02	310	30	194	
1989	6,109	835	6,517	1.07	7.80	243	27	209	
1990	7,215	984	7,628	1.06	7.75	186	24	201	
1991	8,966	1,371	9,096	1.01	6.63	200	15	303	$23
1992	10,156	1,643	10,179	1.00	6.20	155	16	313	24
1993	11,393	1,926	11,353	1.00	5.89	135	12	365	23
1994	13,393	2,313	12,255	0.92	5.30	123	12	432	55
1995	15,837	2,821	13,990	0.88	4.96	119	6	432	55
1996	19,119	3,485	14,079	0.74	4.04	119	5	649	26

TABLE 7.2

INTERNATIONAL TELEPHONE SERVICE SETTLEMENTS
(Revenue amounts shown in millions)

	Billed Revenue	Owed to Foreign Carriers	Retained Revenue	Due from Foreign Carriers	Net Settlements	Net Revenue	Average per Minute		
							Settlement Owed for U.S. Billed Calls	Settlement Due for Foreign Billed Calls	Net Revenue All Traffic
1980	$2,097	$1,063	$1,034	$716	($347)	$1,750	$0.68	$0.62	$0.64
1981	2,239	1,330	910	799	(531)	1,708	0.72	0.56	0.52
1982	2,382	1,674	708	961	(712)	1,670	0.77	0.60	0.44
1983	2,876	2,036	841	1,086	(950)	1,926	0.77	0.60	0.43
1984	3,197	2,269	928	1,096	(1,203)	1,994	0.75	0.54	0.40
1985	3,435	2,369	1,066	1,239	(1,130)	2,305	0.71	0.55	0.41
1986	3,891	2,802	1,089	1,387	(1,414)	2,476	0.72	0.56	0.39
1987	4,559	3,309	1,250	1,634	(1,675)	2,884	0.74	0.61	0.39
1988	5,507	3,868	1,640	1,840	(2,028)	3,480	0.75	0.62	0.41
1989	6,517	4,513	2,004	2,115	(2,398)	4,119	0.74	0.61	0.42
1990	7,628	5,079	2,547	2,317	(2,762)	4,863	0.70	0.60	0.42
1991	9,096	5,792	3,304	2,493 **	(3,298)	5,798	0.64	0.47	0.42
1992	10,179	5,945	4,234	2,601 **	(3,344)	6,835	0.59	0.43	0.43
1993	11,353	6,327	5,027	2,678 **	(3,649)	7,704	0.56	0.39	0.44
1994	12,255	6,947	5,308	2,656 **	(4,289)	7,966	0.52	0.35	0.39
1995	13,990	7,559	6,432	2,623 **	(4,936)	9,054	0.48	0.29	0.39
1996	14,079	8,206	5,873	2,560 **	(5,645)	8,434	0.43	0.27	0.30

Sources: Industry Analysis Division, *Trends in the International Telecommunications Industry* and *Section 43.61 International Telecommunications Data.*

* Billed revenue per minute for international service differs in Table 14.3 and Table 7.1. Data in Table 14.3 is based on traffic to foreign points for all U.S. carriers serving all U.S. points. Data for Table 7.1 is based on traffic for domestic U.S. points only. The domestic U.S. includes Puerto Rico but excludes American Samoa, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands.

** Includes transiting traffic.

TABLE 7.3

INTERNATIONAL MESSAGE TELEPHONE SERVICE FOR 1996

(Figures rounded to the nearest million)

International Point	Traffic Billed in the United States					Traffic Billed in Foreign Countries				Total U.S. Carrier
						Originating or Terminating in the United States			TRANSITING	
	Number of Messages	Number of Minutes	U.S. Carrier Revenue	Owed to Foreign Carriers	Retained Revenue	Number of Messages	Number of Minutes	Due from Foreign Carriers	Retained Revenue	Retained Revenue
Western Europe	787	4,073	$2,719	$856	$1,862	509	1,970	$433	$32	$2,327
North and Central America	1,207	6,399	3,388	1,879	1,510	887	3,876	614	7	2,130
Asia	659	3,756	3,448	2,437	1,011	247	1,015	607	31	1,649
South America	294	1,583	1,346	980	366	94	388	240	11	617
Caribbean	199	1,237	1,045	627	418	86	363	170	5	593
Eastern Europe	77	535	549	335	215	29	125	84	7	306
Oceania	78	411	353	123	231	43	216	59	10	301
Middle East	103	655	692	569	123	41	178	150	20	293
Africa	90	522	563	382	181	25	88	62	19	262
Other Regions	2	4	30	27	4	1	5	4	*	8
Total for Foreign Points	3,485	19,119	14,079	8,206	5,873	1,957	8,195	2,418	142	8,433
Total for U.S. Points	10	57	56	9	47	4	28	5	1	53
Total for all International Points	3,495	19,176	14,135	8,215	5,920	1,962	8,223	2,424	143	8,486

Source: Industry Analysis Division, *Section 43.61 International Telecommunications Data.*

The region totals include all traffic reported by carriers serving Alaska, Hawaii, Puerto Rico, and the conterminous United States, and include traffic between these points and offshore U.S. points such as Guam and the U.S. Virgin Islands. This traffic is shown separately as the total for U.S. points, and also is included in the total for all international points.

U.S. Billed Minutes by Country

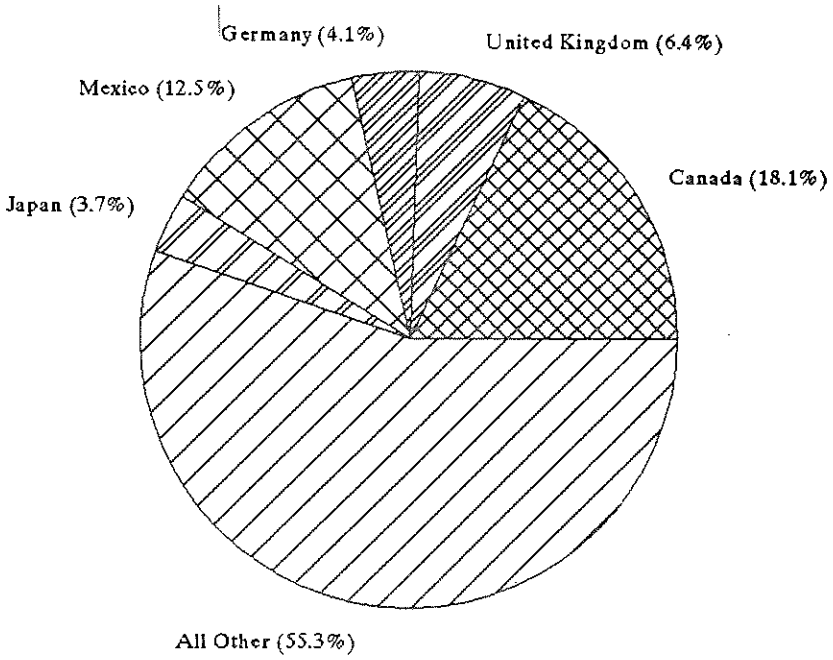


TABLE 7.4

U.S. BILLED REVENUES OF FACILITIES–BASED AND FACILITIES–RESALE CARRIERS IN 1996 *

(Revenue amounts shown in millions)

	International Service					Total International Billed Revenue
	Telephone	Telex	Telegraph	Private Line	Miscellaneous	
ACC Global Corp.	2					2
American Samoa Office of Communications	3					3
AmericaTel Corporation				2		2
Asian American Telcom	**			**	**	**
AT&T Corp.	8,559	73	3	261	5	8,901
BT North America, Inc.	**			5		5
Cable & Wireless, Inc.	12			5		17
Communication TeleSystems International	17					17
Comsat Corporation				6	2	8
Cyberlink, Inc				**		**
DirectNet Telecommunication	1			4		5
Esprit Telecom (U.K.), Ltd.	7					7
FaciliCom International, L.L.C.	4					4
Fedex International Transmission Corporation				**		**
fONOROLA Corporation	20					20
Geocomm Corporation				1		1
Golden Pages (Jersey) Ltd.	21					21
GTE Corporation	27			2	**	30
Harris Corporation	2					2
Impsat USA, Inc.				1		1
Intermedia Communications Inc.					**	**
iT&E Overseas, Inc.	40			1		41
Local Communications Network, Inc.				5		5
MCI / Western Union International	3,550	36	2	190	1	3,778
Melbourne International Comm., Ltd.	1			1		2
Micronesian Telecommunications Corp.	17	**		1		18
MicroNet, Inc.					1	1
Mobile Satellite Communications, Inc.				2	**	2
Northern Communications, Inc.				**		**
Overseas Telecommunications, Inc.				2		2
Pacific Gateway Exchange, Inc.	34			**		35
PanAmSat Comm. Carrier Services, Inc.				**		**
PSO, Inc. d/b/a Canal Uno					**	**
RSL COM U.S.A., Inc	21			1		22
Satellite Communication Systems, Inc.	**			3		4
Sprint	1,493	3		60	15	1,571
Startec Inc.	7					7
T–One Communications Corporation	1					1
Telecomunicaciones Ultramarinas–Puerto Rico				2		2
Telefonica Larga Distancia, Inc.	19			**		19
TerraLink Communications, Ltd.	2					2
The Associated Group, Inc.				**		**
The Williams Companies, Inc./VYVX, Inc.					2	2
TresCom International, Inc.	4			**		4
USFI, INC.	**					**
Viatel Global Communications/YYC Corp.	6					6
WorldCom, Inc. d/b/a LDDS WorldCom	364	7	**	105		475
Total for the 47 companies shown ***	$14,233	$119	$5	$658	$26	$15,043

* Totals exclude pure resale services.

** Represents revenues greater than $0 but less than $500,000.

*** Table 7.4 includes revenue for American Samoa, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands. Other tables in this section exclude this traffic. U.S. carriers billed $165 million for telephone service for these points and $14,879 million for domestic U.S. points. These figures add to the $15,043 total shown in this table.

TABLE 7.5

TOP PROVIDERS OF PURE RESALE INTERNATIONAL MTS IN 1996

	Number of Messages	Number of Minutes	U.S. Carrier Revenue	Percent of total IMTS Resale Revenue
WorldCom, Inc. d/b/a LDDS WorldCom	182,997,850	817,597,796	411,320,545	11.900%
Cable & Wireless	169,151,643	690,269,622	298,022,074	8.622%
Cherry Communications Incorporated	141,807,214	673,698,496	273,433,852	7.911%
USA Global Link, Inc.	106,162,096	360,951,126	241,640,921	6.991%
Star Telecommunications, Inc.	100,435,628	479,681,377	205,693,423	5.951%
Telegroup, Inc.	72,750,490	317,192,135	179,809,874	5.202%
Frontier Corporation	52,185,195	202,471,860	164,457,370	4.758%
LCI International Telecom Corp.	77,176,500	308,706,000	154,669,000	4.475%
Pacific Gateway Exchange, Inc.	89,287,141	397,227,557	127,021,971	3.675%
WorldxChange Communications	86,574,413	423,697,204	126,103,737	3.648%
TresCom International, Inc.	46,302,529	227,128,259	110,659,199	3.201%
Excel Telecommunications, Inc.	12,442,140	100,607,163	90,713,526	2.624%
Sprint	18,522,100	97,141,128	87,178,428	2.522%
PhoneTime, Inc.	40,435,049	222,392,771	81,462,472	2.357%
ACC Long Distance Corp.	25,999,637	119,644,604	44,170,562	1.278%
MCI International, Inc.	7,641,031	45,958,200	42,139,500	1.219%
Viatel Global Communications/YYC Corp.	12,024,160	43,809,687	37,818,053	1.094%
USFI, Inc.	18,250,939	73,710,510	36,499,000	1.058%
National Telephone & Communications, Inc.	5,102,985	39,758,763	36,196,033	1.047%
Capital Network System, Inc.	1,342,710	6,321,121	30,151,747	0.872%
Telco Communications Group, Inc.	3,228,471	25,100,526	26,736,068	0.773%
Access Authority, Inc.	10,002,732	93,872,807	25,473,244	0.737%
STARTEC Inc.	7,057,698	35,288,491	24,349,059	0.704%
Gateway Worldwide Communications Inc.	3,929,091	17,433,461	24,073,006	0.696%
RSL COM U.S.A., Inc.	8,419,604	56,057,178	23,823,225	0.689%
T-One Communications Corporation	15,724,708	62,431,009	22,334,538	0.646%
VarTec Telecom, Inc.	3,405,423	26,730,141	19,408,822	0.562%
Brittan Communications International Corporation (BCI)	2,003,177	14,799,236	19,072,823	0.552%
URSUS Telecom Corporation	3,865,017	14,303,909	18,863,956	0.546%
GTE	3,614,601	12,820,759	17,568,802	0.508%
MATRIX Telecom	2,886,090	18,699,423	16,965,361	0.491%
Cyberlink, Inc.	6,986,424	34,383,850	16,642,552	0.481%
Primus Telecommunications, Inc.	5,708,859	28,132,085	13,871,137	0.401%
Call Concepts Corporation	5,704,913	26,217,132	13,434,065	0.389%
FaxSav Incorporated	9,174,204	15,536,638	12,970,988	0.375%
Working Assets Funding Services, Inc.	1,693,301	13,984,085	12,569,936	0.364%
FaciliCom International, L.L.C.	3,197,736	21,128,492	12,370,474	0.358%
Tel-Save, Inc.	3,454,233	12,253,035	12,138,956	0.351%
U.S. Long Distance Inc.	2,856,352	11,095,030	12,113,737	0.350%
Telefonica Larga Distancia (TLD)	981,593	6,590,495	11,706,963	0.339%
Qwest Communications Corporation	4,831,447	22,377,945	11,374,707	0.329%
IMTS, Inc. d/b/a Telenational Communications	4,031,329	17,951,686	11,023,580	0.319%
Home Owners Long Distance, Inc. (HOLD)	6,579,139	39,845,318	10,770,592	0.312%
National Telecommunications of Florida	4,661,037	15,975,016	9,673,261	0.280%
Coast International Telecommunications	3,160,021	14,082,054	9,396,834	0.272%
Rapid Link, USA	3,497,829	42,473,409	8,825,420	0.255%
Intermedia Communications Inc.	5,072,021	17,752,072	8,609,755	0.249%
Prairie Systems, Inc.	8,059,269	17,940,521	8,273,485	0.239%
General Communications Corp. (GCI)	1,023,019	7,372,316	8,220,648	0.238%
TeleData International, Inc.	1,952,981	8,304,360	8,121,094	0.235%
Carriers not Shown Above	95,315,010	383,882,047	$226,625,409	6.6%
Total	1,508,668,779	6,782,779,905	$3,456,563,784	

Source: Industry Analysis Division, *Section 43.61 International Telecommunications Data.*

LIFELINE AND UNIVERSAL SERVICE PROGRAMS:

The FCC has established two assistance programs for low-income subscribers. The first program is designed to assist low-income subscribers afford the monthly cost of local telephone service and is called "lifeline." Connection assistance or "Link-Up" programs, the second type, are designed to help low-income subscribers defray installation charges in order to begin receiving telephone service. Participating states have wide latitude in selecting means tests and shaping the benefits of the programs. Programs have been established in all 50 states, the District of Columbia, the Virgin Islands, and the Commonwealth of Puerto Rico. The type of program in each state at the end of 1997 is indicated in Table 8.1, along with the year in which a program was first certified.

On May 7, 1997, the Commission voted to make major changes which became effective on January 1, 1998. These changes expand Lifeline to make it available in all states and territories, modify the state matching requirements, and increase the federal Lifeline support amount.

In addition to the programs for low-income subscribers, a Universal Service Fund provides support to local telephone companies that have high costs. Through the end of 1997, all of these assistance programs were financed by monthly charges imposed on larger long distance carriers. Each long distance carrier serving more than .05% of the nation's telephone lines was billed monthly on a per-line basis to support these programs. These charges are shown in Table 8.2. Under the rules taking effect on January 1, 1998, the per-line charges previously paid by long distance carriers have been discontinued. Instead, all providers of interstate telecommunications, now contribute to the provision of universal service based on the amount of their telecommunications revenues.

TABLE 8.1

LIFELINE AND LINK-UP TELEPHONE PROGRAMS
(YEAR FIRST CERTIFIED)

STATE	LIFELINE	LINK-UP
ALABAMA	95	87
ALASKA	93	93
ARIZONA	86	88
ARKANSAS	86	87
CALIFORNIA	85	*
COLORADO	90	90
CONNECTICUT	94	87
DELAWARE		95
DISTRICT OF COLUMBIA	86	87
FLORIDA	94	88
GEORGIA	91	90
HAWAII	86	89
IDAHO	87	88
ILLINOIS	**	93
INDIANA		88
IOWA		88
KANSAS	96	88
KENTUCKY		87
LOUISIANA		88
MAINE	87	87
MARYLAND	86	87
MASSACHUSETTS	90	90
MICHIGAN	89	89
MINNESOTA	88	88
MISSISSIPPI	91	88
MISSOURI	87	87
MONTANA	87	87
NEBRASKA		88
NEVADA	87	88
NEW HAMPSHIRE		88
NEW JERSEY		87
NEW MEXICO	87	87
NEW YORK	87	87
NORTH CAROLINA	86	87
NORTH DAKOTA	87	89
OHIO	87	87
OKLAHOMA	95	90
OREGON	86	88
PENNSYLVANIA	95	88
PUERTO RICO		88
RHODE ISLAND	87	87
SOUTH CAROLINA	95	87
SOUTH DAKOTA	88	88
TENNESSEE	92	88
TEXAS	88	87
UTAH	86	88
VERMONT	86	90
VIRGIN ISLANDS U.S.	91	91
VIRGINIA	87	87
WASHINGTON	87	90
WEST VIRGINIA	86	87
WISCONSIN	88	90
WYOMING	91	89

SOURCE: INDUSTRY ANALYSIS DIVISION CERTIFICATION PROGRAM.

* CALIFORNIA PROVIDES AN INDEPENDENT CONNECTION ASSISTANCE PROGRAM.
** ILLINOIS COMMERCE COMMISSION'S PROGRAM RELIES ON VOLUNTARY CONTRIBUTIONS.

TABLE 8.2

MONTHLY CHARGES TO LONG DISTANCE CARRIERS FOR LIFELINE AND UNIVERSAL SERVICE PROGRAMS

Rates in Effect		Monthly Charges per Access Line			Access Lines * (millions)	Approximate Monthly Billing ($ millions)
From	To	Universal Service Fund	Lifeline Link-Up Programs	Total Charge per Access Line		
04/01/89	06/30/89	$0.1753	$0.0467	$0.2220	121.1	$26.35
07/01/89	12/31/89	0.1752	0.0556	0.2308	121.3	27.44
01/01/90	06/30/90	0.2476	0.0366	0.2842	123.1	34.29
07/01/90	12/30/90	0.2367	0.0412	0.2779	125.4	34.15
01/01/91	01/31/91	0.2696	0.0593	0.3289	126.9	40.90
02/01/91	06/30/91	0.3090	0.0593	0.3683	126.9	45.80
07/01/91	12/31/91	0.3185	0.0534	0.3719	129.0	47.02
01/01/92	06/30/92	0.3823	0.0789	0.4612	130.6	59.03
07/01/92	12/31/92	0.3901	0.0733	0.4634	132.0	59.95
01/01/93	01/31/93	0.4404	0.0777	0.5181	133.0	67.53
02/01/93	06/31/93	0.4624	0.0777	0.5401	133.0	70.40
07/01/93	12/31/93	0.4561	0.0809	0.5370	136.4	71.78
01/01/94	01/31/94	0.4520	0.0841	0.5361	138.2	74.09
02/01/94	06/30/94	0.4408	0.0841	0.5249	138.2	72.54
07/01/94	12/31/94	0.4295	0.0901	0.5196	140.0	72.74
01/01/95	06/30/95	0.4335	0.0848	0.5183	142.2	73.70
07/01/95	12/31/95	0.4214	0.0936	0.5150	145.3	74.83
01/01/96	06/30/96	0.4182	0.0928	0.5110	147.0	75.12
07/01/96	12/31/96	0.4365	0.0947	0.5312	149.2	79.26
01/01/97	06/30/97	0.4380	0.0991	0.5371	152.1	81.69
07/01/97	12/31/97	0.4315	0.0829	0.5144	154.5	79.47

* Billings are made by the National Exchange Carrier Association to interexchange carriers that have more than .05% of the nationwide total presubscribed lines. These carriers serve approximately 98% of total presubscribed lines. The 154.5 million access lines shown for July 1, 1997 are the number of qualified USF loops of billed carriers contributing to the Universal Service Fund.

LOCAL COMPETITION:

For most of this century, households and businesses have had no choice in selecting their local telephone company. Mobile telephone services are widely available, at an increasing range of prices, but they are not yet accepted in the marketplace as complete substitutes for traditional local telephone service. In the 1980s, new companies began to offer some competitive local telephone services over wired networks. These companies (e.g., MFS Communications Company and Teleport Communications Group) typically built telecommunications network facilities in areas with concentrations of office buildings and offered to carry calls between business customers and the networks of long distance carriers. These companies were often called "competitive access providers" or CAPs. To some extent they also carried local telephone calls among their customers, but they did not offer local calling services to the public generally.

In the 1990s, some of these competitive access providers, other companies including affiliates of cable television companies (e.g., Hyperion Telecommunications, Time Warner Communications) and local service divisions of long distance companies (e.g., MCImetro), began to offer local telephone calling services to a broader range of telephone users. For example, some companies that were already established in larger cities added operations in smaller cities, where the typical customer is more likely to be a small or medium size business than a large business, and some new companies (e.g., McLeodUSA Incorporated) focused on smaller cities from the beginning. The newer competitors are often called "competitive local exchange carriers" or CLECs, although the terms CAPs and CLECs are often used interchangeably.

While local telephone service competition has tended to develop first in larger cities and for business customers, data reported to the Commission do not measure systematically such market-by-market evolution of competition. The Commission imposes no data reporting requirements on new local service competitors beyond the requirement, which applies to all telecommunications companies, to report their nationwide revenues each year, and the information provided by individual companies receives confidential treatment. Information about local service revenues earned by categories of companies is made public, however, and is discussed below.

The Commission also surveys investment in fiber optic transmission systems by new local service competitors and by the established, or incumbent, local telephone companies. Finally, the Commission has required the largest incumbent local telephone companies to report limited information about the extent of interconnection between their networks and the networks of the new local service competitors. These data also are discussed below.

Nationwide Local Service Revenues and New Competitor Share.

Table 9.1 shows that local service revenues of new local service competitors have been growing much faster than the local service revenues of the incumbent local telephone companies. The new local service competitors are starting from a very small base, however, so their share of total local service revenues remains small.

Facilities Investment of New Local Service Competitors:
Fiber Optic Transmission Capacity.

Chart 9.1 depicts the comparative investment in fiber optic transmission systems by new local service competitors and the incumbent local telephone companies in recent years. The new competitors doubled the total amount of fiber they had in place from approximately 0.6 million fiber miles at the end of 1995 to about 1.3 million fiber miles at the end of 1996. In contrast, the incumbent local telephone companies had in place about 12.3 million fiber miles in 1996, an increase of approximately 15% over year-end 1995. "Fiber miles" are calculated by multiplying the number of miles of fiber cable -- including both lit fiber (i.e., fiber that has been activated to carry telecommunications by the addition of optoelectronic equipment) and dark fiber (i.e., fiber that has not yet been activated) -- by the number of fiber strands per cable.

At the end of 1996, therefore, new local service competitors had approximately 10% of the total fiber optic systems capacity, as measured by fiber miles, that apparently is or could be activated to carry calls within local telecommunications markets and to deliver calls to long distance carriers. This comparison of relative fiber deployment may overstate the relative size of new local service competitor networks, however, because the transmission networks of the incumbent local telephone companies consist predominantly -- as much as 90%, by some estimates -- of copper-based facilities. The Commission collects no information on the extent to which the fiber optic transmission systems of new local service competitors are activated to carry telephone calls, and in this respect as well they may differ from the incumbent local telephone companies.

Facilities Investment of New Local Service Competitors:
Equipment Installed in Incumbent Local Telephone Company Central Offices.

New local service competitors may more effectively compete in local telephone service markets -- and, in particular, may more effectively compete for the mass, or residential, market -- if they are able to locate their own transmission equipment near the incumbent local telephone company central office (i.e., telephone network switch) that directly serves a customer that the new competitor seeks to serve. The Commission first ordered such "collocation" arrangements to be made available for the provision of competitive access services (i.e., connecting customers directly to long distance telephone companies). In addition, the Telecommunications Act of 1996 requires incumbent local telephone companies, with a few exceptions for small companies, to provide collocation arrangements in a form that

will enable a new local service competitor to use portions of the incumbent company's network (e.g., the telephone line that runs to the customer's home or business) to compete against the incumbent company.

The Commission required the largest incumbent local telephone companies to report, in 1995 and 1997, which of their central offices have collocation arrangements, and to identify the competitors using such collocation arrangements. Table 9.2 shows that the number of incumbent telephone company central offices with collocation arrangements increased between 1995 and 1997. The table also demonstrates that the number of new local service competitors using collocation arrangements increased between the two years. As detailed in the notes to Table 9.2, the reporting incumbent telephone companies used different definitions (e.g., operational arrangements *versus* arrangements that are operational or in progress *versus* requested arrangements) when reporting collocation arrangements in a single year, and in some cases a company used different definitions in its filings in the two reporting years. Neither the incumbent telephone companies nor the new local service competitors are required to report the extent to which the reported collocation arrangements are being used to carry telephone calls within local areas, as opposed to connecting calls to long distance carriers. Using data in Table 9.2 to compare the development of local service competition in the areas served by different incumbent local telephone companies may be misleading, therefore, and these data should not be summed up for the incumbent companies.

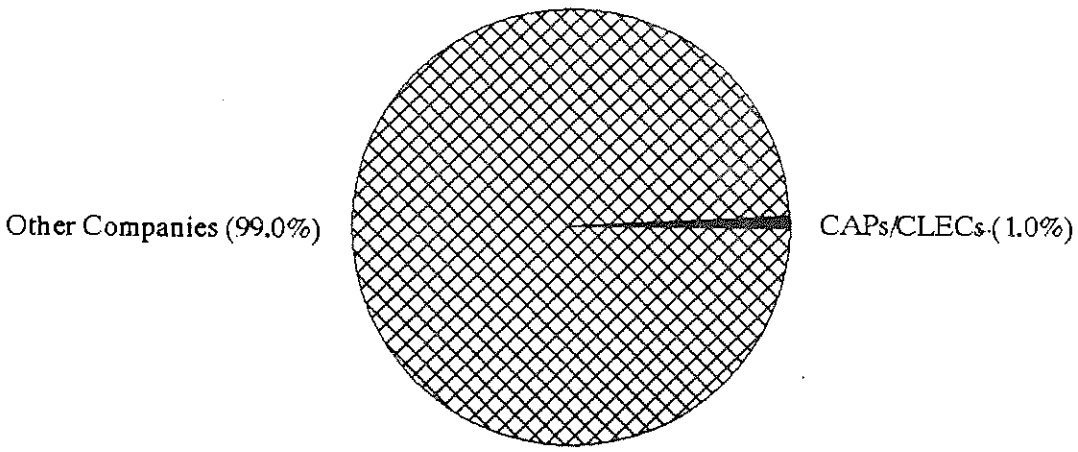
TABLE 9.1

NATIONWIDE LOCAL SERVICE REVENUES* AND NEW COMPETITOR SHARE
(Dollar Amounts Shown in Millions)

	1993	1994	1995	1996	Average Annual Growth 1993–1996**
1 Number of CAPs/CLECs***	20	30	57	109	76.0%
2 CAP/CLEC Local Service Revenues	$178	$281	$595	$949	74.7%
3 Bell Company# Local Service Revenues	$58,838	$61,415	$65,485	$70,290	6.1%
4 Local Service Revenues of Other Incumbent Local Telephone Companies	$20,828	$23,424	$24,269	$24,899	6.1%
5 All Other Local Service Revenues##	$850	$1,298	$388	$379	###
6 Nationwide Local Service Revenues (line 2 + line 3 + line 4 + line 5)	$80,694	$86,418	$90,737	$96,517	6.2%
7 CAP/CLEC Share of Nationwide Local Service Revenues (line 2 / line 6)	0.2%	0.3%	0.7%	1.0%	

Notes to Table 9.1 appear on the following page.

Nationwide Local Service Revenue Shares – 1996



Notes for Table 9.1 - Nationwide Local Service Revenues and New Competitor Share

Source: Industry Analysis Division, *Telecommunications Industry Revenue: TRS Fund Worksheet Data* (rel. Dec. 1994; Feb. 1996; Dec. 1996; and Nov. 1997):
Table 15 - local service revenues of CAPs/CLECs
Table 18 or Table 18B - local service revenues of the Bell companies
Table 19 - local service revenues of other incumbent local telephone companies
Table 5 and Table 20 - all other local service revenues

* Local service revenues are here considered to include revenues from local exchange, local private line, and other local services, as well as from interstate and intrastate access services, but not to include revenues from cellular or other mobile services or from toll (i.e., long distance) services.

** Calculated using the 1993 (beginning) and 1996 (end point) values.

*** Legal entities identifying themselves in their annual TRS Fund Worksheet filings as competitive access providers (CAPs)/competitive local exchange carriers (CLECs). The number of legal entities reporting in this category in any particular year is influenced by ownership structure. For example, in 1996, American Communications Systems, Inc. reported as 20 separate legal entities (e.g., American Communications Services of Albuquerque, Inc.; American Communications Services of Maryland, Inc.), and Brooks Fiber Properties, Inc., which is being acquired by long distance carrier WorldCom, reported as 16 separate legal entities (e.g., Brooks Fiber Communications of Arkansas; Brooks Fiber Communications of Bakersfield, Inc.). A number of companies, including GST Telecom, Inc., ICG Communications, Inc., McLeodUSA Incorporated, and Teleport Communications Group, Inc., each reported as a single legal entity, however. A list of the legal entities that reported as CAPs/CLECs in 1996 appears in Industry Analysis Division, *Carrier Locator: Interstate Service Providers* (rel. Nov. 1997).

\# The Bell companies are Ameritech, Bell Atlantic (includes the former NYNEX), BellSouth, SBC (includes the former Pacific Telesis), and U S WEST.

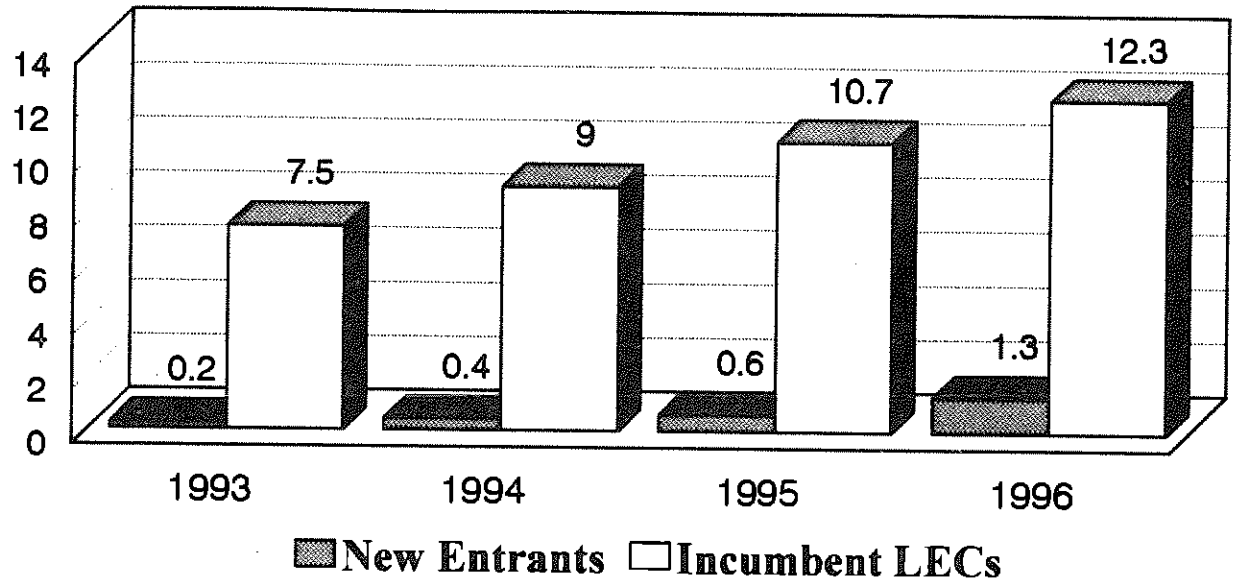
\## Local service revenues reported by legal entities that identified themselves in their annual TRS Fund Worksheet filings as being principally a long distance carrier (i.e., interexchange carriers, operator service providers, pay telephone providers, prepaid calling card providers, toll resellers, and other carriers) or a wireless carrier (i.e., cellular, personal communications service, paging, and other mobile carriers). Revenues of local service divisions of companies that are not themselves separate legal entities (e.g., MCImetro) are included here.

Not meaningful; reporting of revenues among local and toll categories appears not to be consistent from year to year.

Chart 9.1

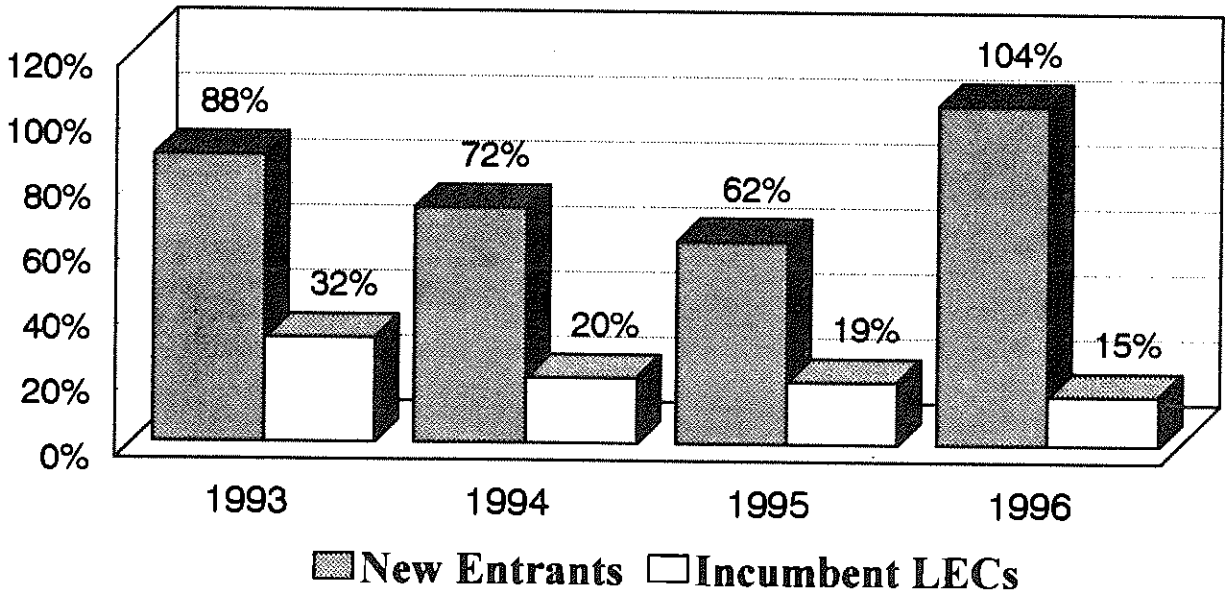
Fiber Deployed (Measured by Fiber Miles)

(Amounts Shown in Millions)



Growth in Fiber Deployed

(Percent Growth over Prior Year)



Source: Fiber Deployment Update -- End of Year 1996

TABLE 9.2

Competitor Collocation Arrangements with Incumbent Telephone Companies (as Reported by Incumbent Companies)

Incumbent Company	Number of Incumbent Telephone Company Central Offices with One or More Collocation Arrangements		Number of Competitors with One or More Collocation Arrangements	
	1995[1]	1997[1]	1995[1]	1997[1]
Ameritech[2]	16	87	5	11
Bell Atlantic[3]	19	98	5	14
BellSouth[4]	15	124	13	17
GTE[5]	32	53	9	17
NYNEX[6]	41	78	10	12
Pacific Telesis[7]	42	82	9	16
SBC[8]	9	32	5	8
U S WEST[9]	2	57	2	11

Notes to Table 9.2 appear on the following page.

Notes for Table 9.2 - Competitor Collocation Arrangements with Incumbent Telephone Companies (as Reported by Incumbent Companies)

Source: Incumbent local telephone company ex parte filings in CC Docket No. 91-141, *In the Matter of Expanded Interconnection with Local Telephone Company Facilities.*

1/ In 1995, reports were filed in June, except Ameritech filed in July. In 1997, reports were filed in June or July, except NYNEX filed in February, and Ameritech filed in December. In those cases where more precise effective dates of data were indicated, such dates were within a month of the date of the filing.

2/ In addition to 16 central offices with at least one "operational" collocation arrangement in 1995, Ameritech reported an additional 55 distinct central offices with at least one "installed or pending" collocation arrangement. Eight competitors were associated with one or more of the installed or pending arrangements, including each of the 5 competitors that were associated with at least one operational arrangement. In addition to 87 offices with at least one operational arrangement in 1997, Ameritech reported an additional 16 distinct offices with at least one installed or pending arrangement.

3/ In 1995, Bell Atlantic reported 19 central offices with at least one "operational" collocation arrangement. An additional 44 arrangements were "pending" in 1995, but Bell Atlantic did not specify in which central offices these arrangements were located. The 1997 filing refers to collocation arrangements in use, without further elaboration.

4/ In addition to 15 central offices with at least one "completed" collocation arrangement in 1995, BellSouth reported an additional 35 distinct central offices with at least one collocation arrangement "in progress." All competitors who had "requested" at least one collocation arrangement were reported in 1995, so it is not clear which of the 13 reported competitors had operational collocation arrangements at that time. The 1997 filing refers to collocation arrangements in use, without further elaboration.

5/ GTE reported central offices with "requests" for collocation arrangements in 1995, and central offices in which collocation arrangements were being "taken under tariff" in 1997. In each reporting year, GTE Telecom, Inc., a long distance carrier affiliated with GTE, is among the entities requesting or using collocation arrangements.

6/ NYNEX referred to "actual" and "under construction" collocation arrangements in its 1995 filing, and reported no arrangements under construction at that time. In its 1997 filing, which was made several months in advance of the filings of the other companies, NYNEX reported 43 central offices with at least one operational collocation arrangement, and reported an additional 35 distinct central offices in which at least one collocation arrangement was under construction. No distinction was made between competitors with operational *versus* under construction arrangements.

7/ Pacific Telesis reported 42 California central offices with collocation arrangements "in service" in 1995. SBC reported 3 Nevada and 79 California central offices with collocation arrangements "in service" in 1997. In 1995, an additional 36 distinct California central offices were reported as being tariffed for collocation arrangements, but as not having any collocation arrangements in service. SBC reported 1 such Nevada central office in 1997, and 50 such California offices.

8/ In addition to 9 central offices with at least one "operational" collocation arrangement, SBC reported an additional 11 distinct Southwestern Bell Telephone Company central offices with at least one collocation arrangement "pending completion" in 1995. Seven competitors were associated with one or more of the arrangements pending completion, including each of the 5 competitors that were associated with at least one operational arrangement. In 1997, SBC reported 32 operational collocation arrangements, only.

9/ In both 1995 and 1997 filings, U S WEST refers to customers "using" collocation arrangements and to central offices in which customers "are located," without further elaboration.

LONG DISTANCE CARRIERS:

Carrier identification codes provide information on the number of firms seeking to acquire certain types of interconnecting arrangements with local telephone companies. Any firm that seeks to use trunk-side connections with local telephone companies is provided a carrier identification code so that traffic can be efficiently routed.

Beginning in 1986, a number of corporations, government agencies and other organizations began to acquire carrier identification codes for their own use, rather than for the purpose of providing telecommunications services to others. After that time, the use of such codes to estimate the number of long distance carriers became less reliable. We believe, however, that the number of firms obtaining these codes provides the best information available on the entry of new firms into the long distance market prior to 1986. The number of codes assigned is shown in Table 10.1.

Carrier identification codes are currently assigned by Lockheed Martin IMS. Further information on such codes can be found on the internet at http://www.nanpa.com on the World Wide Web.

The number of long distance carriers more than tripled from 1986 to 1996. Table 10.2 shows the number of long distance carriers by state. The information for 1986-1988 was summarized from information supplied to the Commission by the Bell operating companies on companies purchasing equal access from them. The information for 1989-1996 comes from the National Exchange Carrier Association's database on presubscribed lines. Combining these two databases may result in some discontinuity between 1988 and 1989.

Table 10.3 shows several alternative measures of long distance carrier development.

TABLE 10.1

NUMBER OF CARRIER IDENTIFICATION CODES (CICS) ASSIGNED BY BELL COMMUNICATIONS RESEARCH 1982 - 1992

YEAR	QUARTER	NUMBER OF CICS ASSIGNED	YEAR	QUARTER	NUMBER OF CICS ASSIGNED
1982	FIRST QUARTER	11	1988	FIRST QUARTER	602
	SECOND QUARTER	13		SECOND QUARTER	621
	THIRD QUARTER	13		THIRD QUARTER	601
	FOURTH QUARTER	11		FOURTH QUARTER	639
1983	FIRST QUARTER	15	1989	FIRST QUARTER	685
	SECOND QUARTER	25		SECOND QUARTER	714
	THIRD QUARTER	33		THIRD QUARTER	730
	FOURTH QUARTER	42		FOURTH QUARTER	747
1984	FIRST QUARTER	54	1990	FIRST QUARTER	774
	SECOND QUARTER	86 *		SECOND QUARTER	794
	THIRD QUARTER	121		THIRD QUARTER	817
	FOURTH QUARTER	155		FOURTH QUARTER	791
1985	FIRST QUARTER	182	1991	FIRST QUARTER	745
	SECOND QUARTER	212		SECOND QUARTER	766
	THIRD QUARTER	236		THIRD QUARTER	783
	FOURTH QUARTER	256		FOURTH QUARTER	807
1986	FIRST QUARTER	276	1992	FIRST QUARTER	786
	SECOND QUARTER	331		SECOND QUARTER	831
	THIRD QUARTER	361		THIRD QUARTER	840
	FOURTH QUARTER	413		FOURTH QUARTER	886
1987	FIRST QUARTER	444			
	SECOND QUARTER	495			
	THIRD QUARTER	530			
	FOURTH QUARTER	573			

NUMBER OF CARRIER IDENTIFICATION CODES (CICS) ASSIGNED BY BELL COMMUNICATIONS RESEARCH 1993 - 1997

YEAR	QUARTER	FGB	FGD
1993	FIRST QUARTER	694 **	709
	SECOND QUARTER	738	746
	THIRD QUARTER	739	760
	FOURTH QUARTER	753	796
1994	FIRST QUARTER	781	815
	SECOND QUARTER	795	845
	THIRD QUARTER	805	899***
	FOURTH QUARTER	819	947
1995	FIRST QUARTER	829	1,016
	SECOND QUARTER	832	1,082
	THIRD QUARTER	843	1,146
	FOURTH QUARTER	852	1,209
1996	FIRST QUARTER	865	1,253
	SECOND QUARTER	876	1,300
	THIRD QUARTER	875	1,315
	FOURTH QUARTER	878	1,337
1997	FIRST QUARTER	882	1,395
	SECOND QUARTER	896	1,427
	THIRD QUARTER	908	1,481

* CONVERSION FROM 2-DIGIT CODES TO 3-DIGIT CODES.
** CONVERSION FROM 3-DIGIT CODES TO 4-DIGIT CODES.
*** INCLUDES BOTH 3-DIGIT CODES AND 4-DIGIT CODES.

TABLE 10.2

NUMBER OF LONG DISTANCE CARRIERS BY STATE

STATE	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
ALABAMA	13	45	15	15	12	17	17	17	30	45	68
ALASKA	*	*	*	2	2	2	2	2	2	2	2
ARIZONA	18	16	19	23	28	30	38	46	50	70	95
ARKANSAS	6	7	9	15	16	14	15	17	23	39	64
CALIFORNIA	22	22	32	30	34	40	54	61	63	81	100
COLORADO	19	20	24	25	27	32	37	42	56	72	96
CONNECTICUT	*	*	*	17	13	13	18	23	34	46	65
DELAWARE	4	4	4	13	20	24	27	28	38	54	70
DISTRICT OF COLUMBIA	13	20	25	22	21	21	20	20	26	24	24
FLORIDA	20	23	26	25	27	57	57	44	86	117	154
GEORGIA	14	19	19	20	19	38	41	29	60	78	108
HAWAII	*	*	*	6	8	33	9	11	15	20	31
IDAHO	7	7	10	13	11	16	18	24	28	40	56
ILLINOIS	19	23	28	26	26	30	32	42	56	70	108
INDIANA	15	15	21	19	22	21	19	21	27	36	83
IOWA	9	9	11	17	13	16	17	18	26	42	67
KANSAS	14	14	18	15	12	16	16	18	26	44	72
KENTUCKY	11	10	17	20	19	21	20	20	29	48	81
LOUISIANA	20	18	21	22	23	30	35	27	48	66	97
MAINE	4	6	5	8	9	10	9	14	20	31	61
MARYLAND	12	13	18	25	23	22	23	24	31	29	30
MASSACHUSETTS	10	8	17	15	17	18	20	24	34	56	91
MICHIGAN	14	13	20	22	22	29	26	36	37	60	88
MINNESOTA	14	14	21	24	22	22	24	26	37	53	78
MISSISSIPPI	6	9	14	16	15	16	15	14	22	46	66
MISSOURI	20	21	26	22	19	23	28	26	39	56	90
MONTANA	6	4	5	11	10	10	18	21	24	33	51
NEBRASKA	11	10	12	18	18	15	16	13	20	33	57
NEVADA	7	9	14	17	15	19	19	18	25	26	52
NEW HAMPSHIRE	3	5	6	8	10	10	11	15	23	34	65
NEW JERSEY	20	20	26	30	33	38	38	46	65	87	113
NEW MEXICO	5	6	13	20	22	25	28	30	37	48	66
NEW YORK	22	22	27	28	30	36	38	46	68	99	128
NORTH CAROLINA	12	10	14	15	13	19	24	14	33	38	73
NORTH DAKOTA	6	6	8	10	12	12	15	17	22	29	49
OHIO	16	17	23	27	27	31	27	26	38	60	75
OKLAHOMA	12	14	16	20	21	27	29	32	45	59	88
OREGON	19	16	13	17	17	26	33	34	38	58	77
PENNSYLVANIA	18	26	30	34	31	31	45	50	59	84	112
RHODE ISLAND	8	7	8	12	11	13	14	18	21	31	63
SOUTH CAROLINA	7	7	10	14	13	22	24	24	25	42	63
SOUTH DAKOTA	4	4	6	13	9	10	12	19	25	39	50
TENNESSEE	14	15	20	27	26	32	29	28	48	74	106
TEXAS	50	64	74	68	63	74	82	98	110	121	159
UTAH	10	9	15	17	16	18	20	28	36	55	68
VERMONT	3	5	6	7	8	8	9	15	18	29	51
VIRGINIA	9	11	12	23	21	24	23	23	31	38	58
WASHINGTON	19	15	15	22	23	35	37	39	42	62	86
WEST VIRGINIA	6	5	7	13	10	12	14	13	17	22	32
WISCONSIN	25	25	27	29	28	25	23	20	25	38	79
WYOMING	6	4	5	8	7	10	13	16	23	34	45
UNITED STATES	210	239	266	302	320	383	408	429	506	579	616
NORTHERN MARIANA ISL.	*	*	*	*	*	*	*	2	2	2	3
PUERTO RICO	*	*	*	1	10	10	10	8	10	10	9
VIRGIN ISLANDS	*	*	*	1	1	1	6	6	5	5	5
GRAND TOTAL	210	239	266	302	325	388	414	436	511	583	621

Sources: *Summary of Long Distance Carriers* (for 1986-1988) and National Exchange Carrier Association PSL Database (for 1989-1996).

*Data not available.

**The estimate for the number of long distance carriers serving a state from 1989 to 1996 equals the number of long distance carriers from the local study area with the maximum number of long distance carriers.

TABLE 10.3

ALTERNATIVE MEASURES OF LONG DISTANCE CARRIER DEVELOPMENT

YEAR	MONTH	CARRIERS WITH PRESUBSCRIBED LINES	CARRIERS PURCHASING EQUAL ACCESS 1/	FIRMS WITH CARRIER IDENTIFICATION CODES	FIRMS PURCHASING ACCESS	CARRIERS FILING TRS FORM 2/
1986	MARCH	*	169	231	*	*
	JUNE	*	183	276	*	*
	SEPTEMBER	*	190	302	506	*
	DECEMBER	*	210	334	533	*
1987	MARCH	*	211	360	581	*
	JUNE	*	213	397	*	*
	SEPTEMBER	*	224	421	*	*
	DECEMBER	223	239	451	540	*
1988	MARCH	*	238	471	511	*
	JUNE	242	248	489	519	*
	SEPTEMBER	*	256	464	506	*
	DECEMBER	253	266	493	510	*
1989	MARCH	*	274	520	519	*
	JUNE	276	287	544	*	*
	SEPTEMBER	*	304	560	*	*
	DECEMBER	302	318	577	514	*
1990	MARCH	*	289	594	512	*
	JUNE	314	288	611	506	*
	SEPTEMBER	*	304	636	511	*
	DECEMBER	325	304	601	499	*
1991	MARCH	*	306	571	505	*
	JUNE	355	327	597	542	*
	SEPTEMBER	*	337	605	538	*
	DECEMBER	388	351	631	576	*
1992	MARCH	*	361	616	595	*
	JUNE	425	370	659	577	*
	SEPTEMBER	*	379	654	587	*
	DECEMBER	414	394	692	599	*
1993	MARCH	*	*	*	*	*
	JUNE	412	401	*	*	*
	SEPTEMBER	*	401	*	*	*
	DECEMBER	436	420	*	*	321
1994	MARCH	*	433	*	*	*
	JUNE	454	444	*	*	*
	SEPTEMBER	*	458	*	*	*
	DECEMBER	511	465	*	*	366
1995	MARCH	*	*	*	*	*
	JUNE	549	*	*	*	*
	SEPTEMBER	*	*	*	*	*
	DECEMBER	583	*	*	*	453
1996	MARCH	*	*	*	*	*
	JUNE	582	*	*	*	*
	SEPTEMBER	*	*	*	*	*
	DECEMBER	621	*	*	*	562

* DATA NOT AVAILABLE

1/ DATA FOR THE PERIODS PRIOR TO MARCH 1990 INCLUDE A SMALL NUMBER OF FIRMS PURCHASING EQUAL ACCESS THAT WERE NOT CARRIERS.

2/ INCLUDES INTEREXCHANGE CARRIERS, OPERATOR SERVICE PROVIDERS, OTHER TOLL CARRIERS, PAY CARD PROVIDERS, AND RESELLERS.

LONG DISTANCE MARKET SHARES:

1. Minutes of Interstate Calling

Measures of switched access minutes first became available in 1984. Such information is publicly available for the total industry and for AT&T but not for other long distance carriers. Thus, access minutes can be used to compute a market share for AT&T but not for smaller carriers.

Column 1 of Table 11.1 shows total interstate switched access minutes (which includes international) reported for all long distance carriers by the National Exchange Carrier Association (NECA). Interstate calling has grown steadily, with access minutes more than tripling, since this data was first measured in the third quarter of 1984. Overall economic growth, price reductions, and extensive advertising have contributed to this growth.

With few exceptions, terminating access minutes, which do not include dialing and call set-up time, equal long distance conversation minutes. Table 11.1, Column 2, shows the number of terminating interstate access minutes reported for all long distance carriers by NECA since 1986, when terminating minutes were first reported separately.

Columns 3 and 4 of Table 11.1 show AT&T's reported total access minutes and terminating access minutes. Columns 5 and 6 show the company's market share of total access minutes and terminating access minutes. Since mid-1984, AT&T's traffic has grown at a slower rate than the industry average: its minutes have doubled during that period while the minutes for other carriers have increased ten fold. As a result, AT&T's share of long distance access minutes has fallen sharply.

2. Presubscribed Lines

A telephone line is said to be presubscribed to the long distance carrier that receives the ordinary long distance calls placed on that line. Where equal access is available, each customer is asked to choose a long distance carrier. Thereafter, all of the customer's long distance calls will be routed to the chosen long distance carrier unless the customer alters normal dialing procedure -- for example, by dialing special codes to access an alternate long distance carrier. Where equal access is not yet available, the use of long distance carriers other than AT&T usually requires alternative dialing procedures.

In the past, NECA provided information on the number of lines presubscribed to each long distance carrier. NECA collected the information from each local telephone company in order to comply with previous FCC rules that required NECA to recover certain expenses from the larger long distance carriers. This information is shown in Table 11.2. Following passage of the Telecommunications Act of 1996, the FCC changed its universal service rules,

which previously required the collection of this information. As a result, information for December 1996 is the last presubscribed line data collected by NECA.

NECA reports that, at the end of 1996, there were 159 million presubscribed lines in the United States. Special access lines, WATS lines, and other specialized lines are not included in the counts of presubscribed lines. The number of lines presubscribed to AT&T has remained roughly constant while the number of lines presubscribed to other carriers has grown. Table 11.3 shows that at the end of 1996, about 63% of these lines were presubscribed to AT&T, 15% to MCI, 7% to Sprint, and about 3% to Worldcom. About six hundred smaller carriers, serving almost 19 million lines, account for the remaining 12% of the industry. Table 11.4 shows the annual rates of growth for presubscribed lines from December 1988 to December 1996. Table 11.5 shows the market share of presubscribed lines by state for AT&T, MCI, Sprint, WorldCom and Excel.

3. Toll Revenues

The largest long distance telephone companies are required to report their annual revenues to the FCC. The revenues for reporting carriers and the total industry are shown in Table 11.6, and include both interstate and intrastate revenues. Table 11.7 shows market shares based on annual revenues for long distance carriers. Market shares for all competitors in the long distance market (including both long distance companies and local companies) are shown in Table 11.8.

In 1996, services provided by long distance carriers generated about $82 billion in revenues. During the past few years, revenues have grown at a far slower pace than the volume of long distance calling because of sharp price cuts. In 1984, AT&T's toll revenues of $35 billion accounted for 90% of the revenues received by all long distance carriers. By 1996, with its revenues having increased by 12%, its share of total revenues had fallen to 48%.

Chart 11.1 compares alternative measures of AT&T's market share using minutes, lines, and revenues. In this chart, a second measure of revenues has been added. The alternative measure is based on financial reports to stockholders. Revenues reported to the FCC usually differ from revenues reported to stockholders. The largest differences tend to relate to the treatment of access charges and international settlements, which accounts for the difference between the annual revenue share points labeled "FCC" and the revenue share line labeled "SEC."

TABLE 11.1

INTERSTATE SWITCHED ACCESS MINUTES
(FIGURES SHOWN IN BILLIONS)

	TOTAL INDUSTRY		AT&T		AT&T'S SHARE OF	
	ACCESS MINUTES	TERMINATING MINUTES	ACCESS MINUTES	TERMINATING MINUTES	ACCESS MINUTES	TERMINATING MINUTES
1984 THIRD QUARTER	37.5		31.6	18.1	84.2 %	
FOURTH QUARTER	39.6		31.8	18.2	80.2	
1985 FIRST QUARTER	39.6		32.8	19.0	83.0	
SECOND QUARTER	41.5		33.3	19.2	80.3	
THIRD QUARTER	42.8		33.8	19.4	78.9	
FOURTH QUARTER	43.3		33.4	19.2	77.1	
TOTAL 1985	167.1		133.3	77.0		
1986 FIRST QUARTER	43.0		34.2	19.9	79.5	
SECOND QUARTER	44.8		34.7	20.2	77.5	
THIRD QUARTER	46.7	26.7	35.8	20.7	76.6	77.7 %
FOURTH QUARTER	48.5	27.6	35.9	20.6	74.0	74.7
TOTAL 1986	183.1		140.6	81.5		
1987 FIRST QUARTER	51.2	28.9	37.4	21.4	72.9	74.2
SECOND QUARTER	52.5	29.7	38.6	22.1	73.7	74.2
THIRD QUARTER	55.0	30.9	39.2	22.3	71.2	72.1
FOURTH QUARTER	57.0	32.3	40.1	22.6	70.4	70.1
TOTAL 1987	215.7	121.8	155.3	88.4		
1988 FIRST QUARTER	59.0	33.4	41.2	23.3	69.8	69.9
SECOND QUARTER	59.6	33.6	41.1	23.0	69.0	68.5
THIRD QUARTER	62.1	34.9	42.3	23.6	68.2	67.6
FOURTH QUARTER	64.0	35.9	43.0	23.6	67.2	65.8
TOTAL 1988	244.6	137.8	167.6	93.6		
1989 FIRST QUARTER	66.2	37.3	44.2	24.5	66.8	65.7
SECOND QUARTER	68.5	38.1	44.4	24.5	64.8	64.4
THIRD QUARTER	69.7	38.6	44.9	24.7	64.4	64.1
FOURTH QUARTER	72.6	40.0	46.4	25.3	63.9	63.3
TOTAL 1989	277.1	153.9	179.9	99.0		
1990 FIRST QUARTER	74.7	41.2	47.1	25.8	63.0	62.5
SECOND QUARTER	75.8	41.9	47.1	25.7	62.1	61.5
THIRD QUARTER	77.9	43.4	48.7	26.4	62.5	60.9
FOURTH QUARTER	79.1	43.1	49.8	27.8	63.0	64.5
TOTAL 1990	307.4	169.6	192.6	105.8		
1991 FIRST QUARTER	79.2	43.4	49.9	27.1	63.0	62.4
SECOND QUARTER	81.9	44.9	50.5	26.8	61.7	59.6
THIRD QUARTER	82.6	45.1	51.2	27.1	61.9	60.1
FOURTH QUARTER	84.4	46.4	52.4	27.9	62.1	60.0
TOTAL 1991	328.0	179.8	204.0	109.8		

TABLE 11.1 -- CONTINUED

INTERSTATE SWITCHED ACCESS MINUTES
(FIGURES SHOWN IN BILLIONS)

	TOTAL INDUSTRY		AT&T		AT&T'S SHARE OF	
	ACCESS MINUTES	TERMINATING MINUTES	ACCESS MINUTES	TERMINATING MINUTES	ACCESS MINUTES	TERMINATING MINUTES
1992 FIRST QUARTER	85.6	47.7	53.3	28.6	62.2 %	59.9 %
SECOND QUARTER	86.5	48.2	51.9	27.9	60.0	57.8
THIRD QUARTER	87.9	49.1	53.0	28.4	60.3	57.9
FOURTH QUARTER	89.8	50.4	53.5	28.8	59.7	57.1
TOTAL 1992	349.7	195.4	211.7	113.6		
1993 FIRST QUARTER	90.6	51.0	55.5	29.7	61.3	58.1
SECOND QUARTER	91.2	51.9	55.0	29.9	60.3	57.6
THIRD QUARTER	93.6	54.8	56.3	31.4	60.2	57.2
FOURTH QUARTER	95.9	56.4	56.8	31.9	59.3	56.6
TOTAL 1993	371.2	214.1	223.6	122.8		
1994 FIRST QUARTER	98.7	58.2	59.0	31.4	59.8	53.9
SECOND QUARTER	97.9	58.3	57.7	31.1	59.0	53.3
THIRD QUARTER	101.9	60.9	58.5	32.6	57.4	53.5
FOURTH QUARTER	102.9	62.0	59.5	33.3	57.9	53.6
TOTAL 1994	401.4	239.4	234.7	128.3		
1995 FIRST QUARTER	105.6	63.8	59.9	33.6	56.7	52.7
SECOND QUARTER	106.8	64.7	59.3	33.5	55.5	51.8
THIRD QUARTER	109.0	66.7	59.8	34.4	54.8	51.6
FOURTH QUARTER	110.6	67.5	60.8	34.6	55.0	51.2
TOTAL 1995	431.9	262.7	239.8	136.1		
1996 FIRST QUARTER	115.7	71.2	62.4	35.9	54.0	50.5
SECOND QUARTER	114.7	71.5	60.2	35.1	52.4	49.0
THIRD QUARTER	117.8	74.1	60.7	35.5	51.5	48.0
FOURTH QUARTER	120.5	76.2	61.7	35.6	51.2	46.7
TOTAL 1996	468.7	293.0	244.9	142.1		
1997 FIRST QUARTER	122.7	76.9	63.9	37.1	52.1	48.3
SECOND QUARTER	124.8	79.4	63.2	37.1	50.7	46.7
THIRD QUARTER	124.9	78.9	65.3	38.6	52.3	48.9

Note - Switched access minutes are those minutes transmitted by long distance carriers that also use the distribution networks of local telephone companies. The measure includes minutes associated with ordianary long distance calls and the "open end" of WATS-Like calls. It excludes calls made on private telecommunications systems, on leased lines, and minutes on the "closed end" of WATS-Like calls.

Source: Industry Analysis Division, *Long Distance Market Shares*.

TABLE 11.2

PRESUBSCRIBED TELEPHONE LINES BY CARRIER

	DECEMBER 1996	JUNE 96	DECEMBER 1995	JUNE 95	DECEMBER 1994	JUNE 94
TOTAL NUMBER OF CARRIERS WITH PRESUBSCRIBED LINES	621	582	583	549	511	454
TOTAL NUMBER OF QUALIFYING CARRIERS	45	43	44	36	35	29
TOTAL NUMBER OF NON-QUALIFYING CARRIERS	576	539	539	513	476	425
QUALIFYING CARRIERS 1/						
AT&T COMPANIES:						
AT&T COMMUNICATIONS	100,177,257	99,599,355	101,138,792	102,502,271	103,957,425	102,421,583
AT&T ALASCOM, INC. 2/	224,192	222,144	218,135	232,525	226,974	222,142
MCI TELECOMMUNICATIONS CORP.	22,938,608	24,338,096	23,911,437	23,459,534	22,040,062	22,288,410
SOUTHERNET						
TELECOM*USA						
TELECONNECT						
SPRINT	11,788,717	10,905,940	9,784,388	9,589,788	9,467,999	9,244,159
LA CONEXION FAMILIAR, INC.						
LONG DISTANCE/USA						
WORLDCOM 3/	4,297,498	4,110,753	4,088,816	3,683,433	1,954,198	1,831,304
ADVANCED TELECOM CORP. (ATC)						
AMERICAN NETWORK						
CLAYDESTA DIGITAL						
COM SYSTEMS DBA SUN DIAL						
ITT						
METROMEDIA						
MICROTEL						
MID-AMERICAN						
NATIONAL TELECOMMUNICATIONS						
NTS (NATIONAL TELEPHONE SYSTEMS)						
TELUS/TELTEC SAVING						
TOUCH-1 LONG DISTANCE					320,571	161,143
WILTEL 4/					960,004	677,430
MFS INTELENET, INC.	211,085	177,648	106,489			
EXCEL TELECOMMUNICATIONS, INC.	3,792,171	3,313,287	1,486,953	223,235	75,543	
LCI COMPANIES:						
LCI INTERNATIONAL/LITEL 5/	2,244,192	1,965,532	1,227,925	840,968	638,464	614,637
LCI CORPORATE TELEMANAGEMENT GROUP			85,658			
LCI/US SIGNAL CORP. 6/			128,305	121,445	114,026	
FRONTIER COMPANIES: 7/	2,050,019	2,097,182	2,348,301			
FRONTIER dba ALLNET COMM. SVC., INC. 8/	(1,334,100)	(1,317,313)	(1,548,658)	1,650,296	1,334,360	1,078,577
FRONTIER COMMUNICATIONS INT'L 9/	(488,074)	(441,493)	(436,809)	365,841	283,372	278,542
FRONTIER COMM-NORTH CENTRAL REGION 10/	(134,721)	(150,661)	(161,242)	154,038	132,948	
FRONTIER OF THE GREAT LAKES 11/	(93,124)	(97,277)	(95,833)	88,043	84,141	80,573
FRONTIER OF THE WEST 12/		(90,438)	(106,159)	133,300	137,489	144,240
SNET AMERICA LONG DISTANCE	783,135	597,251	304,391	223,844	105,855	
GTE LONG DISTANCE CO.	733,558	169,609				
CABLE & WIRELESS COMMUNICATIONS	625,367	564,802	543,617	524,014	524,153	537,919
TELEFONICA LARGA DISTANCIA	470,267	458,783	452,017	444,205	441,467	446,390
U.S. LONG DISTANCE/ZERO PLUS	356,932	276,153	212,611	149,308	116,602	
UNITED TELEPHONE LONG DISTANCE	289,380	471,687	517,379	545,189	572,010	612,991
TOUCH 1 COMMUNICATIONS	209,905	149,392	134,779	108,550		
CITIZENS TELECOM	206,698	141,636				
LONG DISTANCE SAVERS	185,247	170,359	156,001	151,473	141,697	128,716
BUSINESS TELECOM , INC. (BTI)	177,423	171,239	145,118	132,196	121,822	100,808
INTER CONTINENTAL TELEPHONE	160,084	117,760	134,572	120,932	99,033	84,534
L.D. SERVICES, INC.	143,601	116,239	99,557	90,774		
COASTAL TELEPHONE COMPANY	141,358	133,108	97,917			
NATIONAL TELEPHONE COMMUNICATIONS, INC.	139,185					
VARTEC TELECOM, INC.	137,594	116,898	120,832	136,568	122,991	130,738
CINCINNATI BELL LONG DISTANCE INC.	134,506	120,710	115,396	102,634	102,163	92,302
GENERAL COMMUNICATIONS, INC.	130,994	124,969	119,883	102,613	102,528	102,202
ALLTEL LONG DISTANCE	127,563	78,401				
SWITCHED SERVICES COMMUNICATIONS 13/	126,721					
TELAMERICA, INC.	124,628	122,093	115,403	109,463	105,053	100,282
ATX TELECOMMUNICATIONS SERVICES	122,297	119,843	118,637	113,466	107,979	110,023
ONE CALL COMMUNICATIONS	120,952	110,352	93,613	78,328		
AMERIVISION COMMUNICATIONS	117,120					
CENTURY AREA LONG LINES	116,708	104,143				
ACCESS LONG DISTANCE	107,423	101,914	90,562	81,438		
OCI (ONCOR)	106,742	116,046	128,209	146,918	161,085	163,972
INTERNATIONAL TELECHARGE						
COMMONWEALTH LONG DISTANCE (CLD)	103,421	109,349	139,414	146,663	147,045	125,682
AMERICAN TELCO, INC.	99,806	89,783	83,402			
TWT-HEARTLINE	97,531	118,455	117,739			72,803
ACC LONG DISTANCE CORPORATION	87,667	80,795	79,652		74,482	
MATRIX TELECOM	85,971	89,689	91,031			
TRESCOM INTERNATIONAL, INC.	84,766					
DELTACOM L.D.S.	83,580					
WINSTAR GATEWAY NETWORK, INC		109,991	86,652			
MIDCOM COMMUNICATIONS		79,472	81,386	102,076		
COMMUNIQUE TELECOM					188,296	197,874
WORLDXCHANGE 14/			140,610	127,839	156,055	79,270
CHERRY COMMUNICATIONS			104,367	93,746		
ALIANT SYSTEMS (FORMERLY LINTEL - LINCOLN)			79,281	81,010	85,496	88,136
SONIC COMMUNICATIONS 15/					114,041	
TELESPHERE NETWORK 15/						
PUERTO RICO TEL-COM						
NETECH COMM, US WEST						
TOTAL QUALIFYING CARRIERS	154,461,809	152,060,868	149,232,439	146,960,184	145,317,426	142,215,682
NON-QUALIFYING CARRIERS	4,210,374	3,920,356	3,368,738	3,384,888	3,161,902	3,013,060
TOTAL INDUSTRY PRESUBSCRIBED LINES	158,672,243	156,001,224	152,601,177	150,345,052	148,479,328	145,228,742

TABLE 11.2

PRESUBSCRIBED TELEPHONE LINES BY CARRIER--CONTINUED

	DECEMBER 1993	JUNE 93	DECEMBER 1992	JUNE 92	DECEMBER 1991	JUNE 91
TOTAL NUMBER OF CARRIERS WITH PRESUBSCRIBED LINES	436	412	414	425	388	356
TOTAL NUMBER OF QUALIFYING CARRIERS	27	28	28	24	22	24
TOTAL NUMBER OF NON-QUALIFYING CARRIERS	409	384	386	401	366	331
QUALIFYING CARRIERS 1/						
AT&T COMPANIES:						
AT&T COMMUNICATIONS	101,711,176	101,770,741	101,203,868	101,384,413	101,498,230	101,013,529
AT&T ALASCOM, INC. 2/	216,964	218,225	209,850	203,832	203,105	196,244
MCI TELECOMMUNICATIONS CORP.	21,618,212	21,170,832	20,167,296	19,169,649	18,329,870	17,603,453
SOUTHERNET						
TELECOM*USA						
TELECONNECT						
SPRINT	9,212,993	8,621,177	8,656,004	8,424,303	8,353,563	8,702,085
LA CONEXION FAMILIAR, INC.			71,327	72,555		
LONG DISTANCE/USA						
WORLDCOM 3/	1,752,616	931,553	482,043	338,820	332,244	134,043
ADVANCED TELECOM CORP. (ATC)			440,961	331,136	333,152	334,157
AMERICAN NETWORK						
CLAYDESTA DIGITAL						
COM SYSTEMS DBA SUN DIAL		134,950	126,190	117,571	116,326	119,034
ITT						
METROMEDIA		538,362	494,864	468,698	470,128	497,187
MICROTEL						
MID-AMERICAN						
NATIONAL TELECOMMUNICATIONS						91,417
NTS (NATIONAL TELEPHONE SYSTEMS)						
TELUS/TELTEC SAVING						
TOUCH-1 LONG DISTANCE	98,044	105,244	110,929			
WILTEL 4/	432,844	339,960	191,076	116,501	87,758	
MFS INTELENET, INC.						
EXCEL TELECOMMUNICATIONS, INC.						
LCI COMPANIES:						
LCI INTERNATIONAL/LITEL 5/	405,644	359,575	338,496	226,350	186,684	163,069
LCI CORPORATE TELEMANAGEMENT GROUP						
LCI/US SIGNAL CORP. 6/	109,071	93,155	77,096			
FRONTIER COMPANIES: 7/						
FRONTIER dba ALLNET COMM. SVC., INC. 8/	891,577	846,961	859,499	830,548	813,748	775,847
FRONTIER COMMUNICATIONS INT'L 9/	279,304	260,760	252,495	240,670	190,382	180,321
FRONTIER COMM-NORTH CENTRAL REGION 10/						
FRONTIER OF THE GREAT LAKES 11/	77,699	76,521	71,059			
FRONTIER OF THE WEST 12/	96,539					
SNET AMERICA LONG DISTANCE						
GTE LONG DISTANCE CO.						
CABLE & WIRELESS COMMUNICATIONS	529,398	522,112	513,419	490,228	466,935	446,951
TELEFONICA LARGA DISTANCIA	442,922	436,695	432,701	425,334	419,293	393,034
U.S. LONG DISTANCE/ZERO PLUS						
UNITED TELEPHONE LONG DISTANCE	648,131	625,831	639,341	626,850	596,114	590,187
TOUCH 1 COMMUNICATIONS						
CITIZENS TELECOM						
LONG DISTANCE SAVERS	112,905	98,514	87,667	80,839	77,568	73,696
BUSINESS TELECOM , INC. (BTI)	79,396					
INTER CONTINENTAL TELEPHONE						
L.D. SERVICES, INC.						
COASTAL TELEPHONE COMPANY						
NATIONAL TELEPHONE COMMUNICATIONS, INC.						
VARTEC TELECOM, INC.	117,692	77,258				
CINCINNATI BELL LONG DISTANCE INC.	93,659	93,014	90,841	86,974	79,182	74,387
GENERAL COMMUNICATIONS, INC.	99,911	91,812	97,798	94,229	93,233	90,252
ALLTEL LONG DISTANCE						
SWITCHED SERVICES COMMUNICATIONS 13/						
TELAMERICA, INC.	94,114	92,719	92,860	91,460	85,801	90,887
ATX TELECOMMUNICATIONS SERVICES	104,971	86,186	82,303	70,246		
ONE CALL COMMUNICATIONS						
AMERIVISION COMMUNICATIONS						
CENTURY AREA LONG LINES						
ACCESS LONG DISTANCE						
OCI (ONCOR)	144,511	106,625	87,593			
INTERNATIONAL TELECHARGE					72,813	82,085
COMMONWEALTH LONG DISTANCE (CLD)	113,072	103,407	103,684	93,241		
AMERICAN TELCO, INC.						
TWT-HEARTLINE						
ACC LONG DISTANCE CORPORATION						
MATRIX TELECOM						
TRESCOM INTERNATIONAL, INC.						
DELTACOM L.D.S.						
WINSTAR GATEWAY NETWORK, INC						
MIDCOM COMMUNICATIONS						
COMMUNIQUE TELECOM	189,781	161,398	148,865	133,090	106,892	93,609
WORLDXCHANGE 14/						
CHERRY COMMUNICATIONS						
ALIANT SYSTEMS (FORMERLY LINTEL - LINCOLN)	90,146	91,420	93,427	93,562	94,183	96,415
SONIC COMMUNICATIONS 15/						
TELESPHERE NETWORK 15/a						94,666
PUERTO RICO TEL-COM						79,146
NETECH COMM, US WEST		107,063				
TOTAL QUALIFYING CARRIERS	139,963,294	136,162,070	136,423,594	134,230,099	133,013,454	132,017,921
NON-QUALIFYING CARRIERS	2,845,986	2,452,609	2,301,446	2,473,551	2,273,128	1,878,542
TOTAL INDUSTRY PRESUBSCRIBED LINES	142,809,280	140,614,679	138,725,040	136,703,650	135,286,582	133,896,463

TABLE 11.2

PRESUBSCRIBED TELEPHONE LINES BY CARRIER–CONTINUED

	DECEMBER 1990	JUNE 90	DECEMBER 1989	JUNE 89	DECEMBER 1988	JUNE 88	DECEMBER 1987
TOTAL NUMBER OF CARRIERS WITH PRESUBSCRIBED LINES	325	314	302	276	253	242	223
TOTAL NUMBER OF QUALIFYING CARRIERS	21	20	20	21	21	20	19
TOTAL NUMBER OF NON-QUALIFYING CARRIERS	304	294	282	255	232	222	204
QUALIFYING CARRIERS 1/							
AT&T COMPANIES:							
AT&T COMMUNICATIONS	100,061,611	99,612,725	99,396,009	100,006,827	100,205,677	100,632,869	101,652,678
AT&T ALASCOM, INC. 2/	182,341	179,175	166,096	165,332	161,572	157,250	152,040
MCI TELECOMMUNICATIONS CORP.	17,434,893	16,864,001	15,055,043	13,671,625	12,149,921	10,941,207	9,990,561
SOUTHERNET					215,384	199,093	183,769
TELECOM*USA		712,263	646,084	533,516			
TELECONNECT					247,042	211,949	156,614
SPRINT	8,743,988	8,148,013	8,167,636	7,674,606	7,197,136	6,382,372	5,836,179
LA CONEXION FAMILIAR, INC.							
LONG DISTANCE/USA						81,692	85,680
WORLDCOM 3/	118,854	70,781	66,576				
ADVANCED TELECOM CORP. (ATC)	355,518	372,260	396,319	262,542			
AMERICAN NETWORK							95,926
CLAYDESTA DIGITAL					96,914	76,804	71,794
COM SYSTEMS DBA SUN DIAL	116,953	118,225	89,661	87,520	62,773		
ITT		360,551	412,197	425,109	420,795	394,707	279,549
METROMEDIA	515,711	198,374	207,529	209,036	215,161	211,210	215,485
MICROTEL					70,273	63,587	
MID-AMERICAN				89,367	97,526	100,113	96,384
NATIONAL TELECOMMUNICATIONS							
NTS (NATIONAL TELEPHONE SYSTEMS)		67,129	77,667	65,092			
TELUS/TELTEC SAVING				134,150	125,339	117,191	105,243
TOUCH-1 LONG DISTANCE							
WILTEL 4/							
MFS INTELENET, INC.							
EXCEL TELECOMMUNICATIONS, INC.							
LCI COMPANIES:							
LCI INTERNATIONAL/LITEL 5/	144,926	137,164	123,748	107,302	92,014		
LCI CORPORATE TELEMANAGEMENT GROUP							
LCI/US SIGNAL CORP. 6/							
FRONTIER COMPANIES: 7/							
FRONTIER dba ALLNET COMM. SVC., INC. 8/	744,452	709,876	677,531	687,097	763,680	818,080	726,974
FRONTIER COMMUNICATIONS INT'L 9/	171,198	150,069	113,329	98,334	83,383	63,574	
FRONTIER COMM-NORTH CENTRAL REGION 10/							
FRONTIER OF THE GREAT LAKES 11/							
FRONTIER OF THE WEST 12/							
SNET AMERICA LONG DISTANCE							
GTE LONG DISTANCE CO.							
CABLE & WIRELESS COMMUNICATIONS	422,534	407,906	394,020	358,290	304,976	256,786	235,000
TELEFONICA LARGA DISTANCIA	375,694						
U.S. LONG DISTANCE/ZERO PLUS							
UNITED TELEPHONE LONG DISTANCE	548,303	524,477	513,033	430,550	285,385	167,025	62,602
TOUCH 1 COMMUNICATIONS							
CITIZENS TELECOM							
LONG DISTANCE SAVERS							
BUSINESS TELECOM , INC. (BTI)							
INTER CONTINENTAL TELEPHONE							
L.D. SERVICES, INC.							
COASTAL TELEPHONE COMPANY							
NATIONAL TELEPHONE COMMUNICATIONS, INC.							
VARTEC TELECOM, INC.							
CINCINNATI BELL LONG DISTANCE INC.	67,689						
GENERAL COMMUNICATIONS, INC.	88,360	82,386	86,089	85,773	83,468	84,807	89,338
ALLTEL LONG DISTANCE							
SWITCHED SERVICES COMMUNICATIONS 13/							
TELAMERICA, INC.	101,968	102,530	100,213	99,038	90,570	94,654	94,292
ATX TELECOMMUNICATIONS SERVICES							
ONE CALL COMMUNICATIONS							
AMERIVISION COMMUNICATIONS							
CENTURY AREA LONG LINES							
ACCESS LONG DISTANCE							
OCI (ONCOR)							
INTERNATIONAL TELECHARGE	83,725	87,751	95,252	71,346			
COMMONWEALTH LONG DISTANCE (CLD)							
AMERICAN TELCO, INC.							
TWT-HEARTLINE							
ACC LONG DISTANCE CORPORATION							
MATRIX TELECOM							
TRESCOM INTERNATIONAL, INC.							
DELTACOM L.D.S.							
WINSTAR GATEWAY NETWORK, INC							
MIDCOM COMMUNICATIONS							
COMMUNIQUE TELECOM							
WORLDXCHANGE 14/							
CHERRY COMMUNICATIONS							
ALIANT SYSTEMS (FORMERLY LINTEL - LINCOLN)	99,594	95,126	96,966	93,353	94,031	92,636	93,352
SONIC COMMUNICATIONS 15/							
TELESPHERE NETWORK 15/	111,386						
PUERTO RICO TEL-COM	99,821						
NETECH COMM, US WEST							
TOTAL QUALIFYING CARRIERS	130,589,544	129,000,782	126,883,689	125,356,404	123,063,039	121,349,606	120,244,460
NON-QUALIFYING CARRIERS	1,819,064	1,776,233	1,598,790	1,390,131	1,297,791	1,315,809	1,222,040
TOTAL INDUSTRY PRESUBSCRIBED LINES	132,408,608	130,777,015	128,482,479	126,746,535	124,360,829	122,665,415	121,466,500

SEE NOTES FOLLOWING TABLE 11.4.

TABLE 11.3

MARKET SHARE OF PRESUBSCRIBED LINES

		AT&T	MCI	SPRINT	WORLDCOM	OTHER CARRIERS
1987	DEC	83.7 %	8.2 %	4.8 %		3.3 %
1988	JUNE	82.2	8.9	5.2		3.7
	DEC	80.6	9.8	5.8		3.9
1989	JUNE	78.9	10.8	6.1	0.0 %	4.3
	DEC	77.4	11.7	6.4	0.1	4.5
1990	JUNE	76.2	12.9	6.2	0.1	4.7
	DEC	75.6	13.2	6.6	0.1	4.6
1991	JUNE	75.4	13.1	6.5	0.1	4.8
	DEC	75.0	13.5	6.2	0.2	5.0
1992	JUNE	74.2	14.0	6.2	0.2	5.4
	DEC	73.0	14.5	6.4	0.3	5.8
1993	JUNE	72.4	15.1	6.1	0.7	5.8
	DEC	71.2	15.3	6.5	1.2	5.8
1994	JUNE	70.5	15.3	6.4	1.3	6.5
	DEC	70.0	14.8	6.4	1.3	7.4
1995	JUNE	68.2	15.6	6.4	2.4	7.4
	DEC	66.4	15.7	6.4	2.7	8.8
1996	JUNE	64.0	15.6	7.0	2.6	10.8
	DEC	63.3	14.5	7.4	2.7	12.1

TABLE 11.4

ANNUAL RATES OF GROWTH OF PRESUBSCRIBED LINES

		AT&T	MCI	SPRINT	WORLDCOM	OTHER CARRIERS	TOTAL INDUSTRY LINES
1987	DEC						
1988	JUNE						
	DEC	-1.4 %	21.6 %	23.3 %		22.1 %	2.4 %
1989	JUNE	-0.8	25.0	20.2		21.1	3.3
	DEC	-0.8	23.9	13.5		18.7	3.3
1990	JUNE	-0.4	23.4	6.2		10.6	3.2
	DEC	0.7	15.8	7.1	75.5 %	17.3	3.1
1991	JUNE	1.4	4.4	6.8	89.4	19.7	2.4
	DEC	1.4	5.1	-4.5	184.3	11.8	2.2
1992	JUNE	0.4	9.0	-3.2	152.8	13.2	2.1
	DEC	-0.3	10.0	6.0	45.1	17.2	2.5
1993	JUNE	0.4	10.3	2.3	174.9	11.3	2.9
	DEC	0.5	8.2	4.0	263.6	4.7	2.9
1994	JUNE	0.6	5.3	7.2	96.6	16.1	3.3
	DEC	2.2	1.0	2.8	11.5	32.7	4.0
1995	JUNE	0.1	5.3	3.7	101.1	17.6	3.5
	DEC	-2.5	8.5	3.3	109.2	21.8	2.8
1996	JUNE	-2.6	3.7	13.7	11.6	51.6	3.8
	DEC	-0.9	-4.1	20.5	5.1	43.0	4.0

NOTES FOR TABLES 11.2-11.4.

1/ QUALIFYING CARRIERS' DATA ARE SHOWN ONLY FOR YEARS IN WHICH THE CARRIER HAD AT LEAST .05% OF OVERALL PRESUBSCRIBED LINES.
2/ PURCHASED BY AT&T IN 1995.
3/ LDDS/WORLDCOM CHANGED ITS NAME TO WORLDCOM, INC. IN MAY 1995.
4/ LDDS AND WILTEL MERGED ON JANUARY 5, 1995.
5/ NAME CHANGED FROM LITEL, DECEMBER 1994.
6/ NAME CHANGED FROM TELEDIAL AMERICA, DECEMBER 1994.
7/ THE TOTAL NUMBER OF PRESUBSCRIBED LINES REPORTED FOR FRONTIER FOR 1995 AND 1996 ARE ONLY FOR THOSE SUBSIDIARIES WHICH MEET THE QUALIFYING COMPANIES' THRESHOLD NOTED IN FOOTNOTE 1 ABOVE.
8/ PURCHASED BY FRONTIER IN 1995.
9/ NAME CHANGED FROM RCI, DECEMBER 1994.
10/ FORMERLY AMERICAN SHARECOM; PURCHASED BY FRONTIER IN 1995.
11/ FORMERLY SCHNEIDER COMMUNICATIONS; PURCHASED BY FRONTIER IN 1995.
12/ FORMERLY WEST COAST TELECOMMUNICATIONS; PURCHASED BY FRONTIER IN 1995.
13/ SUBSIDIARY OF IXC COMMUNICATIONS, INC.
14/ NAME CHANGED FROM COMMUNICATIONS TELESYSTEMS INT'L (CTI) IN 1995.
15/ COMPANY WENT BANKRUPT.

TABLE 11.5

MARKET SHARE OF PRESUBSCRIBED TELEPHONE LINES BY STATE AS OF DECEMBER 31, 1996

STATE	AT&T	MCI	SPRINT	WORLDCOM	EXCEL	OTHER CARRIERS	TOTAL LINES
ALABAMA	67.1 %	13.0 %	4.0 %	3.6 %	3.9 %	8.3 %	2,233,362
ALASKA	0.0	0.0	0.0	0.0	0.0	100.0	355,185
ARIZONA	59.8	14.4	8.9	4.6	2.7	9.6	2,414,612
ARKANSAS	67.2	11.4	5.5	4.2	4.7	7.0	1,288,457
CALIFORNIA	61.7	16.4	9.0	2.6	2.4	7.9	19,805,310
COLORADO	56.1	17.0	8.9	4.2	3.1	10.6	2,381,182
CONNECTICUT	38.8	11.3	5.3	1.8	0.8	42.0	2,035,573
DELAWARE	66.4	16.5	6.3	1.4	1.1	8.4	466,474
DIST. OF COLUMBIA	67.9	17.7	6.8	2.3	0.0	5.3	771,630
FLORIDA	66.2	12.2	8.0	3.3	2.9	7.3	9,571,502
GEORGIA	64.3	14.4	8.4	2.7	3.1	7.2	4,275,408
HAWAII	56.5	13.9	18.5	0.4	3.8	7.0	615,288
IDAHO	58.5	13.2	6.2	4.5	5.8	11.8	612,755
ILLINOIS	66.4	13.6	7.4	2.7	1.9	8.0	7,442,595
INDIANA	67.9	13.0	6.5	3.1	2.9	6.6	3,122,167
IOWA	61.8	16.5	5.3	5.3	2.8	8.2	1,495,268
KANSAS	61.9	13.0	10.9	2.9	3.3	7.9	1,486,306
KENTUCKY	67.2	12.6	4.3	4.3	4.6	7.0	1,897,582
LOUISIANA	63.2	13.3	4.4	6.3	2.5	10.4	2,265,803
MAINE	71.3	11.6	6.6	1.5	2.0	7.1	754,878
MARYLAND	64.6	18.8	7.4	1.9	0.0	7.3	3,052,067
MASSACHUSETTS	70.5	13.0	8.7	1.9	0.7	5.2	4,151,814
MICHIGAN	62.7	14.5	6.2	2.3	3.0	11.2	5,703,053
MINNESOTA	58.5	19.8	5.8	2.6	2.9	10.4	2,729,586
MISSISSIPPI	66.9	14.0	3.7	4.7	3.2	7.5	1,244,747
MISSOURI	62.5	12.9	10.6	3.6	2.9	7.4	3,064,182
MONTANA	64.0	11.6	6.2	2.5	4.9	10.7	481,698
NEBRASKA	59.2	14.1	6.4	4.3	3.2	12.7	927,923
NEVADA	58.6	13.3	14.8	3.0	3.2	7.1	1,074,104
NEW HAMPSHIRE	71.1	11.3	8.2	1.7	0.9	6.8	752,763
NEW JERSEY	71.2	14.3	5.1	2.0	1.0	6.4	5,776,498
NEW MEXICO	59.8	16.1	7.6	4.4	3.8	8.4	814,166
NEW YORK	64.3	14.2	9.0	1.9	0.9	9.6	11,562,379
NORTH CAROLINA	63.8	11.5	10.2	2.5	3.9	8.1	4,166,616
NORTH DAKOTA	59.4	16.3	4.4	6.0	3.8	10.2	354,244
OHIO	63.1	14.0	7.3	2.8	2.3	10.5	6,227,640
OKLAHOMA	63.0	12.4	6.5	3.7	4.4	10.0	1,822,825
OREGON	64.0	11.3	9.0	5.0	2.8	7.9	1,847,314
PENNSYLVANIA	66.1	14.3	6.4	1.7	1.6	10.0	7,119,669
RHODE ISLAND	72.1	12.0	7.5	2.0	1.1	5.3	602,318
SOUTH CAROLINA	60.3	14.9	5.3	2.9	4.9	11.6	1,962,005
SOUTH DAKOTA	61.0	15.0	4.6	4.0	4.8	10.7	385,081
TENNESSEE	67.3	13.3	6.3	3.9	3.2	6.0	3,071,812
TEXAS	58.5	15.8	7.7	3.2	2.9	11.9	10,678,438
UTAH	58.1	14.6	7.4	4.0	3.9	12.0	984,594
VERMONT	67.7	12.5	7.1	2.1	1.1	9.5	365,472
VIRGINIA	61.9	20.6	8.3	2.3	0.9	6.0	3,765,373
WASHINGTON	59.8	13.8	10.1	3.6	3.4	9.4	3,270,199
WEST VIRGINIA	69.7	15.5	4.7	2.6	0.4	7.2	846,340
WISCONSIN	64.2	14.7	5.7	2.4	2.4	10.7	3,057,769
WYOMING	66.9	12.7	6.1	4.0	3.6	6.8	274,309
UNITED STATES	63.3	14.5	7.6	2.9	2.4	9.3	157,428,335
N. MARIANA ISL.	0.0	71.3	0.0	0.0	0.0	28.7	20,976
PUERTO RICO	41.1	10.6	4.0	0.0	0.0	44.4	1,166,721
VIRGIN ISLANDS	70.8	0.0	10.3	0.0	0.0	18.9	56,211
GRAND TOTAL	63.1 %	14.5 %	7.6 %	2.8 %	2.4 %	9.6 %	158,672,243

Source: National Exchange Carrier Association PSL Database.

TABLE 11.6

TOTAL TOLL SERVICE REVENUES
(DOLLAR AMOUNTS SHOWN IN MILLIONS)

COMPANY	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984
AT&T COMPANIES: 1/													
AT&T COMMUNICATIONS, INC.	$39,264	$38,009	$37,166	$35,731	$35,486	$34,304	$33,680	$34,549	$35,407	$35,219	$36,514	$36,770	$34,935
ALASCOM, INC.		325	329	320	333	338	259	278	272	262	287	271	255
MCI TELECOMMUNICATIONS CORP. 2/	16,372	14,617	11,715	10,847	9,719	8,269	7,392	6,171	4,856	3,938	3,372	2,331	1,761
TELECOM*USA								713	524	396	291	201	105
SPRINT COMMUNICATIONS CO. 3/	7,944	7,277	6,805	6,139	5,855	5,376	5,041	4,320	3,405	2,592	1,141		
GTE SPRINT											779	1,122	1,052
US TELECOM											212	387	
WORLDCOM, INC. 4/	4,485	3,640	2,221	1,145	601	283	154	110					
ADVANCED TELECOMMUNICATIONS CORP.						353	342	326	178	162	124	86	72
METROMEDIA COMMUNICATIONS CORP. 5/				297	339	369	351	127					
ITT COMMUNICATION SERVICES, INC.								404	379	287	282	241	161
COMSYSTEMS NETWORK SERVICES				116	135	131	130						
WILTEL, INC.			917	694	494	405	376	300					
MFS INTELENET, INC.	122	118											
FRONTIER COMPANIES: 6/													
ALLNET COMM. SVCS. dba FRONTIER COMM. SVCS. 7/	1,119	827	589	436	376	347	326	334	394	395	450	309	
LEXITEL												127	
FRONTIER COMMUNICATIONS INT'L, INC. 8/	323	309	306	213	169	155	142	104					
FRONTIER COMMS. - NORTH CENTRAL REGION	121	133	123										
FRONTIER COMMUNICATIONS OF THE WEST, INC.		127	144										
LCI INTERNATIONAL TELECOM CORP.	1,103	671	453	317	243	208	215	197					
EXCEL TELECOMMUNICATIONS, INC. 9/ 10/	1,091	383	156										
CABLE & WIRELESS COMMUNICATIONS, INC.	919	700	654	557	495	406	359	275	218	180	171	146	
VARTEC TELECOM, INC.	470	125	107										
TELCO COMMUNICATIONS GROUP, INC.	429	215											
CHERRY COMMUNICATIONS, INC.	354												
USA GLOBAL LINK	242												
TEL-SAVE, INC. 9/	232	180											
TELEGROUP, INC. 9/	213	129											
STAR TELECOMMUNICATIONS, INC.	208												
IXC COMMUNICATIONS, INC.	204												
COMMUNICATION TELESYSTEMS INT'L. 9/	198	115											
USLD COMMUNICATIONS CORP. 11/	188	155	135	100									
PACIFIC GATEWAY EXCHANGE, INC.	162												
MIDCOM COMMUNICATIONS, INC.	149	204	109										
BUSINESS TELECOM, INC. 12/	149	115											
GENERAL COMMUNICATION, INC. 13/	143	120	108	92									
TRESCOM INTERNATIONAL, INC.	140												
ACC LONG DISTANCE CORP.	118												
PHONETIME, INC. (PTI)	117												
ONE CALL COMMUNICATIONS, INC.	114												
GE CAPITAL COMMUNICATIONS SERVICES CORP. 9/		120											
ONCOR COMMUNICATIONS, INC. 9/		111	172	140	159	181	230	275					
THE FURST GROUP, INC. 9/		109											
AMERICAN NETWORK EXCHANGE, INC.		101	109										
TELESPHERE NETWORK, INC. 14/						308	293	192					
(NATIONAL TELEPHONE SERVICES, INC.)								150					
OTHERS 15/	5,342	5,168	5,055	4,319	3,923	2,948	2,582	2,359	1,823	1,352	992	639	414
TOTAL LONG DISTANCE CARRIERS	82,033	74,143	67,351	61,533	58,368	54,443	52,102	51,184	47,487	44,783	44,595	42,630	38,755
BELL OPERATING COMPANIES	7,950	8,189	9,527	9,849	9,718	10,066	10,578	10,549	10,668	10,268	9,599	9,026	9,037
OTHER LOCAL TELEPHONE COMPANIES 15/	3,298	3,143	3,848	3,908	3,897	4,049	4,112	4,291	4,445	3,468	3,274	3,159	3,364
TOTAL LOCAL EXCHANGE COMPANIES	11,248	11,332	13,375	13,757	13,615	14,115	14,690	14,840	15,113	13,736	12,873	12,185	12,401
TOTAL TOLL SERVICE REVENUES	$93,281	$85,475	$80,726	$75,290	$71,983	$68,558	$66,792	$66,024	$62,600	$58,519	$57,468	$54,815	$51,156

SEE NOTES FOLLOWING TABLE 11.8.

TABLE 11.7

TOTAL TOLL SERVICE REVENUES - MARKET SHARE
(BASED ON REVENUES OF LONG DISTANCE CARRIERS ONLY)

YEAR	AT&T	MCI	SPRINT	WORLDCOM	ALL OTHER LONG DISTANCE CARRIERS
1984	90.1 %	4.5 %	2.7 %		2.6 %
1985	86.3	5.5	2.6		5.6
1986	81.9	7.6	4.3		6.3
1987	78.6	8.8	5.8		6.8
1988	74.6	10.3	7.2		8.0
1989	67.5	12.1	8.4	0.2 %	11.8
1990	65.0	14.2	9.7	0.3	10.8
1991	63.2	15.2	9.9	0.5	11.3
1992	60.8	16.7	9.7	1.4	11.5
1993	58.1	17.8	10.0	1.9	12.3
1994	55.2	17.4	10.1	3.3	14.0
1995	51.8	19.7	9.8	4.9	13.8
1996	47.9	20.0	9.7	5.5	17.0

TABLE 11.8
TOTAL TOLL SERVICE REVENUES - MARKET SHARE
(BASED ON REVENUES OF ALL LONG DISTANCE TOLL PROVIDERS)

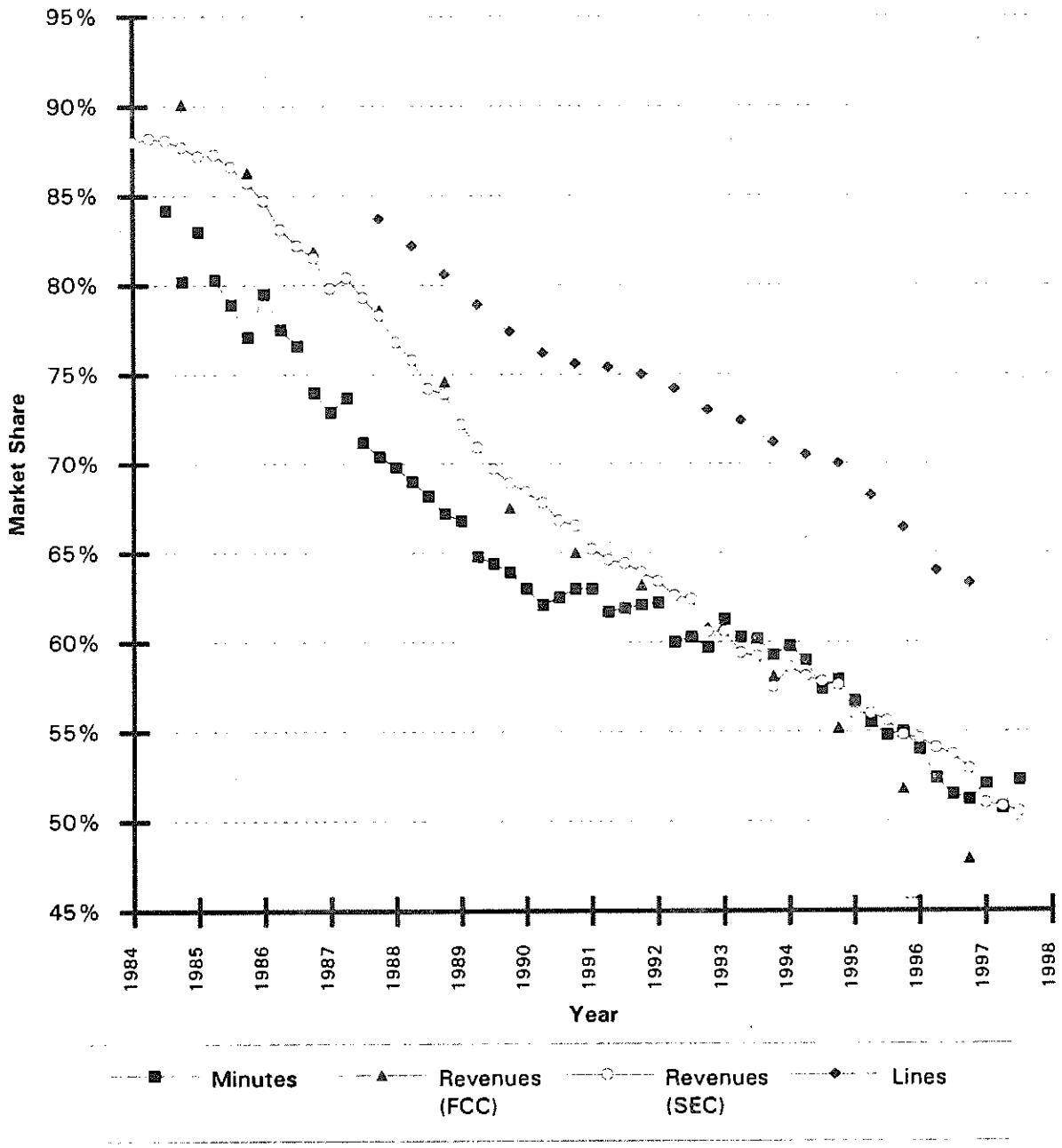
	AT&T	MCI	SPRINT	WORLDCOM	ALL OTHER LONG DISTANCE CARRIERS	BELL OPERATING COMPANIES	OTHER LOCAL TELEPHONE COMPANIES
1984	68.3 %	3.4 %	2.1 %		2.0 %	17.7 %	6.6 %
1985	67.1	4.3	2.0		4.4	16.5	5.8
1986	63.5	5.9	3.3		4.9	16.7	5.7
1987	60.2	6.7	4.4		5.2	17.5	5.9
1988	56.6	7.8	5.4		6.1	17.0	7.1
1989	52.3	9.3	6.5	0.2 %	9.1	16.0	6.5
1990	50.7	11.1	7.5	0.2	6.4	15.8	6.2
1991	50.2	12.1	7.8	0.4	9.0	14.7	5.9
1992	49.3	13.5	7.9	1.1	9.3	13.5	5.4
1993	47.5	14.5	8.2	1.5	10.1	13.1	5.2
1994	46.0	14.5	8.4	2.8	11.7	11.8	4.8
1995	44.9	17.1	8.5	4.3	12.0	9.6	3.7
1996	42.1	17.6	8.5	4.8	15.0	8.5	3.5

Notes for Tables 11.6-11.8.

Sources: Industry Analysis Division, *Long Distance Market Shares*.
Local exchange carrier information derived from USTA annual reports.
Long distance company information taken from reports filed pursuant to FCC Report and Order in CC Docket 83-1291.

1/ AT&T acquired Alascom August 7, 1995.
2/ MCI Telecommunications and Telecom*USA merged during 1989. With the 1996 filing, MCI revised its 1995 revenues. MCI previously reported total operating revenues by SIC code. In its 1995 annual report to stockholders, MCI separated its core telecommunications services business from its business activities in ventures and developing markets. Its revenues for 1995 and 1996 now reflect core business information only.
3/ In July 1986, GTE Sprint and US Telecom merged into US Sprint. The information shown for GTE Sprint and US Telecom for 1986 is January 1 - June 30. The information shown for US Sprint for 1986 is for July 1-December 31. Effective February 26, 1992, the company's name became Sprint Communications Co.
4/ LDDS Communications, Inc. (which changed its name to WorldCom, Inc. in May 1995) and Advanced Telecommunications Corp. merged during 1992. In 1993, LDDS Communications, Inc. merged with Metromedia Communications Corp. and Comsystems Network Services. For 1993, only the revenues that were received after the marger are included in LDDS Communications' revenues. Those revenues up to the merger are listed individually for 1993. LDDS and Wiltel merged January 5, 1995. WorldCom acquired MFS Intelenet on December 31, 1996. WorldCom's market share does not include MFS Intelenet's revenues for 1996.
5/ Metromedia Communications Corp. and ITT Communications Corp. merged during 1988. Information for 1989 was reported separately.
6/ Frontier Corporation, the parent company of Frontier Communications Int'l, Inc., acquired ALC Communications, the parent company of Allnet on August 16, 1995. On May 18, 1995, Frontier Corporation acquired WCT Communications, the parent company of West Coast Telecommunications, which is now known as Frontier Communications of the West, Inc. In addition, on March 17, 1995, Frontier Corporation acquired American Sharecom, which is now known as Frontier Communications - North Central Region.
7/ Allnet and Lexitel merged at the end of 1985.
8/ Name changed from RCI Long Distance, Inc. in 1994.
9/ Company indicated it is strictly a reseller.
10/ Excludes $261 million from marketing services in 1996 and $143 million in 1995. Marketing revenues were included in the 1994 total.
11/ Name changed from U. S. Long Distance, Inc. in September 1997.
12/ Data for 1996 obtained from Annual Report to the Colorado Public Utilities Commission, which regulates telecommunications carriers pursuant to §40-15-301 C.R.S.
13/ Does not include $10 million from non-communications operations in 1993, $11 million in 1994, $9 million in 1995 and $13 million in 1996.
14/ Telesphere Network, Inc. and National Telephone Services, Inc. merged during 1989. In 1991, Telesphere Network, Inc. went into bankruptcy.
15/ Estimated by FCC staff.

Chart 11.1 - Indicators of AT&T Market Share



MINUTES OF CALLING:

1. Dial Equipment Minutes:

As in the case of telephone lines, there are several alternative measures of calling volumes. Most subscribers purchase service with unlimited local calling. As a result, most calls are not metered and estimates of total calling are subject to wide margins of error. Periodic studies are used within the telephone industry to estimate the number of calls and calling minutes for a variety of purposes. For example, periodic studies of dial equipment minutes (DEMs) are used to estimate the proportion of calling that is interstate and to allocate costs between interstate and intrastate services.

DEMs, which are shown in Table 12.1, are measured as calls enter and leave telephone switches; therefore, two DEMs are counted for every conversation minute. The volume of local calling has grown at approximately the same rate as the number of local telephone lines. In contrast, the volume of long distance calling surged as prices fell. As a result, a greater portion of calls are long distance. Intrastate toll minutes increased from 8% of all minutes in 1980 to 11% in 1996. During that same period, interstate calling minutes increased from 8% of the total to 15%.

As shown in Table 12.2, the average telephone line is used primarily for local calling and is used somewhat less than an hour per day for all calls (local, intrastate toll, and interstate toll). The level of local calling has remained relatively constant for a long period of time despite the introduction of facsimile machines, computer modems, and other devices that use telephone lines. Increases in long distance calling have caused the total usage per line to increase from 46 minutes in 1980 to 54 minutes in 1996.

2. Switched Access Minutes:

An alternative measure of interstate calling became available in 1984. Switched access minutes are those minutes transmitted by long distance carriers that also use the distribution networks of local telephone companies. The measure includes minutes associated with ordinary long distance calls and the "open end" of WATS and 800-like calls. It excludes calls made on private telecommunications systems, on leased lines, and minutes on the "closed end" of WATS and 800-like calls. On ordinary long distance calls, minutes are counted both where the call originates and where the call terminates.

Table 12.3 shows the total number of interstate switched access minutes handled by all long distance carriers. The number of minutes has grown steadily since mid-1984, stemming from a combination of overall economic growth and price reductions. Premium minutes have grown rapidly, reflecting both strong underlying traffic growth and the conversion of offices to equal access. Non-premium minutes (principally minutes handled by AT&T's competitors

in areas where equal access has not yet been provided) continue to decline as the process of conversion to equal access nears completion.

Telephone industry traffic experts often argue that dial equipment minutes represent the best available information on the proportions of different types of calls, while access minutes are the most accurate available data on the volume of interstate calling. However, it is not clear why reported changes in access minutes are not entirely consistent with reported changes in dial equipment minutes.

TABLE 12.1

DIAL EQUIPMENT MINUTES
(MINUTES SHOWN IN BILLIONS)

	LOCAL	INTRASTATE TOLL	INTERSTATE TOLL	TOTAL
1980	1,458	141	133	1,733
1981	1,492	151	144	1,787
1982	1,540	158	154	1,853
1983	1,587	166	169	1,923
1984	1,639	198	208	2,045
1985	1,673	222	250	2,145
1986	1,699	237	270	2,207
1987	1,713	253	295	2,261
1988	1,795	269	321	2,384
1989	1,829	286	344	2,459
1990	1,846	298	353	2,497
1991	1,859	302	366	2,527
1992	1,929	311	381	2,622
1993	2,030	317	396	2,743
1994	2,128	327	421	2,876
1995	2,229	344	451	3,024
1996	2,407	371	487	3,266
INCREASE OVER PRIOR YEAR				
1981	2 %	7 %	8 %	3 %
1982	3	5	7	4
1983	3	5	10	4
1984	3	19	23	6
1985	2	12	20	5
1986	2	7	8	3
1987	1	7	9	2
1988	5	6	9	5
1989	2	6	7	3
1990	1	4	3	2
1991	1	1	4	1
1992	4	3	4	4
1993	5	2	4	5
1994	5	3	6	5
1995	5	5	7	5
1996	8	8	8	8
PERCENT DISTRIBUTION				
1980	84 %	8 %	8 %	100 %
1981	83	8	8	100
1982	83	9	8	100
1983	83	9	9	100
1984	80	10	10	100
1985	78	10	12	100
1986	77	11	12	100
1987	76	11	13	100
1988	75	11	13	100
1989	74	12	14	100
1990	74	12	14	100
1991	74	12	14	100
1992	74	12	15	100
1993	74	12	14	100
1994	74	11	15	100
1995	74	11	15	100
1996	74	11	15	100

SOURCE: NATIONAL EXCHANGE CARRIER ASSOCIATION.

TABLE 12.2

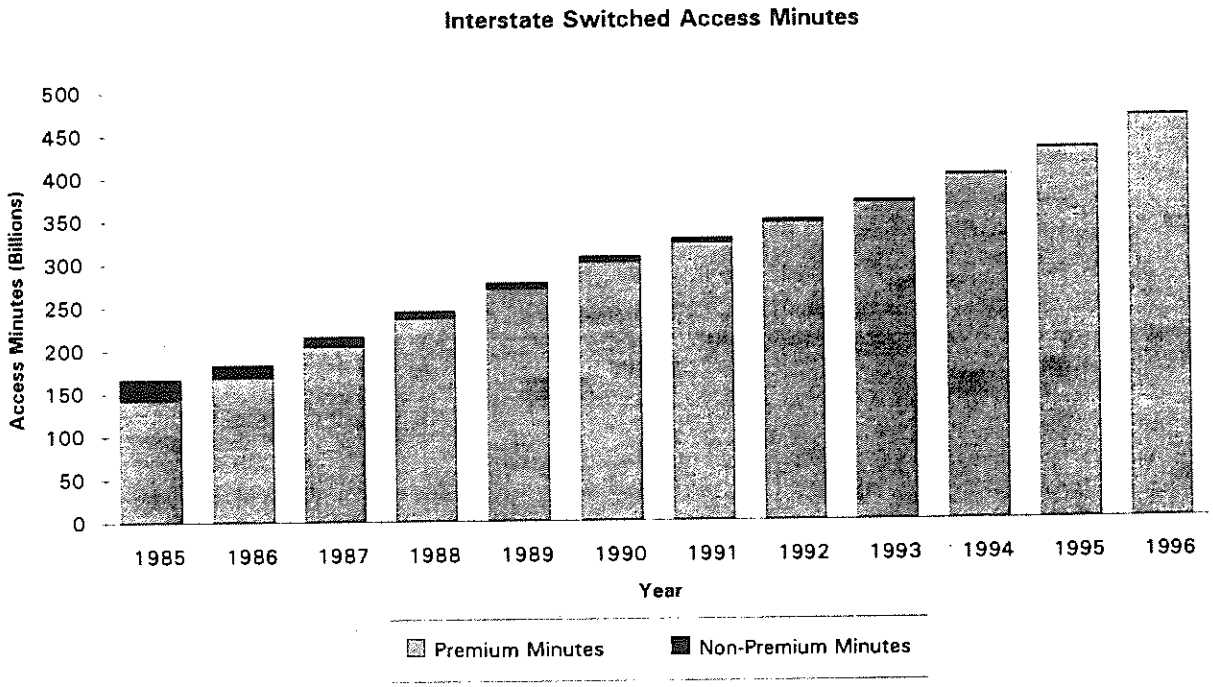
LINE USAGE PER DAY
DIAL EQUIPMENT MINUTES PER LOCAL LOOP

	LOCAL	INTRASTATE TOLL	INTERSTATE TOLL	TOTAL
1980	39	4	4	46
1981	39	4	4	46
1982	39	4	4	47
1983	39	4	4	48
1984	40	5	5	50
1985	40	5	6	51
1986	39	5	6	51
1987	38	6	7	50
1988	39	6	7	51
1989	38	6	7	51
1990	37	6	7	50
1991	37	6	7	50
1992	37	6	7	50
1993	38	6	7	51
1994	38	6	8	51
1995	38	6	8	52
1996	40	6	8	54
INCREASE OVER PRIOR YEAR				
1981	-1 %	4 %	5 %	-0 %
1982	1	3	5	2
1983	0	2	7	1
1984	1	17	21	5
1985	-1	9	17	2
1986	-0	5	6	1
1987	-3	3	5	-1
1988	1	3	5	2
1989	-2	3	4	-0
1990	-2	1	-1	-2
1991	-2	-1	1	-1
1992	1	0	1	1
1993	2	-2	1	1
1994	1	-0	3	1
1995	1	1	3	1
1996	4	4	4	4

TABLE 12.3

INTERSTATE SWITCHED ACCESS MINUTES
(FIGURES SHOWN IN BILLIONS)

	PREMIUM MINUTES	NON-PREMIUM MINUTES	TOTAL MINUTES
1985	142.4	24.7	167.1
1986	168.5	14.6	183.1
1987	203.9	11.9	215.7
1988	235.4	9.2	244.6
1989	269.1	8.0	277.1
1990	300.4	7.1	307.4
1991	322.2	5.8	328.0
1992	345.5	4.2	349.7
1993	368.3	3.0	371.2
1994	399.3	2.1	401.4
1995	430.3	1.6	431.9
1996	467.5	1.2	468.7



Source: Industry Analysis Division, *Long Distance Market Shares*.

PRICE INDEXES FOR TELEPHONE SERVICES:

The Bureau of Labor Statistics (BLS) collects a variety of information on telephone service as part of three separate programs -- the Consumer Price Index (CPI), the Producer Price Index (PPI), and the Consumer Expenditure Survey. The following material illustrates the range of information available from price indexes.

1. Long-Term Trends in Price Indexes:

A price index for telephone service was first published in 1935. Since that time, telephone prices have tended to increase at a slower pace than most other prices. Table 13.1 shows long-term changes in the Consumer Price Indexes for all items, all services, telephone services, each of the seven major categories that currently constitute the overall CPI, and several services that are often characterized as being public utilities.

2. Comprehensive Price Indexes:

The CPI index of telephone services is based on a "market basket" intended to represent the telephone related expenditures of a typical urban household. It includes both local and long distance services. The annual rate of change is shown in Table 13.2 for the overall CPI (which measures the impact of inflation on consumers) and the CPI for telephone services. In addition, Table 13.2 shows the Gross Domestic Product fixed-weight price index (which measures inflation throughout the economy) prepared by the Bureau of Economic Analysis.

3. Price Index for Local Service:

The CPI index of local telephone charges is based on a broadly defined market basket that includes monthly service charges, message unit charges, leased equipment, installation, service enhancements (such as tone dialing and call waiting), taxes, subscriber line charges, and all other consumer expenditures associated with telephone services except long distance charges. In contrast, the PPI index of monthly residential rates is much more narrowly defined. It is based only on monthly service charges for residential service, optional touch-tone service, and subscriber line charges. It excludes taxes, charges for special services such as call waiting, and all other expenditures. The annual rates of change for these indexes of local costs are presented in Table 13.3.

4. Price Indexes for Long Distance Service:

Price indexes are available for intrastate toll and interstate toll services since December 1977. These series are also presented in Table 13.3.

5. Price Index Limitations:

Price indexes are less reliable when industries are changing rapidly. For example, in 1992, long distance carriers began to increase basic rates while greatly expanding their range of discount offerings. The fixed market basket of toll calls measured for the CPI did not fully reflect these discounts. In 1995, BLS made major changes to the PPI telephone series, and there are no data after July 1995 comparable with prior data. Because of these sorts of difficulties, measures of average revenues are sometimes used as alternatives to price indexes.

TABLE 13.1

LONG-TERM CHANGES FOR VARIOUS PRICE INDEXES *
(ANNUAL RATES OF CHANGE)

	1935-1997	1987 - 1997
CPI all items	4.1 %	3.4 %
CPI all services	4.5	4.0
CPI telephone services	2.0	1.0
CPI major categories:		
- food & beverages	*	3.3
- housing	*	3.2
- apparel & upkeep	3.0	1.6
- transportation	3.8	2.9
- medical care	5.2	5.9
- entertainment	*	3.3
- other goods & services	*	5.7
CPI public transportation	5.0	4.2
CPI piped gas	3.7	2.6
CPI electricity	2.3	1.7
CPI sewer & water maintenance	*	5.3
CPI postage	4.1	3.8

Source: Bureau of Labor Statistics.

* Series not established until after 1935.

TABLE 13.2

ANNUAL CHANGES IN MAJOR PRICE INDEXES

	GDP Chain-type Price Index	CPI: All Items	CPI: Telephone Services
1978	7.2 %	9.0 %	0.9 %
1979	8.6	13.3	0.7
1980	9.2	12.5	4.6
1981	9.4	8.9	11.7
1982	6.2	3.8	7.2
1983	4.3	3.8	3.6
1984	3.7	3.9	9.2
1985	3.6	3.8	4.7
1986	2.5	1.1	2.7
1987	3.1	4.4	-1.3
1988	3.6	4.4	1.3
1989	4.2	4.6	-0.3
1990	4.3	6.1	-0.4
1991	4.0	3.1	3.5
1992	2.8	2.9	-0.3
1993	2.6	2.7	1.8
1994	2.3	2.7	0.7
1995	2.5	2.5	1.2
1996	2.3	3.0	1.5
1997 *	1.9	1.7	0.2

Source: Bureau of Labor Statistics.

* GDP Chain-type Price Index is 3rd Quarter 1996 to 3rd Quarter 1997

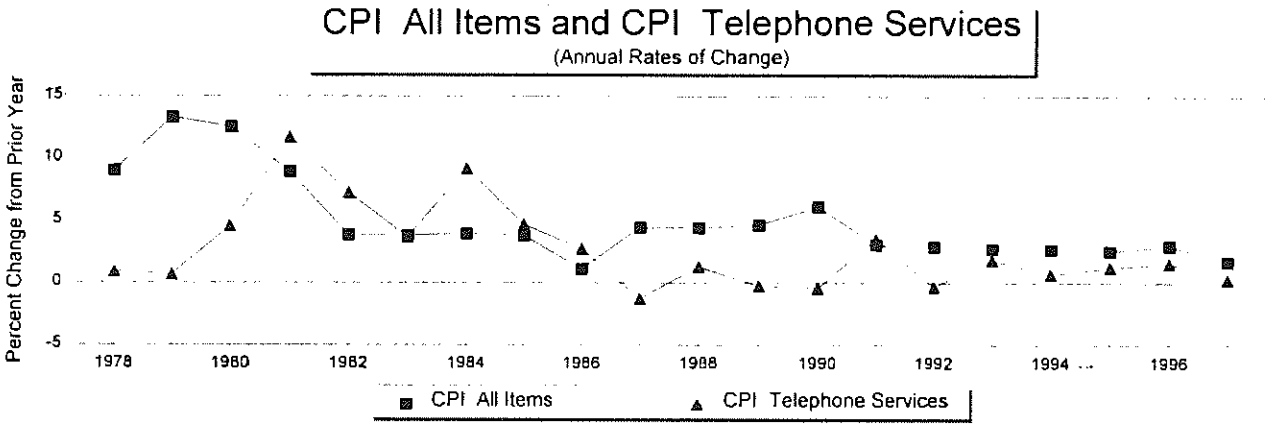


TABLE 13.3

ANNUAL CHANGES IN PRICE INDEXES FOR LOCAL AND LONG DISTANCE TELEPHONE SERVICES

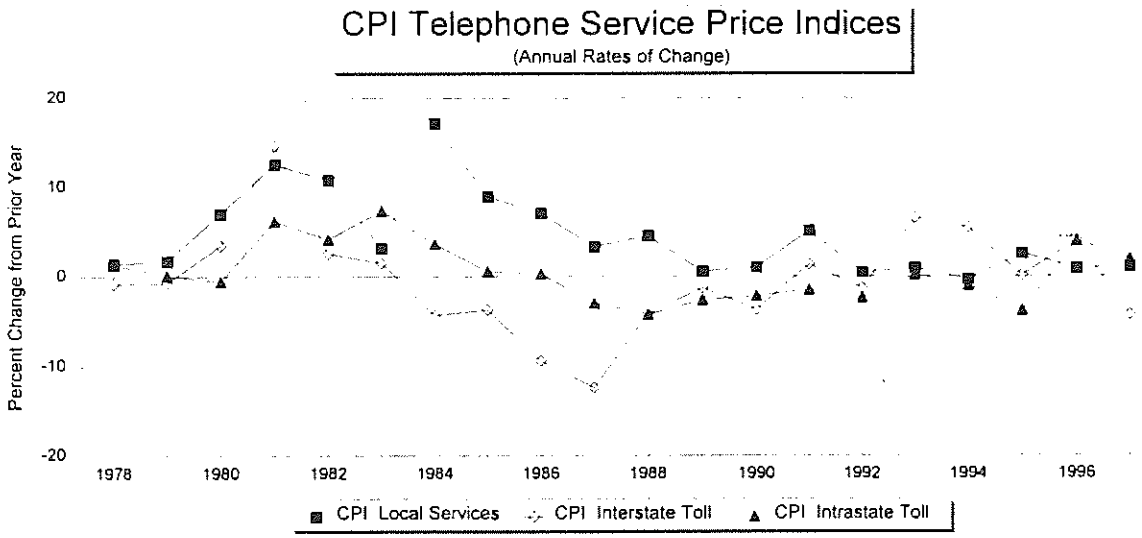
	Local Residential Service		Toll Service *			
	CPI: all local charges	PPI: Monthly Service Charges	Interstate Toll Calls		Intrastate Toll Calls	
			CPI	PPI	CPI	PPI
1978	1.4 %	3.1 %	-0.8 %	0.0 %	1.3 %	0.1 %
1979	1.7	1.6	-0.7	-0.9	0.1	-0.7
1980	7.0	7.1	3.4	5.5	-0.6	2.3
1981	12.6	15.6	14.6	15.9	6.2	8.0
1982	10.8	9.0	2.6	3.9	4.2	1.7
1983	3.1	0.2	1.5	0.0	7.4	3.9
1984	17.2	10.4	-4.3	-5.1	3.6	3.8
1985	8.9	12.4	-3.7	-3.0	0.6	2.1
1986	7.1	8.9	-9.4	-10.0	0.3	-3.5
1987	3.3	2.6	-12.4	-11.8	-3.0	-3.0
1988	4.5	4.6	-4.2	-2.1	-4.2	-3.7
1989	0.6	1.9	-1.3	-1.7	-2.6	0.5
1990	1.0	1.5	-3.7	-0.1	-2.2	-2.2
1991	5.1	2.1	1.3	-1.3	-1.5	-2.6
1992	0.5	-0.2	-1.3	1.0	-2.4	1.3
1993	1.0	0.8	6.5	3.8	0.2	-1.1
1994	-0.3	0.7	5.4	6.1	-1.0	-1.4
1995	2.6	**	0.1	**	-3.8	**
1996	0.9	0.4	4.0	0.7	4.0	0.9
1997 ***	1.0	0.2	-4.3	8.1	2.0	-5.5

Source: Bureau of Labor Statistics.

* CPI toll indexes represent rates for households. Through 1994, PPI toll indexes represent rate changes for both business and residential consumers. Since 1995, PPI indexes reflect rates for residential customers.

** The PPI telephone indexes were revised in June of 1995. The series are not comparable.

*** PPI figures are preliminary.



PRICE LEVELS:

1. Local Rate Levels:

The price indexes maintained by the Bureau of Labor Statistics indicate percentage changes in the price of telephone services. BLS does not publish actual rate levels. Calculations of average rates are based on surveys by FCC staff. These surveys use the same sampling areas and weights used by BLS in constructing the Consumer Price Index.

Table 14.1 presents average local rates for residential customers. In October 1996, the national average for flat-rate residential service was $19.58 monthly, including taxes and subscriber line charges.

In most cities, consumers can subscribe to a service with a lower recurring charge than the cost of unlimited one-party service. Lower priced service options include party-line service and measured service. As of October 1996, the national average for the lowest generally available recurring charge was $7.08. The average minimum monthly bill, including subscriber line charges and taxes, was $12.22.

Table 14.1 also shows rates for a single-line business customer. These rates are representative of the cost of a local access line for small businesses.

2. Long Distance Rates:

In Table 14.2, AT&T's basic schedule prices for directly dialed long distance calls are shown for January 1984 and December 1997. Higher charges apply to other types of calls such as those using operator assistance. Lower prices are available through calling plans and other volume discounts. In 1993, AT&T first began to charge different rates to residential and business customers. Since 1984, AT&T's basic schedule charges for directly dialed interstate calls have been reduced about 30% for residential callers and 20% for business callers.

Table 14.3 contains average revenue per minute for interstate calls. From 1984 to 1994, AT&T's average revenue per minute declined from 32 cents per minute to 18 cents per minute -- a drop of 40%. Table 14.3 also shows revenue per minute estimates calculated by the FCC staff for all carriers. These estimates show that billed revenue per minute has continued to decline for both international and domestic services.

TABLE 14.1

AVERAGE MONTHLY LOCAL TELEPHONE RATES
(IN OCTOBER OF EACH YEAR)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
RESIDENTIAL RATES*														
UNLIMITED LOCAL CALLING	$10.50	$12.10	$12.17	$12.58	$12.44	$12.32	$12.30	$12.39	$13.10	$13.12	$13.22	$13.20	$13.62	$13.70
SUBSCRIBER LINE CHARGES	0.00	0.00	1.01	2.04	2.66	2.67	3.53	3.55	3.56	3.55	3.55	3.55	3.54	3.54
TAXES INCLUDING 911 CHARGES	1.08	1.25	1.36	1.51	1.56	1.58	1.70	1.85	2.00	2.03	2.17	2.24	2.24	2.34
TOTAL	$11.58	$13.35	$14.54	$16.13	$16.66	$16.57	$17.53	$17.79	$18.66	$18.70	$18.94	$19.07	$19.40	$19.58
LOWEST GENERALLY AVAILABLE RATE	$5.37	$5.62	$5.75	$5.96	$5.81	$5.67	$5.67	$5.88	$6.18	$6.22	$6.43	$6.47	$6.80	$7.08
SUBSCRIBER LINE CHARGES	0.00	0.00	1.01	2.04	2.66	2.67	3.53	3.55	3.56	3.55	3.55	3.55	3.54	3.54
TAXES INCLUDING 911 CHARGES	0.56	0.58	0.70	0.84	0.94	0.91	1.03	1.15	1.28	1.31	1.45	1.50	1.56	1.62
TOTAL	$5.93	$6.20	$7.46	$8.84	$9.41	$9.25	$10.23	$10.38	$11.02	$11.08	$11.43	$11.52	$11.79	$12.22
MINIMUM CONNECTION CHARGE***	$35.01	$43.71	$44.32	$45.63	$44.04	$42.94	$42.71	$43.06	$42.00	$41.52	$41.38	$41.26	$40.91	$41.09
TAXES	1.75	2.19	2.22	2.28	2.20	2.11	2.24	2.32	2.10	2.10	2.21	2.27	2.42	2.35
TOTAL	$36.76	$45.90	$46.54	$47.91	$46.24	$45.05	$44.95	$45.38	$44.19	$43.70	$43.59	$43.53	$43.33	$43.42
BUSINESS RATES														
REPRESENTATIVE RATE**	$29.16	$32.74	$33.42	$34.26	$33.71	$31.03	$31.06	$30.97	$32.29	$32.45	$32.70	$32.25	$32.46	$32.54
TOUCH-TONE SERVICE	**	**	**	**	**	2.45	2.63	2.35	1.64	1.71	1.67	1.21	0.97	0.89
SUBSCRIBER LINE CHARGES	0.00	0.00	1.01	2.04	2.68	2.69	3.55	3.57	3.57	3.56	3.57	3.57	3.57	3.56
TAXES AND 911 CHARGES	3.35	3.77	3.96	4.17	4.18	3.95	4.21	4.32	4.42	4.57	4.63	4.81	4.77	4.84
TOTAL	$32.51	$36.51	$38.39	$40.47	$40.57	$40.12	$41.25	$41.21	$42.12	$42.29	$42.57	$41.84	$41.77	$41.83
AVERAGE CHARGE FOR 5-MINUTE SAME ZONE DAYTIME BUSINESS CALL	0.085	0.090	0.090	0.092	0.092	0.091	0.092	0.093	0.091	0.093	0.094	0.092	0.091	0.091
MINIMUM CONNECTION CHARGE***	$56.04	$69.84	$70.92	$72.94	$72.15	$0.00	$71.05	$71.36	$72.75	$72.55	$71.41	$69.88	$67.67	$68.45
TOUCH-TONE SERVICE	**	**	**	**	**	2.03	1.70	1.89	1.13	1.19	1.17	0.92	0.27	0.17
TAXES	3.08	3.79	3.90	4.01	3.97	3.92	4.06	4.15	4.32	4.33	4.23	4.13	4.18	4.19
TOTAL	$59.12	$73.63	$74.72	$76.95	$76.12	$76.43	$76.81	$77.40	$78.20	$78.07	$76.83	$74.93	$72.32	$72.81
5-MINUTE PAYPHONE CALL	0.168	0.212	0.222	0.223	0.226	0.228	0.228	0.228	0.228	0.228	0.235	0.238	0.249	0.253

NOTE -- AVERAGE MONTHLY LOCAL RATES ARE BASED ON SURVEYS BY FCC STAFF USING THE SAME SAMPLING AREAS AND WEIGHTS USED BY THE BUREAU OF LABOR STATISTICS IN CONSTRUCTING THE CONSUMER PRICE INDEX.

SOURCE: INDUSTRY ANALYSIS DIVISION, *REFERENCE BOOK: RATES, PRICE INDEXES, AND HOUSEHOLD EXPENDITURES FOR TELEPHONE SERVICE.*

* THE RESIDENTIAL RATES DO NOT INCLUDE ADDITIONAL CHARGES FOR TOUCH-TONE SERVICE, IF APPLICABLE.

** THE REPRESENTATIVE RATE IS THE MONTHLY SINGLE-LINE RATE FOR TOUCH-TONE SERVICE WITH UNLIMITED LOCAL CALLS (WHERE OFFERED) OR THE MEASURED SERVICE RATE PLUS ADDITIONAL CHARGES FOR THE FIRST 200 MESSAGES IN OTHER CITIES. THE REPRESENTATIVE BUSINESS RATE INCLUDES THE ADDITIONAL MONTHLY COST FOR TOUCH-TONE SERVICE FOR 1983 THROUGH 1987. THE ADDITIONAL CHARGE IS SHOWN SEPARATELY THEREAFTER.

*** CONNECTION CHARGES DO NOT INCLUDE DROP LINE AND BLOCK CHARGES. RESIDENTIAL CONNECTION CHARGES DO NOT INCLUDE ADDITIONAL CHARGES FOR TOUCH-TONE SERVICE, IF APPLICABLE. BUSINESS CONNECTION CHARGES FOR 1983 THROUGH 1987 INCLUDE THE ADDITIONAL CONNECTION CHARGE FOR INSTALLING TOUCH-TONE SERVICE. THE CHARGE IS SHOWN SEPARATELY THEREAFTER.

TABLE 14.2

CHANGES IN THE PRICE OF DIRECTLY DIALED FIVE-MINUTE LONG DISTANCE CALLS (AT&T basic rate schedules)

Calling Distance (in airline miles, rate center to rate center)		Residential*			Business**		
		January 1984	December 1997	Percentage Change	January 1984	December 1997	Percentage Change
1 - 10	Day	$0.96	$1.40	45.8 %	$0.96	$1.82	89.3 %
	Evening	0.57	0.80	40.4	0.57	1.82	218.9
	Night & Weekend	0.38	0.65	71.1	0.38	1.82	378.3
11 - 22	Day	1.28	$1.40	9.4	1.28	1.82	42.0
	Evening	0.76	0.80	5.3	0.76	1.82	139.1
	Night & Weekend	0.51	0.65	27.5	0.51	1.82	256.4
23 - 55	Day	1.60	$1.40	-12.5	1.60	1.82	13.6
	Evening	0.96	0.80	-16.7	0.96	1.82	89.3
	Night & Weekend	0.64	0.65	1.6	0.64	1.82	184.0
56 - 124	Day	2.05	$1.40	-31.7	2.05	1.82	-11.3
	Evening	1.22	0.80	-34.4	1.22	1.82	49.0
	Night & Weekend	0.82	0.65	-20.7	0.82	1.82	121.6
125 - 292	Day	2.14	$1.40	-34.6	2.14	1.82	-15.1
	Evening	1.28	0.80	-37.5	1.28	1.82	42.0
	Night & Weekend	0.85	0.65	-23.5	0.85	1.82	113.8
293 - 430	Day	2.27	$1.40	-38.3	2.27	1.82	-19.9
	Evening	1.36	0.80	-41.2	1.36	1.82	33.6
	Night & Weekend	0.90	0.65	-27.8	0.90	1.82	101.9
431 - 925	Day	2.34	$1.40	-40.2	2.34	1.82	-22.3
	Evening	1.40	0.80	-42.9	1.40	1.82	29.8
	Night & Weekend	0.93	0.65	-30.1	0.93	1.82	95.4
926 - 1910	Day	2.40	$1.40	-41.7	2.40	1.82	-24.3
	Evening	1.44	0.80	-44.4	1.44	1.82	26.2
	Night & Weekend	0.96	0.65	-32.3	0.96	1.82	89.3
1911 - 3000	Day	2.70	$1.40	-48.1	2.70	1.82	-32.7
	Evening	1.62	0.80	-50.6	1.62	1.82	12.2
	Night & Weekend	1.08	0.65	-39.8	1.08	1.82	68.3
3001 - 4250	Day	2.80	$1.40	-50.0	2.80	1.82	-35.1
	Evening	1.68	0.80	-52.4	1.68	1.82	8.2
	Night & Weekend	1.12	0.65	-42.0	1.12	1.82	62.3
4251 - 5750	Day	2.91	$1.40	-51.9	2.91	1.82	-37.5
	Evening	1.74	0.80	-54.0	1.74	1.82	4.5
	Night & Weekend	1.16	0.65	-44.0	1.16	1.82	56.7

SOURCE: AT&T TARIFFS AND INDUSTRY ANALYSIS DIVISION, *REFERENCE BOOK OF RATES, PRICE INDICES, AND HOUSEHOLD EXPENDITURES FOR TELEPHONE SERVICE.*

* AT&T initiated a new rate structure for residential customers on November 8, 1997. The rate structure eliminates mileage bands and implements new weekday peak/off-peak and weekend rate periods. The new rates are shown in the old rate structure for the purposes of comparison.

** AT&T initiated a new rate structure for business customers on November 5, 1997. The rate structure eliminates mileage bands and peak/off-peak rate periods. The new rates are shown in the old rate structure for the purposes of comparison.

TABLE 14.3

AVERAGE REVENUE PER MINUTE

	AT&T	All Carriers **			
	All Interstate and International Switched Services *	All Interstate and International Switched Services	International Switched Services ***	All Domestic Interstate Switched Services	Interstate Direct Dialed Services
1984	32.3 ¢				
1985	30.8				
1986	28.0				
1987	24.5				
1988	23.4				
1989	21.8				
1990	20.1				
1991	19.7				
1992	19.4	19.4 ¢	100.2 ¢	15.0 ¢	13.3 ¢
1993	18.9	18.8	99.6	14.4	12.9
1994	18.1	17.9	90.0	13.7	12.5
1995	N/A	17.3	88.3	12.9	11.7
1996	N/A	16.4	72.4	12.6	11.6

* Source: AT&T.

** Source: Industry Analysis Division, *Telecommunications Industry Revenue: TRS Fund Worksheet Data.*

*** Billed revenue per minute for international service differs in Table 14.3 and Table 7.1. Table 14.3 is based on traffic to foreign points for all U.S. carriers serving all U.S. points. Table 7.1 is based on traffic for domestic U.S. points only. The domestic United States includes Puerto Rico but excludes American Samoa, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands.

SUBSCRIBERSHIP:

Under contract with the FCC, the Bureau of the Census includes questions on telephones as part of its Current Population Survey. This survey, which monitors demographic trends between the decennial censuses, has several strengths: it is conducted regularly by an expert agency, the sample is very large, and the questions are consistent. Thus, changes in the results can be compared over time with a great deal of confidence.

Eighteen million households have been added to the nation's telephone system since these surveys began in November 1983 -- reflecting both an increase in the total number of households and a small, but statistically significant, increase in the percentage of households that subscribe to telephone service.

Because of smaller sample sizes, state-by-state data are subject to greater sampling errors than the national data shown in Table 15.1. Consequently, the state-by-state data shown in Table 15.2 are based on annual average penetration rates.

Prior to 1980, historical estimates of telephone penetration were based on a comparison of the number of residential main stations to the number of households. These estimates became less reliable at that point because of the emergence of an increasing number of households with multiple phone lines. In the 1980 decennial census, the question "Do you have a telephone?" was added to the long-form questionnaire. The 1980 and 1990 percentages in Table 15.3 are based on those responses. With the telephone companies no longer owning the telephone instruments, however, it is possible for someone to have a telephone but not have service. This may account for some of the discrepancy between the 1990 percentages in Tables 1 and 3.

For other countries of the world, telephone development is often measured as the number of access lines per 100 people. This measure includes both residential and business lines. Historical estimates for the United States, using the decennial census population counts, are shown in Table 15.3.

To help evaluate the effect of the Commission's lifeline program on telephone penetration, Table 15.4 compares penetration rates for states with and without lifeline programs. As can be seen in the table, penetration increases have been greater on average in states with lifeline programs than in states without lifeline programs, both for all households and for low-income households. Between March 1984 and March 1997, the overall average penetration rate for states with lifeline programs increased by 2.4%, which is statistically significant. The increase for states without programs is 1.0%, which is not statistically significant. For households with incomes under $10,000 (expressed in 1984 dollars), which would be the households primarily affected by the lifeline programs, the average increase was

6.5% for states with programs, again statistically significant, versus 3.3% for states without programs, also statistically significant.

TABLE 15.1

HOUSEHOLD TELEPHONE SUBSCRIBERSHIP IN THE UNITED STATES

	HOUSEHOLDS (MILLIONS)	HOUSEHOLDS WITH TELEPHONES (MILLIONS)	PERCENTAGE WITH TELEPHONES	HOUSEHOLDS WITHOUT TELEPHONES (MILLIONS)	PERCENTAGE WITHOUT TELEPHONES
1983 NOVEMBER	85.8	78.4	91.4 %	7.4	8.6 %
1984 MARCH	86.0	78.9	91.8	7.1	8.2
JULY	86.6	79.3	91.6	7.3	8.4
NOVEMBER	87.4	79.9	91.4	7.5	8.6
1985 MARCH	87.4	80.2	91.8	7.2	8.2
JULY	88.2	81.0	91.8	7.2	8.2
NOVEMBER	88.8	81.6	91.9	7.2	8.1
1986 MARCH	89.0	82.1	92.2	6.9	7.8
JULY	89.5	82.5	92.2	7.0	7.8
NOVEMBER	89.9	83.1	92.4	6.8	7.6
1987 MARCH	90.2	83.4	92.5	6.8	7.5
JULY	90.7	83.7	92.3	7.0	7.7
NOVEMBER	91.3	84.3	92.3	7.0	7.7
1988 MARCH	91.8	85.3	92.9	6.5	7.1
JULY	92.4	85.7	92.8	6.7	7.2
NOVEMBER	92.6	85.7	92.5	6.9	7.5
1989 MARCH	93.6	87.0	93.0	6.6	7.0
JULY	93.8	87.5	93.3	6.3	6.7
NOVEMBER	93.9	87.3	93.0	6.6	7.0
1990 MARCH	94.2	87.9	93.3	6.3	6.7
JULY	94.8	88.4	93.3	6.4	6.7
NOVEMBER	94.7	88.4	93.3	6.3	6.7
1991 MARCH	95.3	89.2	93.6	6.1	6.4
JULY	95.5	89.1	93.3	6.4	6.7
NOVEMBER	95.7	89.4	93.4	6.3	6.6
1992 MARCH	96.6	90.7	93.9	5.9	6.1
JULY	96.6	90.6	93.8	6.0	6.2
NOVEMBER	97.0	91.0	93.8	6.0	6.2
1993 MARCH	97.3	91.8	94.2	5.7	5.8
JULY	97.9	92.2	94.2	5.7	5.8
NOVEMBER	98.8	93.0	94.2	5.8	5.8
1994 MARCH	98.1	92.1	93.9	6.0	6.1
JULY	98.6	92.4	93.7	6.2	6.3
NOVEMBER	99.8	93.7	93.8	6.2	6.2
1995 MARCH	99.9	93.8	93.9	6.1	6.1
JULY	100.0	94.0	94.0	6.0	6.0
NOVEMBER	100.4	94.2	93.9	6.2	6.1
1996 MARCH	100.6	94.4	93.8	6.2	6.2
JULY	101.2	95.0	93.9	6.1	6.1
NOVEMBER	101.3	95.1	93.9	6.2	6.1
1997 MARCH	102.0	95.8	93.9	6.2	6.1
JULY	102.3	96.1	93.9	6.2	6.1
NOVEMBER	102.8	96.5	93.8	6.3	6.2

SOURCE: INDUSTRY ANALYSIS DIVISION, *TELEPHONE SUBSCRIBERSHIP IN THE UNITED STATES.*

TABLE 15.2

TELEPHONE PENETRATION BY STATE
(ANNUAL AVERAGE PERCENTAGE OF HOUSEHOLDS WITH TELEPHONE SERVICE)

STATE	1934	1997	CHANGE	
ALABAMA	88.4 %	92.3 %	3.9	*
ALASKA	86.5	94.5	8.0	*
ARIZONA	86.9	91.6	4.7	*
ARKANSAS	86.6	89.8	3.2	
CALIFORNIA	92.5	94.3	1.8	*
COLORADO	93.2	95.9	2.6	*
CONNECTICUT	95.5	94.2	-1.3	
DELAWARE	94.3	95.7	1.5	
DISTRICT OF COLUMBIA	94.9	90.8	-4.1	**
FLORIDA	88.7	92.8	4.1	*
GEORGIA	86.2	92.0	5.8	*
HAWAII	93.5	94.5	0.9	
IDAHO	90.7	94.0	3.3	*
ILLINOIS	94.2	92.2	-2.0	**
INDIANA	91.6	93.8	2.2	*
IOWA	96.2	96.7	0.5	
KANSAS	94.3	94.0	-0.4	
KENTUCKY	88.1	93.2	5.0	*
LOUISIANA	89.7	91.0	1.4	
MAINE	93.4	96.1	2.7	*
MARYLAND	95.7	95.7	0.0	
MASSACHUSETTS	95.9	95.4	-0.5	
MICHIGAN	92.8	94.3	1.4	
MINNESOTA	95.8	96.9	1.1	
MISSISSIPPI	82.4	89.2	6.8	*
MISSOURI	91.5	95.0	3.6	*
MONTANA	91.0	93.7	2.7	
NEBRASKA	95.7	97.1	1.4	
NEVADA	90.4	94.1	3.8	*
NEW HAMPSHIRE	94.3	96.5	2.2	
NEW JERSEY	94.8	94.9	0.1	
NEW MEXICO	82.0	88.1	6.1	*
NEW YORK	91.8	94.2	2.4	*
NORTH CAROLINA	88.3	93.1	4.8	*
NORTH DAKOTA	94.6	95.8	1.2	
OHIO	92.4	94.6	2.1	*
OKLAHOMA	90.3	91.4	1.2	
OREGON	90.6	95.6	5.0	*
PENNSYLVANIA	94.9	97.1	2.3	*
RHODE ISLAND	93.6	94.5	0.8	
SOUTH CAROLINA	83.7	92.5	8.9	*
SOUTH DAKOTA	93.2	93.9	0.7	
TENNESSEE	88.5	94.5	6.0	*
TEXAS	88.4	91.3	2.9	*
UTAH	92.5	96.9	4.4	*
VERMONT	92.3	95.1	2.8	
VIRGINIA	93.1	94.5	1.5	
WASHINGTON	93.0	95.9	2.9	*
WEST VIRGINIA	87.7	93.2	5.5	*
WISCONSIN	95.2	96.3	1.1	
WYOMING	89.9	93.4	3.5	*
TOTAL UNITED STATES	91.6	93.9	2.3	*

SOURCE: INDUSTRY ANALYSIS DIVISION, *TELEPHONE SUBSCRIBERSHIP IN THE UNITED STATES.*

* INCREASE IS STATISTICALLY SIGNIFICANT AT THE 95% CONFIDENCE LEVEL.
** DECREASE IS STATISTICALLY SIGNIFICANT AT THE 95% CONFIDENCE LEVEL.

CHANGES MAY NOT BE THE SAME AS CALCULATED DIFFERENCES, DUE TO ROUNDING.

TABLE 15.3

HISTORICAL TELEPHONE PENETRATION ESTIMATES

Year	Percentage of Households with Telephones	Access Lines per 100 Population
1920	35.0 %	9.6
1930	40.9	12.5
1940	36.9	12.7
1950	61.8	21.7
1960	78.3	27.6
1970	90.5	35.0
1980	92.9	46.2
1990	94.8	54.8

Sources: FCC staff estimates based on data from the Bureau of the Census, *Historical Statistics of the United States, Colonial Times to 1970,* Part 2, page 783, for all percentage data except 1980 and 1990, which are from the decennial censuses. Access line data for 1920 through 1970 are estimated by multiplying the number of telephones by the proportion of main plus equivalent main stations to total telephones for the Bell System. Prior to 1950, the 1950 proportion is used. For 1980 and 1990, access lines reported by USTA are used.

TABLE 15.4

COMPARISON OF PENETRATION RATES FOR STATES WITH AND WITHOUT LIFELINE PROGRAMS

ALL HOUSEHOLDS			
	March 1984	March 1997	Change
States with Lifeline Programs	91.5 %	93.9 %	2.4 % *
States without Lifeline Programs	93.3	94.4	1.0
Total United States	91.8	94.0	2.1 *
HOUSEHOLDS WITH INCOMES UNDER $10,000 #			
States with Lifeline Programs	79.3 %	85.8 %	6.5 %*
States without Lifeline Programs	83.6	86.9	3.3 *
Total United States	80.1	86.0	5.9 *

Source: INDUSTRY ANALYSIS DIVISION, *Telephone Penetration by Income by State.*

* Change is statistically significant at the 95% confidence level.

\# Income expressed in March 1984 dollars. $10,000 in March 1984 dollars is equivalent to $15,595 in March 1997 dollars.

Changes may not be the same as calculated differences, due to rounding.

TECHNOLOGY DEVELOPMENT:

1. Central Office Technology:

During the 1980s, telephone companies replaced most of their older electromechanical switches with computerized equipment. In the telephone industry, these computers are referred to as stored program control switches. Switches with the most current technologies are fully digital. That is, computers are used to switch calls and telephone conversations are converted to a digital form before being passed through the switch and later reconverted to their original analog form. Some offices are of an intermediate variety: the switching function is done by computer but the calls continue to be processed in their analog form. The spread of these technologies throughout the Bell Operating Companies (BOCs) is shown in Table 16.1.

Newer signaling systems have been developed that permit calls to be set up more quickly and efficiently. In the late 1980s, telephone company switching offices began to be converted to the newest signaling system, Signaling System 7. For several years the telephone industry has been working on an Integrated Systems Digital Network (ISDN). One of the attractions of ISDN is that ordinary local telephone lines (copper loops) can transport high-speed data between computers and handle more than one telephone conversation at a time. The number of BOC switching offices and the lines served by offices with these features are shown in Table 16.2. Of course, not all of the lines served by ISDN-compatible switching offices are actually receiving ISDN service.

2. Transmission Technology:

The BOCs file data on technology as part of their ARMIS reports. (ARMIS is an acronym for the Automated Reporting Management Information System.) Each telephone company has a network of transmission paths or carrier links tying together their switching offices. As indicated in Table 16.3, fiber optic cables have rapidly replaced copper to provide these links. From 1990 to 1996, the proportion of fiber has grown from 60% to over 90%.

Although fiber technology was first used for interoffice transmission facilities, the technology is now being deployed closer to customers. The number of working channels provides an approximation of the number of transmission paths between customers and the telephone company offices serving those customers. Although the number of fiber channels nearly tripled during the first half of the 1990s, in 1996 copper wire still linked about 90% of customers to the first point of switching.

TABLE 16.1

CENTRAL OFFICES AND ACCESS LINES BY TECHNOLOGY (BELL OPERATING COMPANIES)

YEAR-END	TOTAL OFFICES	ELECTRO-MECHANICAL OFFICES		ANALOG STORED PROGRAM CONTROL OFFICES		DIGITAL STORED PROGRAM CONTROL OFFICES	
1980	9,195	6,842	74.4 %	2,353	25.6 %	0	0.0 %
1981	9,198	6,647	72.3	2,527	27.5	24	0.3
1982	9,173	6,357	69.3	2,736	29.8	80	0.9
1983	9,156	6,075	66.3	2,910	31.8	171	1.9
1984	9,102	5,714	62.8	3,041	33.4	347	3.8
1985	9,124	5,244	57.5	3,020	33.1	860	9.4
1986	9,167	4,604	50.2	2,943	32.1	1,620	17.7
1987	9,190	3,819	41.6	2,833	30.8	2,538	27.6
1988	9,300	3,031	32.6	2,692	28.9	3,577	38.5
1989	9,338	2,416	25.9	2,519	27.0	4,403	47.2
1990	9,872	1,646	16.7	2,410	24.4	5,816	58.9
1991	9,957	1,148	11.5	2,167	21.8	6,642	66.7
1992	10,069	615	6.1	1,924	19.1	7,530	74.8
1993	10,088	296	2.9	1,554	15.4	8,239	81.7
1994	10,022	95	0.9	1,133	11.3	8,794	87.7
1995	10,050	60	0.6	976	9.7	9,014	89.7
1996	9,805	1	0.0	718	7.3	9,086	92.7

ACCESS LINES SERVED BY TYPE OF OFFICE (THOUSANDS)

YEAR-END	ALL OFFICES	ELECTRO-MECHANICAL OFFICES		ANALOG STORED PROGRAM CONTROL OFFICES		DIGITAL STORED PROGRAM CONTROL OFFICES	
1980	81,032	44,930	55.4 %	36,092	44.5 %	10	0.0 %
1981	82,581	40,425	49.0	42,099	51.0	57	0.1
1982	83,819	36,813	43.9	46,803	55.8	203	0.2
1983	86,186	32,652	37.9	52,919	61.4	615	0.7
1984	88,630	30,074	33.9	56,404	63.6	2,151	2.4
1985	91,455	24,778	27.1	58,532	64.0	8,145	8.9
1986	93,630	19,491	20.8	59,252	63.3	14,886	15.9
1987	96,593	14,205	14.7	59,442	61.5	22,946	23.8
1968	99,564	8,707	8.7	60,364	60.6	30,493	30.6
1989	102,684	5,646	5.5	58,846	57.3	38,192	37.2
1990	105,641	3,216	3.0	56,973	53.9	45,452	43.0
1991	107,387	1,876	1.7	53,450	49.8	52,061	48.5
1992	109,994	717	0.7	48,952	44.5	60,325	54.8
1993	113,369	264	0.2	41,912	37.0	71,193	62.8
1994	117,313	115	0.1	33,175	28.3	84,023	71.6
1995	122,229	63	0.1	29,031	23.8	93,135	76.2
1996	125,843	1	0.0	24,559	19.5	101,283	80.5

SOURCE: 1980-89 REPORTED IN CC DOCKET 89-624.
1990-96 REPORTED IN ARMIS 43-07.
BECAUSE OF THE DIFFERING SOURCES, THE DATA FOR 1989 AND EARLIER YEARS MAY NOT BE ENTIRELY CONSISTENT WITH THE DATA FOR 1990 AND LATER YEARS.

TABLE 16.2

FEATURES AVAILABLE IN CENTRAL OFFICES
(BELL OPERATING COMPANIES)

YEAR-END	TOTAL OFFICES	EQUAL ACCESS OFFICES		SIGNALING SYSTEM 7 OFFICES*		ISDN OFFICES	
1980	9,195	0	0.0 %	0	0.0 %	0	0.0 %
1981	9,198	0	0.0	0	0.0	0	0.0
1982	9,173	0	0.0	0	0.0	0	0.0
1983	9,156	0	0.0	0	0.0	0	0.0
1984	9,102	124	1.4	0	0.0	0	0.0
1985	9,124	1,891	20.7	0	0.0	0	0.0
1986	9,167	3,623	39.5	0	0.0	0	0.0
1987	9,190	4,823	52.5	29	0.3	4	0.0
1988	9,300	6,071	65.3	435	4.7	82	0.9
1989	9,338	6,788	72.7	931	10.0	179	1.9
1990	9,872	7,950	80.5	2,428	24.6	600	6.1
1991	9,957	8,601	86.4	3,670	36.9	920	9.2
1992	10,069	9,292	92.3	5,437	54.0	1,219	12.1
1993	10,089	9,697	96.1	6,688	66.3	1,874	18.6
1994	10,022	9,933	99.1	8,334	83.2	2,388	23.8
1995	10,050	9,977	99.3	8,977	89.3	2,868	28.5
1996	9,805	9,736	99.3	9,131	93.1	3,311	33.8

EQUIPPED ACCESS LINES BY TYPE OF OFFICE
(THOUSANDS)

YEAR-END	ALL OFFICES	EQUAL ACCESS OFFICES		SIGNALING SYSTEM 7 OFFICES*		ISDN OFFICES**	
1980	81,032	0	0.0 %	0	0.0 %	0	0.0 %
1981	82,581	0	0.0	0	0.0	0	0.0
1982	83,819	0	0.0	0	0.0	0	0.0
1983	86,186	146	0.2	0	0.0	0	0.0
1984	88,630	9,350	10.5	0	0.0	0	0.0
1985	91,455	49,241	53.8	0	0.0	0	0.0
1986	93,630	70,543	75.3	0	0.0	0	0.0
1987	96,593	81,743	84.6	1,035	1.1	12	0.0
1988	99,564	91,809	92.2	10,325	10.4	47	0.0
1989	102,684	97,410	94.9	21,917	21.3	111	0.1
1990	105,641	102,429	97.0	40,026	37.9	13,970	13.2
1991	107,387	105,413	98.2	57,327	53.4	20,567	19.2
1992	109,994	109,006	99.1	77,102	70.1	28,375	25.8
1993	113,369	112,992	99.7	92,492	81.6	39,875	35.2
1994	117,313	117,266	100.0	109,465	93.3	56,818	48.4
1995	122,229	122,210	100.0	116,568	95.4	80,159	65.6
1996	125,843	125,843	100.0	122,343	97.2	85,434	67.9

SOURCE: 1980-89 REPORTED IN CC DOCKET 89-624.
1990-96 REPORTED IN ARMIS 43-07.
BECAUSE OF THE DIFFERING SOURCES, THE DATA FOR 1989 AND EARLIER YEARS MAY NOT BE ENTIRELY CONSISTENT WITH THE DATA FOR 1990 AND LATER YEARS.

* SIGNALING SYSTEM 7 SWITCH (SS7-317)
** ISDN BASIC ACCESS LINE CAPACITY REPORTED FOR 1990-1994.

TABLE 16.3

LOCAL TRANSMISSION TECHNOLOGY
(BELL OPERATING COMPANIES)

MAJOR INTEROFFICE TRANSMISSION LINKS

YEAR-END	TOTAL	COPPER		FIBER		RADIO	
1990	2,895,117	1,092,041	37.7 %	1,737,984	60.0 %	65,092	2.2 %
1991	3,283,956	1,048,545	31.9	2,154,043	65.6	81,368	2.5
1992	3,570,147	869,052	24.3	2,610,185	73.1	90,910	2.5
1993	4,020,454	803,035	20.0	3,126,737	77.8	90,682	2.3
1994	4,497,524	569,428	12.7	3,846,394	85.5	81,702	1.8
1995	5,688,380	486,608	8.6	5,132,640	90.2	69,132	1.2
1996	7,725,804	435,278	5.6	7,245,369	93.8	45,157	0.6

WORKING TELECOMMUNICATIONS CHANNELS

YEAR-END	TOTAL	COPPER		FIBER		OTHER	
1990	122,564,474 *	106,373,173	86.8 %	3,545,583	2.9 %	0	0.0 %
1991	118,654,347	114,046,814	96.1	4,605,184	3.9	2,349	0.0
1992	120,847,400	114,609,440	94.8	6,237,727	5.2	233	0.0
1993	123,696,672	115,221,600	93.1	8,473,646	6.9	1,426	0.0
1994	129,402,656	118,147,224	91.3	11,255,108	8.7	324	0.0
1995	136,230,816	122,975,272	90.3	13,255,293	9.7	251	0.0
1996	142,823,744	125,595,224	87.9	17,277,824	12.1	696	0.0

SOURCE: ARMIS 43-07 REPORT.

* INCLUDES SOME OTHER CHANNELS.

TELECOMMUNICATIONS INDUSTRY REVENUES:

Since 1993, all carriers with interstate revenues have been required to file an annual Telecommunications Relay Service (TRS) Fund Worksheet. Because revenues derived from providing access to the interstate network are considered to be interstate, virtually all carriers are required to file information. About 3,500 carriers filed these worksheets in 1997 and reported $222 billion of revenue for 1996. Table 17.1 shows these revenues for the ten revenue categories provided in the TRS worksheets. Carriers billed $87 billion for local services, $36 billion for access services, and $100 billion for toll services in 1996. A large share of access revenues represents payments from toll carriers to traditional local exchange carriers for access. The number of carriers paying into the TRS fund by type of carrier are shown in Table 17.2 and their revenues are shown in Table 17.3.

The publication, *Carrier Locator: Interstate Service Providers*, lists 3,832 carriers that filed a TRS worksheet or a Universal Service Fund worksheet in 1997. It also contains an address and contact telephone number for each carrier.

Table 17.4 provides estimates of industry telephone revenue by state for 1995 and 1996. Nationwide telephone revenue from TRS is allocated to each state using data from the *Statistics of Communication Common Carriers* and from the *Statistical Abstract of the United States.*

TABLE 17.1

TELECOMMUNICATIONS REVENUE REPORTED BY TYPE OF SERVICE

(Amounts shown in millions)

	1992	1993	1994	1995	1996	Percent Change From 1992
Local Service						
Local Exchange	$39,235	$40,176	$42,245	$45,194	$48,717	24%
Local Private Line	1,049	1,088	1,138	1,226	1,616	54%
Cellular, PCS, Paging & Other Mobile	7,285	10,237	14,293	18,759	26,049	258%
Other Local	7,687	8,002	8,302	10,428	10,543	37%
Total Local Service	55,256	59,503	65,977	75,607	86,924	57%
Interstate & Intrastate Access Service	29,353	30,832	32,759	33,911	35,641	21%
Long Distance Service						
Operator (including Pay Telephone & Card)	9,465	10,772	10,539	11,170	10,975	16%
Non–Operator Switched Toll	54,300	58,294	60,819	64,431	71,467	32%
Long Distance Private Line	7,783	8,067	9,043	9,719	10,665	37%
Other Long Distance	4,196	5,392	4,078	4,309	6,583	57%
Total Long Distance	75,744	82,525	84,478	89,629	99,691	32%
Total Reported Revenue	160,353	172,860	183,214	199,147	222,256	39%
Percentage of Revenue Reported as Interstate						
Local Service						
Local Exchange	0.1%	0.1%	0.0%	0.1%	0.1%	
Local Private Line	0.1%	0.1%	0.2%	0.4%	6.9%	
Cellular, PCS, Paging & Other Mobile	6.2%	6.0%	5.8%	5.8%	5.3%	
Other Local	14.9%	14.0%	13.9%	11.2%	11.8%	
Total Local Service	2.9%	3.0%	3.0%	3.0%	3.2%	
Interstate & Intrastate Access Service	72.3%	72.9%	73.1%	73.2%	73.3%	
Long Distance Service						
Operator (including Pay Telephone & Card)	76.2%	65.5%	62.3%	61.6%	58.8%	
Non–Operator Switched Toll	59.1%	59.9%	63.2%	64.8%	64.8%	
Long Distance Private Line	70.2%	71.4%	73.0%	73.9%	73.1%	
Other Long Distance	82.0%	73.2%	74.6%	75.8%	75.2%	
Total Long Distance	63.6%	62.6%	64.7%	65.9%	65.7%	
Total Reported Revenue	44.3%	43.9%	44.0%	43.3%	42.5%	

Source: Industry Analysis Division, *Telecommunications Industry Revenue: TRS Fund Worksheet Data.*

TABLE 17.2

NUMBER OF CARRIERS PAYING INTO THE TELECOMMUNICATIONS RELAY SERVICE FUND BY TYPE OF CARRIER

	1992	1993	1994	1995	1996
Competitive Access Providers (CAPs) & Competitive LECs (CLECs)		20	30	57	109
Cellular Service Carriers & Personal Communications Service (PCS)		798	790	792	804
Interexchange Carriers (IXCs)		83	97	130	143
Local Exchange Carriers (LECs)		1,281	1,347	1,347	1,371
Paging and Other Mobile Carriers		126	117	138	172
Operator Service Providers (OSPs)		35	29	25	27
Other Toll Carriers		32	34	30	38
Pay Telephone Providers		163	197	271	441
Pre paid Calling Card Providers				8	15
Toll Resellers		171	206	260	339
Total	2,558	2,709	2,847	3,058	3,459

Source: Industry Analysis Division, *Telecommunications Industry Revenue: TRS Fund Worksheet Data.*

TABLE 17.3

Gross Revenue Reported by Type of Carrier (Millions)

	1992	1993	1994	1995	1996
Competitive Access Providers (CAPs) & Competitive LECs (CLECs)	$69	$191	$281	$623	$1,011
Cellular Service Carriers & Personal Communications Service (PCS)	6,718	9,215	13,259	17,208	23,778
Interexchange Carriers (IXCs)	57,341	61,118	66,381	70,938	79,057
Local Exchange Carriers (LECs)	91,584	95,228	98,431	102,820	107,905
Paging and Other Mobile Carriers	670	964	938	1,419	2,121
Operator Service Providers (OSPs)	558	695	536	500	461
Other Toll Carriers	2,186	711	709	773	577
Pay Telephone Providers	183	175	300	349	357
Prepaid Calling Card Providers				16	238
Toll Resellers	1,293	1,869	2,840	4,220	6,564
Total of detail data 1/	$160,601	$170,166	$183,675	$198,867	$222,069
Total all carriers 2/	$160,353	$172,860	$183,214	$199,147	$222,256
AT&T, MCI, Sprint & WorldCom (toll only)	55,104	60,694	63,374	67,539	73,347
Regional Bell Operating Companies (RBOCs)	66,887	70,428	70,856	75,038	79,675

Source: Industry Analysis Division, *Telecommunications Industry Revenue: TRS Fund Worksheet Data.*

1/ Sum of detail revenue as originally reported. This total excludes some amounts withheld to preserve confidentiality.

2/ These totals include all reported revenue and reflect late filings and revisions.

Table 17.4

Industry Telephone Revenue by State for 1995 and 1996

	1995		1996		PERCENT CHANGE FROM 1995 TO 1996
	REVENUE (MILLIONS)	PERCENT OF TOTAL	REVENUE (MILLIONS)	PERCENT OF TOTAL	
ALABAMA	$2,800	1.41 %	$3,097	1.39 %	10.6 %
ALASKA	484	0.24	541	0.24	11.8
ARIZONA	2,948	1.48	3,380	1.52	14.6
ARKANSAS	1,567	0.79	1,754	0.79	12.0
CALIFORNIA	23,093	11.60	25,961	11.68	12.4
COLORADO	3,256	1.64	3,683	1.66	13.1
CONNECTICUT	2,878	1.45	3,075	1.38	6.8
DELAWARE	508	0.26	588	0.26	15.6
DIST. OF COLUMBIA	935	0.47	1,013	0.46	8.3
FLORIDA	11,994	6.02	13,488	6.07	12.5
GEORGIA	5,869	2.95	6,651	2.99	13.3
HAWAII	815	0.41	887	0.40	8.9
IDAHO	811	0.41	932	0.42	14.9
ILLINOIS	8,272	4.15	9,343	4.20	12.9
INDIANA	3,948	1.98	4,359	1.96	10.4
IOWA	1,939	0.97	2,104	0.95	8.5
KANSAS	1,879	0.94	2,083	0.94	10.9
KENTUCKY	2,761	1.39	3,044	1.37	10.3
LOUISIANA	2,842	1.43	3,108	1.40	9.4
MAINE	896	0.45	1,009	0.45	12.7
MARYLAND	3,918	1.97	4,422	1.99	12.9
MASSACHUSETTS	5,190	2.61	5,711	2.57	10.0
MICHIGAN	6,652	3.34	7,511	3.38	12.9
MINNESOTA	3,180	1.60	3,592	1.62	13.0
MISSISSIPPI	1,665	0.84	1,827	0.82	9.7
MISSOURI	3,838	1.93	4,246	1.91	10.6
MONTANA	654	0.33	724	0.33	10.8
NEBRASKA	1,353	0.68	1,495	0.67	10.5
NEVADA	1,157	0.58	1,370	0.62	18.5
NEW HAMPSHIRE	1,019	0.51	1,158	0.52	13.7
NEW JERSEY	7,249	3.64	8,125	3.66	12.1
NEW MEXICO	1,167	0.59	1,319	0.59	13.0
NEW YORK	15,780	7.92	16,938	7.62	7.3
NORTH CAROLINA	5,772	2.90	6,382	2.87	10.6
NORTH DAKOTA	509	0.26	633	0.28	24.5
OHIO	8,480	4.26	9,367	4.21	10.5
OKLAHOMA	2,063	1.04	2,271	1.02	10.1
OREGON	2,308	1.16	2,588	1.16	12.1
PENNSYLVANIA	8,287	4.16	9,258	4.17	11.7
RHODE ISLAND	712	0.36	796	0.36	11.7
SOUTH CAROLINA	2,768	1.39	2,980	1.34	7.7
SOUTH DAKOTA	499	0.25	599	0.27	20.1
TENNESSEE	3,625	1.82	4,072	1.83	12.3
TEXAS	13,352	6.70	15,117	6.80	13.2
UTAH	1,152	0.58	1,325	0.60	15.1
VERMONT	483	0.24	572	0.26	18.6
VIRGINIA	5,238	2.63	5,872	2.64	12.1
WASHINGTON	4,208	2.11	4,679	2.11	11.2
WEST VIRGINIA	1,194	0.60	1,303	0.59	9.1
WISCONSIN	3,392	1.70	3,783	1.70	11.5
WYOMING	375	0.19	418	0.19	11.4
UNITED STATES	197,734	99.29	220,554	99.23	11.5
GUAM	N.A.	N.A.	89	0.04	N.A.
NORTHERN MARIANA ISL.	16	0.01	19	0.01	22.4
PUERTO RICO	1,321	0.66	1,495	0.67	13.2
VIRGIN ISLANDS	76	0.04	97	0.04	27.7
GRAND TOTAL	$199,147	100.00 %	$222,256	100.00 %	11.6 %

SOURCE: TRS FUND WORKSHEETS AND STAFF ESTIMATES.

ESTIMATES FOR 1995 ARE REVISED.

FIGURES MAY NOT ADD UP DUE TO ROUNDING.

TELEPHONE LINES:

Within the telephone industry there are several alternative, but closely related, definitions of telephone lines or loops. While these differences often make it difficult to reconcile data from different statistical series, they are not usually large enough to affect comparisons among companies or trends over time. With virtually all businesses having telephone lines and more than 90% of the nation's households having telephone service, the growth in the number of lines tends to reflect growth in the population and the economy, which averages about 3% per year.

Table 18.1 shows the nation's total number of telephone lines using three alternative measures. One measure is the number of local loops, which is a way of counting lines that is used to determine the amount of Universal Service Fund payments to local exchange carriers. A second measure is the number of presubscribed lines, which were used until 1998 to determine the amount of payments by the interexchange carriers to support the Universal Service Fund and the Lifeline and Link-Up programs. The third measure, access lines, is published by the United States Telephone Association.

Table 18.2 shows the number of local exchange carriers and presubscribed access lines in each state, and shows breakdowns for equal access and non-equal access lines.

Table 18.3 compares the number of residential local loops with the number of households with telephone service. The difference between these series is an approximate measure of the number of additional residential access lines. Table 18.3 shows that the percentage of additional lines for households with telephone service has increased dramatically, from about 3% in 1988 to about 17% in 1996.

Table 18.1

Total U.S. Telephone Lines *

Year	Presubscribed Lines	Annual Growth (%)	Local Loops	Annual Growth (%)	Access Lines	Annual Growth (%)
1979					101,478,000	
1980			102,216,367		104,692,000	3.2 %
1981			105,559,222	3.3 %	107,416,000	2.6
1982			107,519,214	1.9	108,593,000	1.1
1983			110,612,689	2.9	111,373,000	2.6
1984			112,550,739	1.8	114,474,000	2.8
1985			115,985,813	3.1	118,275,000	3.3
1986			118,289,121	2.0	122,202,600	3.3
1987	121,466,500		122,789,249	3.8	126,725,000	3.7
1988	124,360,829	2.4 %	127,086,765	3.5	130,000,000	2.6
1989	128,482,479	3.3	131,504,568	3.5	134,009,489	3.1
1990	132,408,608	3.1	136,114,201	3.5	137,075,520	2.3
1991	135,286,582	2.2	139,412,884	2.4	140,196,551	2.3
1992	138,725,040	2.5	143,341,581	2.8	144,056,712	2.8
1993	142,809,280	2.9	148,106,159	3.3	149,084,378	3.5
1994	148,479,328	4.0	153,447,946	3.6	156,769,460	5.2
1995	152,601,177	2.8	159,735,212	4.1	164,624,372	5.0
1996	158,672,243	4.0	166,320,559	4.1	170,568,176	3.6

Source: Presubscribed Lines: National Exchange Carrier Association.
Local Loops: National Exchange Carrier Association.
Access Lines: United States Telephone Association.

* Year-end data.

TABLE 18.2

TELEPHONE LINES BY STATE AS OF DECEMBER 31, 1996

STATE NAME	NUMBER OF TELEPHONE COMPANIES	BELL COMPANY LINES			OTHER COMPANY LINES				
		EQUAL ACCESS	NON-EQUAL ACCESS	% EQUAL ACCESS	EQUAL ACCESS	NON-EQUAL ACCESS	% EQUAL ACCESS	TOTAL LINES	% EQUAL ACCESS
ALABAMA	30	1,804,922	0	100.00	416,009	12,431	97.10	2,233,362	99.44
ALASKA	25	0	0	N.A.	308,979	46,206	86.99	355,185	86.99
ARIZONA	15	2,255,788	711	99.97	155,215	2,898	98.17	2,414,612	99.85
ARKANSAS	28	887,446	0	100.00	381,685	19,326	95.18	1,288,457	98.50
CALIFORNIA	22	15,825,276	0	100.00	3,948,898	31,136	99.22	19,805,310	99.84
COLORADO	27	2,276,307	1,831	99.92	92,300	10,744	89.57	2,381,182	99.47
CONNECTICUT	2	0	0	N.A.	2,035,573	0	100.00	2,035,573	100.00
DELAWARE	1	466,474	0	100.00	0	0	N.A.	466,474	100.00
DIST. OF COLUMBIA	1	771,630	0	100.00	0	0	N.A.	771,630	100.00
FLORIDA	13	5,663,040	0	100.00	3,865,704	42,758	98.91	9,571,502	99.55
GEORGIA	36	3,572,631	0	100.00	671,366	31,411	95.53	4,275,408	99.27
HAWAII	1	0	0	N.A.	586,974	28,314	95.40	615,288	95.40
IDAHO	21	449,625	0	100.00	160,233	2,897	98.22	612,755	99.53
ILLINOIS	56	6,233,999	0	100.00	1,153,220	55,376	95.42	7,442,595	99.26
INDIANA	42	1,953,053	0	100.00	1,145,476	23,638	97.98	3,122,167	99.24
IOWA	153	989,362	0	100.00	495,012	10,894	97.85	1,495,268	99.27
KANSAS	39	1,244,898	0	100.00	199,374	42,034	82.59	1,486,306	97.17
KENTUCKY	19	1,113,544	0	100.00	776,373	7,665	99.02	1,897,582	99.60
LOUISIANA	20	2,102,325	0	100.00	151,262	12,216	92.53	2,265,803	99.46
MAINE	19	633,594	0	100.00	116,874	4,410	96.36	754,878	99.42
MARYLAND	2	3,046,238	0	100.00	5,829	0	100.00	3,052,067	100.00
MASSACHUSETTS	3	4,148,019	0	100.00	3,795	0	100.00	4,151,814	100.00
MICHIGAN	38	4,843,416	0	100.00	809,673	49,964	94.19	5,703,053	99.12
MINNESOTA	89	2,055,017	0	100.00	659,497	15,072	97.77	2,729,586	99.45
MISSISSIPPI	19	1,166,783	0	100.00	52,683	25,281	67.57	1,244,747	97.97
MISSOURI	44	2,325,764	0	100.00	674,867	63,551	91.39	3,064,182	97.93
MONTANA	18	334,537	0	100.00	135,820	11,341	92.29	481,698	97.65
NEBRASKA	42	501,392	0	100.00	404,197	22,334	94.76	927,923	97.59
NEVADA	14	294,577	0	100.00	776,083	3,444	99.56	1,074,104	99.68
NEW HAMPSHIRE	12	707,034	0	100.00	42,870	2,859	93.75	752,763	99.62
NEW JERSEY	3	5,587,098	0	100.00	189,400	0	100.00	5,776,498	100.00
NEW MEXICO	15	693,849	0	100.00	108,617	11,700	90.28	814,166	98.56
NEW YORK	44	10,373,195	0	100.00	1,180,966	8,218	99.31	11,562,379	99.93
NORTH CAROLINA	26	2,066,889	0	100.00	2,086,598	13,129	99.37	4,166,616	99.68
NORTH DAKOTA	24	207,695	0	100.00	123,591	22,958	84.33	354,244	93.52
OHIO	42	3,733,502	0	100.00	2,413,246	80,892	96.76	6,227,640	98.70
OKLAHOMA	39	1,503,575	7,320	99.52	298,718	13,212	95.76	1,822,825	98.87
OREGON	33	1,230,646	0	100.00	611,272	5,396	99.12	1,847,314	99.71
PENNSYLVANIA	37	5,500,537	0	100.00	1,594,339	24,793	98.47	7,119,669	99.65
RHODE ISLAND	1	602,318	0	100.00	0	0	N.A.	602,318	100.00
SOUTH CAROLINA	27	1,309,243	0	100.00	651,840	922	99.86	1,962,005	99.95
SOUTH DAKOTA	32	257,672	0	100.00	122,661	4,748	96.27	385,081	98.77
TENNESSEE	25	2,465,023	0	100.00	570,920	35,869	94.09	3,071,812	98.83
TEXAS	57	8,376,840	0	100.00	2,242,582	59,016	97.44	10,678,438	99.45
UTAH	13	941,891	0	100.00	35,588	7,115	83.34	984,594	99.28
VERMONT	10	307,533	0	100.00	52,649	5,290	90.87	365,472	98.55
VIRGINIA	21	2,839,412	0	100.00	921,353	4,608	99.50	3,765,373	99.88
WASHINGTON	22	2,258,674	0	100.00	1,002,466	9,059	99.10	3,270,199	99.72
WEST VIRGINIA	10	703,559	0	100.00	140,265	2,516	98.24	846,340	99.70
WISCONSIN	89	2,047,863	0	100.00	1,004,961	4,945	99.51	3,057,769	99.84
WYOMING	10	226,095	0	100.00	34,883	13,331	72.35	274,309	95.14
UNITED STATES	1,431 *	120,899,800	9,862	99.99	35,612,756	905,917	97.52	157,428,335	99.42
NORTHERN MARIANA IS	1	0	0	N.A	20,976	0	100.00	20,976	100.00
PUERTO RICO	2	0	0	N.A	1,166,721	0	100.00	1,166,721	100.00
VIRGIN ISLANDS	1	0	0	N.A	56,211	0	100.00	56,211	100.00
GRAND TOTAL	1,435 *	120,899,800	9,862	99.99	36,856,664	905,917	97.60	158,672,243	99.42

Source: National Exchange Carrier Association PSL Database.

*This total number of operating companies overstates the actual number of operating companies because many operating companies serve more than one state. There are about 1,300 separate operating companies.

TABLE 18.3

ADDITIONAL RESIDENTIAL LINES FOR HOUSEHOLDS WITH TELEPHONE SERVICE
(End-of-year data in millions)

Year	Loops 1/			Households with Telephone Service 2/	Additional Residential Lines	Percentage of Additional Lines for Households with Telephones
	Residential	Non-Residential	Total Loops			
1988	87.7	38.5	126.2	85.4	2.3	2.7 %
1989	90.0	40.6	130.6	87.4	2.6	3.0
1990	92.2	42.9	135.1	88.4	3.9	4.4
1991	95.9	42.5	138.4	89.4	6.5	7.3
1992	99.3	43.0	142.3	91.0	8.3	9.1
1993	101.8	45.2	147.0	93.0	8.8	9.4
1994	105.1	47.2	152.3	93.7	11.4	12.2
1995	108.1	50.4	158.5	94.2	13.9	14.8
1996	110.8	54.2	165.1	95.1	15.7	16.5

Source: FCC staff estimates.

1/ Total loops are from the Universal Service Fund subscriber line counts provided by the National Exchange Carrier Association. The Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands totals have been removed. Total loops have been divided between residential and non-residential using the ratio of residential to non-residential access lines reported in *Statistics of Communications Common Carriers*. Those totals also exclude Puerto Rico, but cover only the carriers that file ARMIS reports (of which there are none for the Northern Mariana Islands and the U.S. Virgin Islands).

2/ Current Population Survey (U.S. Department of Commerce, Bureau of the Census).

TELEPHONE NUMBERS:

In 1994, many area codes were nearing exhaustion as demand for telephone numbers continued to rise. Adding new area codes was difficult because some older telephone equipment was designed to recognize only area codes with a middle digit of 0 or 1, and the supply of those area codes was dwindling. On January 1, 1995, the restriction on the middle digit was removed, and 640 new area codes were made available. During 1995, fifteen new area codes were assigned -- the largest single-year expansion of area codes in decades. Twenty new area codes were added in 1996, forty-one were added in 1997. Eleven codes are currently projected for 1998. The changes in area codes from 1984 to 1998 are shown in Table 19.1.

On May 1, 1993, procedures for routing 800 calls were changed and 800 numbers were made "portable." The new system enables customers to change service providers while still retaining the same 800 number. There has been tremendous growth in the 800 market. The growth of 800 telephone numbers is shown in Table 19.2. In March 1996, a second toll-free calling code -- 888 -- was placed in service. The 888 code assignments are shown in Table 19.3. The third toll-free calling code -- 877 -- is scheduled to take effect beginning April 4, 1998.

TABLE 19.1

AREA CODES ASSIGNMENTS
(1984-1998)

LOCATION	DATE	PREVIOUS CODE	ADDED CODE
CALIFORNIA	1/84	213	818
NEW YORK	9/84	212	718
COLORADO	3/88	303	719
FLORIDA	4/88	305	407
MASSACHUSETTS	7/88	617	508
ILLINOIS	11/89	312	708
NEW JERSEY	11/90	201	908
TEXAS	11/90	214	903
CALIFORNIA	9/91	415	510
MARYLAND	10/91	301	410
CALIFORNIA	11/91	213	310
NEW YORK	1/92	212	917
NEW YORK	1/92	718	917
GEORGIA	5/92	404	706
NEW YORK	7/92	212	718
TEXAS	11/92	512	210
CALIFORNIA	11/92	714	909
ONTARIO	10/93	416	905
NORTH CAROLINA	11/93	919	910
MICHIGAN	12/93	313	810
PENNSYLVANIA	1/94	215	610
ALABAMA	1/95	205	334
WASHINGTON	1/95	206	360
TEXAS	3/95	713	281
ARIZONA	3/95	602	520
COLORADO	4/95	303	970
FLORIDA (TAMPA)	5/95	813	941
VIRGINIA	7/95	703	540
GEORGIA (ATLANTA)	8/95	404	770
CONNECTICUT	8/95	203	860
FLORIDA (MIAMI)	9/95	305	954
TENNESSEE	9/95	615	423
BERMUDA	10/95	809	441
OREGON	11/95	503	541
SOUTH CAROLINA	12/95	803	864
FLORIDA (NORTH)	12/95	904	352
MISSOURI	1/96	314	573
ILLINOIS (CHICAGO)	1/96	708	847
PUERTO RICO	3/96	809	787
OHIO	3/96	216	330
MINNESOTA	3/96	612	320
ANTIGUA	4/96	809	268
FLORIDA (SOUTHEAST)	5/96	407	561
BARBADOS	7/96	809	246
ST. LUCIA	7/96	809	758

TABLE 19.1

AREA CODES ASSIGNMENTS (CONT'D)
(1984-1998)

LOCATION	DATE	PREVIOUS CODE	ADDED CODE
VIRGINIA	7/96	804	757
MONTSERRAT	7/96	809	664
ILLINOIS (CHICAGO)	8/96	708	630
CAYMAN ISLANDS	9/96	809	345
TEXAS (DALLAS)	9/96	214	972
OHIO	9/96	513	937
BAHAMAS	10/96	809	242
ST. KITTS & NEVIS	10/96	809	869
ILLINOIS	10/96	312	773
BRITISH COLUMBIA	10/96	604	250
TEXAS (HOUSTON)	11/96	713	281
CALIFORNIA (SOUTHERN)	1/97	310	562
INDIANA	2/97	317	765
CALIFORNIA	3/97	619	760
ANGUILLA	3/97	809	264
ARKANSAS	4/97	501	870
WASHINGTON ST.	4/97	206	253
WASHINGTON ST.	4/97	206	425
JAMAICA	5/97	809	876
MICHIGAN	5/97	810	248
TEXAS	5/97	817	254
TEXAS	5/97	817	940
TURKS & CAICOS	5/97	809	649
TRINIDAD/TOBAGO	6/97	809	868
MARYLAND	6/97	301	240
MARYLAND	6/97	410	443
NEW JERSEY	6/97	201	973
NEW JERSEY	6/97	908	732
U.S. VIRGIN ISLANDS	6/97	809	340
CALIFORNIA	6/97	818	626
GUAM	7/97	NA	671
COMMONWEALTH OF THE NORTHERN MARIANA IS.	7/97	NA	670
TEXAS	7/97	210	830
TEXAS	7/97	210	956
KANSAS	7/97	913	785
WISCONSIN	7/97	414	920
CALIFORNIA	8/97	415	650
OHIO	9/97	216	440
MASSACHUSETTS	9/97	617	781
MASSACHUSETTS	9/97	508	978
TENNESSEE	9/97	615	931
MISSISSIPPI	9/97	601	228
UTAH	9/97	801	435
DOMINICA	10/97	809	767
BRITISH VIRGIN ISLANDS	10/97	809	284

TABLE 19.1

AREA CODES ASSIGNMENTS (CONT'D)
(1984-1998)

LOCATION	DATE	PREVIOUS CODE	ADDED CODE
MISSOURI	10/97	816	660
YUKON & NW TERR.	10/97	403	867
YUKON & NW TERR.	10/97	819	867
GRENADA	10/97	809	473
CALIFORNIA	11/97	916	530
OHIO	12/97	614	740
MICHIGAN	12/97	313	734
NORTH CAROLINA	12/97	910	336
GEORGIA (ATLANTA)	1/98	770	678
PENNSYLVANIA	2/98	412	724
CALIFORNIA	3/98	510	925
SOUTH CAROLINA	3/98	803	843
ALABAMA	3/98	205	256
CALIFORNIA	4/98	714	949
ST. VINCENT & GRENADINES	6/98	809	784
QUEBEC	6/98	514	450
CALIFORNIA (LOS ANGELES)	6/98	213	323
CALIFORNIA	7/98	408	831
CALIFORNIA	11/98	209	559

SOURCE: BELL COMMUNICATIONS RESEARCH.

TABLE 19.2

TELEPHONE NUMBERS ASSIGNED FOR 800 SERVICE

YEAR	MONTH	WORKING 800 NUMBERS	MISC* 800 NUMBERS	TOTAL 800 NUMBERS ASSIGNED	SPARE 800 NUMBERS STILL AVAILABLE
1993	APRIL	2,448,985	642,725	3,091,710	4,618,290
	MAY	2,511,933	708,192	3,220,125	4,489,875
	JUNE	2,589,123	722,006	3,311,129	4,398,871
	JULY	2,675,483	705,416	3,380,899	4,329,101
	AUGUST	2,738,259	701,009	3,439,268	4,270,732
	SEPTEMBER	2,818,262	639,547	3,457,809	4,252,191
	OCTOBER	2,891,994	660,544	3,552,538	4,157,462
	NOVEMBER	3,083,250	728,514	3,811,764	3,898,236
	DECEMBER	3,155,955	731,438	3,887,393	3,822,607
1994	JANUARY	3,257,540	580,216	3,837,756	3,872,244
	FEBRUARY	3,381,646	731,005	4,112,651	3,597,349
	MARCH	3,516,620	743,813	4,260,433	3,449,567
	APRIL	3,658,129	699,212	4,358,341	3,351,659
	MAY	3,793,865	738,767	4,532,632	3,177,368
	JUNE	3,933,037	792,698	4,725,735	2,984,265
	JULY	4,099,174	698,803	4,798,977	2,911,023
	AUGUST	4,312,486	807,881	5,120,367	2,589,633
	SEPTEMBER	4,506,014	841,381	5,347,395	2,362,605
	OCTOBER	4,611,014	871,684	5,482,698	2,227,302
	NOVEMBER	4,817,854	875,416	5,693,270	2,016,730
	DECEMBER	4,948,605	763,235	5,711,840	1,998,160
1995	JANUARY	5,096,646	807,294	5,903,940	1,806,060
	FEBRUARY	5,278,800	811,221	6,090,021	1,619,979
	MARCH	5,528,723	793,771	6,322,494	1,387,506
	APRIL	5,741,780	797,902	6,539,682	1,170,318
	MAY	5,960,848	843,093	6,823,941	886,059
	JUNE	6,340,534	481,633	6,822,167	887,833
	JULY	6,402,785	443,717	6,846,502	863,498
	AUGUST	6,428,120	442,270	6,870,390	839,610
	SEPTEMBER	6,503,018	437,215	6,940,233	769,767
	OCTOBER	6,583,344	396,605	6,979,949	730,051
	NOVEMBER	6,647,880	310,043	6,957,923	752,077
	DECEMBER	6,700,576	286,487	6,987,063	722,937
1996	JANUARY	6,766,607	297,001	7,063,608	646,392
	FEBRUARY	6,861,093	335,557	7,196,650	513,350
	MARCH	6,907,096	293,244	7,200,342	509,658
	APRIL	6,934,085	280,927	7,215,012	494,988
	MAY	6,943,620	333,140	7,276,760	433,240
	JUNE	6,986,821	324,899	7,311,720	398,280
	JULY	7,022,309	339,900	7,362,209	347,791
	AUGUST	7,074,772	311,273	7,386,045	323,955
	SEPTEMBER	7,119,187	310,562	7,429,729	280,271
	OCTOBER	7,185,135	325,088	7,510,223	199,777
	NOVEMBER	7,242,377	337,502	7,579,879	130,121
	DECEMBER	7,272,619	343,905	7,616,724	93,276
1997	JANUARY	7,333,632	323,804	7,657,436	52,564
	FEBRUARY	7,388,696	318,571	7,707,267	2,733
	MARCH	7,402,769	305,362	7,708,131	1,869
	APRIL	7,411,118	296,925	7,708,043	1,957
	MAY	7,411,291	294,320	7,705,611	4,389
	JUNE	7,415,591	293,802	7,709,393	807
	JULY	7,421,288	283,794	7,705,082	4,918
	AUGUST	7,430,733	276,024	7,706,757	3,243
	SEPTEMBER	7,427,717	280,668	7,708,385	1,615
	OCTOBER	7,433,483	276,490	7,709,973	27
	NOVEMBER	7,423,662	276,576	7,700,238	9,762
	DECEMBER	7,429,160	267,429	7,696,589	13,411

* MISCELLANEOUS NUMBERS INCLUDE THOSE IN THE 800 SERVICE MANAGEMENT SYSTEM MAINTAINED BY DATA SERVICE MANAGEMENT, INC., AND CATEGORIZED AS RESERVED, ASSIGNED BUT NOT YET ACTIVATED, RECENTLY DISCONNECTED, OR SUSPENDED.

TABLE 19.3

TELEPHONE NUMBERS ASSIGNED FOR 888 SERVICE

YEAR	MONTH	WORKING 888 NUMBERS	MISC* 888 NUMBERS	TOTAL 888 NUMBERS ASSIGNED	SPARE 888 NUMBERS STILL AVAILABLE
1996	FEBRUARY	67,399	560,598	627,997	7,352,003
	MARCH	267,874	568,574	836,448	7,143,552
	APRIL	442,005	565,402	1,007,407	6,972,593
	MAY	707,374	542,428	1,249,802	6,730,198
	JUNE	922,849	544,079	1,466,928	6,513,072
	JULY	1,157,770	549,845	1,707,615	6,272,385
	AUGUST	1,437,660	576,399	2,014,059	5,965,941
	SEPTEMBER	1,641,519	590,345	2,231,864	5,748,136
	OCTOBER	1,886,663	629,365	2,516,028	5,463,972
	NOVEMBER	2,074,600	622,375	2,696,975	5,283,025
	DECEMBER	2,255,163	601,766	2,856,929	5,123,071
1997	JANUARY	2,457,250	591,533	3,048,783	4,931,217
	FEBRUARY	2,654,984	629,997	3,284,981	4,695,019
	MARCH	2,857,608	661,164	3,518,772	4,461,228
	APRIL	3,097,015	646,709	3,743,724	4,236,276
	MAY	3,399,856	657,615	4,057,471	3,922,529
	JUNE	3,660,984	681,981	4,342,965	3,637,035
	JULY	3,990,769	696,331	4,687,100	3,292,900
	AUGUST	4,345,910	742,755	5,088,665	2,891,335
	SEPTEMBER	4,776,688	774,431	5,551,119	2,428,881
	OCTOBER	5,139,455	726,515	5,865,970	2,114,030
	NOVEMBER	5,353,989	699,223	6,053,212	1,926,788
	DECEMBER	5,551,554	729,020	6,280,574	1,699,426

* MISCELLANEOUS NUMBERS INCLUDE THOSE IN THE 888 SERVICE MANAGEMENT SYSTEM MAINTAINED BY DATA SERVICE MANAGEMENT INC., AND CATEGORIZED AS RESERVED, ASSIGNED BUT NOT YET ACTIVATED, RECENTLY DISCONNECTED, OR SUSPENDED.

APPENDIX

The information in this report and, in many cases, more detailed information can be downloaded from the **FCC-State Link** internet site at http://www.fcc.gov/ccb/stats on the World Wide Web. The report can also be downloaded from the **FCC-State Link** electronic bulletin board by calling 202-418-0241.

Printed copies of statistical reports are available for reference in the Common Carrier Bureau's Public Reference Room (Room 575 at 2000 M Street, N.W.) and from the Commission's duplicating contractor (International Transcription Services, Inc. (ITS), 202-857-3800).

Additional information on regulated carriers, including investments, revenues, expenses, and earnings, is contained in the annual *Statistics of Communications Common Carriers*, available from the U.S. Government Printing Office (202-512-1800).

FCC rules require carriers to provide more detailed traffic data about international telephone service than about domestic service. Because of delays in international settlements, such information is typically received by the commission much later than domestic data and is usually published separately. Detailed international data is available from *International Telecommunications Data* and *Trends in the International Telecommunications Industry*, both of which are published by the Industry Analysis Division.

The information on cellular telephone service shown in Tables 2.1 and 2.2 was prepared from a publication of the Cellular Telecommunications Industry Association (1133 21st Street N.W., Washington, D.C. 20036, 202-785-0081). They can be found on the internet at http://www.ctia.org on the World Wide Web.

The United States Telephone Association represents virtually all local telephone companies (1401 H Street N.W., Washington D.C. 20005, 202-326-7300). Like many trade associations, it collects information from each of its members. Annually, it publishes and sells statistical publications such as *Statistics of the Local Exchange Carriers*. They can be found on the internet at http://www.usta.org on the World Wide Web.

Infomation on numbering issues, including area codes and carrier identification codes, can be found on the internet at http://www.nanpa.com on the World Wide Web.

The names, addresses and telephone numbers for companies in the telephone industry are in the Industry Analysis Division's *Carrier Locator*.

For more information on the following subjects, the following individuals may be contacted at 202-418-0940:

Access Charges	Tracy Waldon or Jim Lande
Complaints	Craig Stroup
Consumer Expenditures	Tracy Waldon
Employment	Katie Rangos or Jim Zolnierek
Equal Access	Jim Eisner
International Statistics	Linda Blake or Jim Lande
Lifeline Assistance Programs	Larry Povich
Lines	Alex Belinfante or Jim Eisner
Local Competition.	Ellen Burton
Market Shares	Jim Zolnierek or Katie Rangos
Minutes	Alex Belinfante or Adrianne Brent
Prices and Rates	Tracy Waldon
Subscribership and Penetration	Alexander Belinfante
Technology	Jonathan Kraushaar
Telecommunications Relay Fund Worksheets	Jim Lande or Katie Rangos

Customer Response

Publication: Trends In Telephone Service, February 1998

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