



# NEWS

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## FCC Releases Study on Telephone Trends

Washington, D.C. – Today, the Federal Communications Commission (FCC) released its bi-annual report, *Trends in Telephone Service*. The report provides answers to some of the most frequently asked questions about the telephone industry asked by consumers, members of Congress, other government agencies, telecommunications carriers, and members of the business and academic communities.

Highlights from sections in the report on advanced telecommunications services, international calling, local competition, long distance industry, telephone rates, subscribership, and toll-free numbers are shown below:

### Advanced Telecommunications Services

- High-speed lines (over 200 kbps in at least one direction) connecting homes and small businesses to the Internet increased by 57% during the first half of 2000, to a total of 4.3 million lines (or wireless channels) in service from 2.8 million at the end of 1999.
- About 2.8 million high-speed lines provided speeds of over 200 kbps in both directions, and thus met the Commission's definition of advanced services, compared to 2.0 million at the end of 1999.

### International Calling

- The number of calls made from the United States to other countries increased from 200 million in 1980 to 5.2 billion in 1999.
- In 1999, Americans spent about \$14.4 billion on international calls. On average, carriers billed \$0.51 per minute for international calls in 1999, a decline of 50% in the per minute price since 1980.

### Local Competition

- As of June 2000, Competitive Local Exchange Carriers (CLECs) provided 12.7 million (or 6.7%) of the approximately 192 million nationwide local telephone lines that were in service to end users as opposed to 8.3 million (or 4.4%) of nationwide local telephone lines at the end of 1999. This represents a 53% growth in CLEC market size during the first six months of this year.
- About one-third of CLEC end-user lines are served over "local loop" facilities that the CLECs own.

- Incumbent Local Exchange Carriers (ILECs) reported providing other carriers about 5.7 million lines on a resale basis, at mid-year 2000, compared to over 3 million unbundled network elements (UNE) loops.

### **Long Distance Industry**

- Since divestiture, interstate-switched access minutes have nearly quadrupled to about 600 billion, and long distance carrier toll revenues have more than doubled from \$39 billion to \$99 billion.
- AT&T's share of interstate carrier toll revenues has decreased from 90% in 1984 to 41% in 1999; WorldCom's and Sprint's collective shares accounted for about 33% in 1999 and more than 700 smaller long distance carriers accounted for the remaining 26%.

### **Telephone Rates**

- Local phone rates have remained steady during the last decade. The average monthly local residential charge for service was \$19.87 in October 1999 as compared to \$19.24 in 1990; for a business with a single phone line, the representative charge for service was \$41.00 in October 1999 as compared to \$41.21 in 1990.

### **Subscribership**

- Twenty million households have been added to the nation's telephone system since November 1983. As of July 2000, 99.1 million households had telephone service.

### **Toll-Free Numbers**

- There are currently four toll-free prefixes in use - 800, 888, 877, and 866 - with almost 24 million toll-free numbers assigned as of the end of November 2000. The next new code - 855 - is expected to be placed in service in 2001.

This report is available for reference in the FCC's Reference Information Center, Courtyard Level, 445 12th, S.W. Copies may be purchased by calling International Transcription Services, Inc. (ITS) at (202) 857-3800. The report can be downloaded [file names: TREND200.ZIP, TREND200.PDF] from the **FCC-State Link** Internet site at <<http://www.fcc.gov/ccb/stats>>.

-- FCC --

For further information, contact the Industry Analysis Division, Common Carrier Bureau, at (202) 418-0940, or for users of TTY equipment, call 202-418-0484.

# *Trends in Telephone Service*



*Industry Analysis Division  
Common Carrier Bureau*

*December 2000*

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## Introduction

*Trends in Telephone Service* is published by the Industry Analysis Division of the Federal Communications Commission's Common Carrier Bureau. 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 access charges, consumer expenditures for service, infrastructure, international telephone traffic, long distance carriers, telephone rates and price changes, and universal service support.

*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, **FCC-State Link**, at <<http://www.fcc.gov/ccb/stats>>. In addition, to facilitate further information gathering by consumers and others, we have listed additional sources of information in Appendix A, and we have provided information on contacting the authors of this report in Appendix B.

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# 1 Access Charges

Long distance companies rely on the loops, switches, and transport facilities of local telephone companies for access to their customers. As a result, local telephone companies recover a portion of their costs from long distance companies accessing their networks. Both the manner in which these access charges have been assessed and the proportion of the costs they have recovered have varied considerably over time.

In the early 1980s, AT&T provided about three-quarters of the nation's local telephone service and almost all interstate long distance service. Because revenue sharing was largely an internal process for AT&T, it was able to charge prices above true economic cost for long distance calls and share the revenues with local telephone companies. These transfers, while reducing the pressures on the local companies to raise monthly rates, contributed to inefficiently high long distance rates. The high rates were responsible for suppressing demand for long distance calls and inducing large corporations to bypass the public switched network. Moreover, while such revenue sharing arrangements were sustainable in an industry where one firm monopolized both long distance and local service, they were not compatible with a competitive long distance industry.

In mid-1984 the FCC, in cooperation with a Federal-State Joint Board composed of both federal and state regulators, introduced sweeping changes in the way that local telephone companies charged for their services. The historic method of sharing revenues was replaced with a new system of access charges that provided a uniform method for local telephone companies to charge long distance carriers for the origination and termination of interstate traffic on their local networks. In addition, monthly subscriber line charges (SLCs) were introduced to recover a portion of the fixed costs of the local telephone companies' loops directly from end users on a per-line basis.<sup>1</sup> Since local telephone companies were required to reduce their charges to long distance carriers -- dollar for dollar -- as SLCs were introduced, the pricing changes reduced the implicit subsidy from long distance use to local service. 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.

In mid-1997, as part of its implementation of the 1996 Telecommunications Act, the FCC introduced further interstate access charge reform. Prior to the 1997 reform, local carriers continued to recover part of their fixed costs in per-minute charges (from long distance carriers) and part from end users (in SLCs.) Presubscribed interexchange carrier charges (PICCs) were created in order to allow local carriers to recover the remaining portion of their fixed loop costs from long distance carriers on a per-line, instead of a per-minute, basis. Cost recovery on a per-line basis not only reduces the remaining inefficiency in the pricing of long distance access, but allows local companies to recover costs in a competitively neutral manner, consistent with the goals of the 1996 Act.

A further access charge reform was adopted on May 31, 2000, which eliminated the PICCs

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<sup>1</sup> Under the Commission's nomenclature, SLCs are called access charges even though they are collected from customers (end users) rather than long distance carriers.

and consolidated them with the SLCs. This took effect on July 1, 2000.

Average monthly SLCs and PICCs are shown in Table 1.1, and average per-minute rates charged to long distance carriers are shown in Table 1.2. Both tables report historical averages for all local exchange carriers (LECs) that file access tariffs subject to price-cap regulation and LECs in the National Exchange Carrier Association (NECA) pool. These LECs control over 98% of the industry's access lines. Current per-line charges and per-minute charges are reported for each of the carriers in Tables 1.3 and 1.4, respectively.

The data in Table 1.2 clearly illustrate the effectiveness of access reform in reducing the prices long distance carriers pay per minute for access to the local telephone companies' networks. Per-minute access prices have continually decreased over time, a trend that continues with implementation of the 1997 and 2000 reforms.

**Table 1.1**  
**Interstate Per-Line Access Charges**  
(National Average per Month per Line) 1/

Rates in Effect		Charged to End Users 2/ (Subscriber Line Charges)			Charged to Long Distance Carriers 3/ (Presubscribed Interexchange Carrier Charges)			
From	To	Residential and Single-Line Business	Non-Primary Residential	Multiline Business and Centrex	Residential and Single-Line Business	Non-Primary Residential	Multiline Business	Centrex
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	\$4.98	6.92	\$0.49	\$1.50	\$2.52	\$0.35
07/01/98	12/31/98	3.50	4.99	7.11	0.49	1.38	2.38	0.38
01/01/99	06/30/99	3.50	5.88	7.05	0.49	1.38	2.22	0.32
07/01/99	12/31/99	3.50	5.84	6.94	0.95	1.77	2.78	0.42
01/01/00	06/30/00	3.50	5.81	6.94	0.92	1.70	2.44	0.35
08/11/00	12/31/00 4/	4.28	5.99	6.88	0.00	0.00	2.30	0.37

Source: Industry Analysis Division, *Monitoring Report* and access tariff filings.

1/ This table shows average rates (weighted by access lines) for all local exchange carriers (LECs) that file access tariffs subject to price-cap regulation and all LECs in the National Exchange Carrier Association (NECA) pool.

2/ Prior to 1/01/98, carriers did not charge separate subscriber line charge (SLC) rates for primary and non-primary residential lines. Therefore, the residential and single-line business average SLCs reported prior to 1/01/98 include all residential SLC charges. The average residential and single-line business SLC rate as of 1/01/98 excludes non-primary residential SLC charges. Non-primary SLC charges are now reported separately, except for the LECs in the NECA pool, which continue to charge a single residential SLC. Under price-cap regulation, as of July 1, 2000, the caps on SLCs for primary residential and single-line business, non-primary residential, and multiline business and Centrex lines equal \$4.35, \$7.00, and \$9.20, respectively. For NECA pool companies, the residential SLC cap is \$3.50, while the multiline business and Centrex SLC cap equals \$6.00.

3/ On 1/01/98, price-cap carriers began to charge presubscribed interexchange carrier charges (PICCs). The reported PICCs are averages per line including both price-cap and NECA pool lines. While carriers do not charge different rates for Centrex and multiline business SLCs, they do charge different PICC rates for these lines. Therefore, the average multiline business and Centrex PICC rates are reported separately. However, multiline business line counts, used to compute average PICC rates, include Centrex lines for LECs in the NECA pool, which do not charge PICCs or distinguish in access filings between the two line types. On 7/01/00, price-cap carriers stopped charging residential and single-line business PICCs. Therefore, under price-cap regulation, as of July 1, 2000, the caps on PICCs for primary residential and single-line business, non-primary residential, and multiline business lines equal \$0.00, \$0.00, and \$4.31, respectively. Centrex groups of 9 or fewer lines are capped at the multiline business PICC rate of \$4.31 per group. Centrex groups with more than 9 lines are capped \$0.48 per line (1/9th the multiline business rate).

4/ Although the charges took effect on July 1, 2000, some companies made adjustments to the tariffs which did not take effect until August 11, 2000.

**Table 1.2**  
**Interstate Per-Minute Access Charges**  
**(National Average in Cents per Minute) 1/**

Rates in Effect		Interstate Charges for Switched Access Service				
From	To	Carrier Common Line Per Originating Access Minute 1/	Carrier Common Line Per Terminating Access Minute 1/	Traffic Sensitive Per Switched Minute	Non-Traffic Sensitive Per Switched Minute 2/	Total Charge per Conversation Minute 3/
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	1.63	0.14	5.18
01/01/98	06/30/98	0.68	0.23	1.29	0.21	4.04
07/01/98	12/31/98	0.91	0.20	0.99	0.30	3.82
01/01/99	06/30/99	0.82	0.16	0.98	0.32	3.71
07/01/99	12/31/99	0.37	0.10	0.86	0.28	2.82
01/01/00	06/30/00	0.32	0.10	0.86	0.31	2.85
08/11/00	12/31/00 4/	0.23	0.07	0.52	0.26	1.91

Source: Industry Analysis Division, *Monitoring Report* and access tariff filings.

1/ This table shows average rates (weighted by minutes of use) for all local exchange carriers (LECs) that file access tariffs subject to price-cap regulation and all LECs in the National Exchange Carrier Association (NECA) pool. The average rates reported here do not include the average revenue per minute from subscriber line charges (SLCs) or primary interexchange carrier charges (PICCs), both of which are reported in Table 1.1.

2/ Non-traffic-sensitive charges include charges assessed on a per-month, per-unit basis. Prior to 07/01/94, these charges were included in the average traffic-sensitive rates.

3/ The total charge per conversation minute consists of charges on the originating end of the call, which are adjusted for dialing and call setup time, plus charges on the terminating end. Originating charges per conversation minute equal the carrier common line charge per originating access minute plus the traffic-sensitive charge per switched minute, both multiplied by 1.07 to account for dialing and call setup time, plus the non-traffic-sensitive charge per switched minute. Terminating charges per conversation minute equal carrier common line charges per terminating access minute plus both traffic-sensitive and non-traffic-sensitive charges per switched minute.

4/ Although the charges took effect on July 1, 2000, some companies made adjustments to the tariffs which did not take effect until August 11, 2000.

**Table 1.3**  
**Interstate Per-Line Access Charges by Carrier**  
(In Dollars per Month per Line) 1/

Company	Rates Effective from 08/11/00 to 12/31/00							1999 Average Monthly Access Lines 2/ (Thousands)		
	Subscriber Line Charges			Presubscribed Interexchange Carrier Charges						
	Residential and Single-Line Business	Non-Primary Residential	Multiline Business and Centrex	Residential and Single-Line Business	Non-Primary Residential	Multiline Business	Centrex	Residential and Single-Line Business	Non-Primary Residential	Multiline Business and Centrex
ALLTEL	\$4.35	\$5.41	\$6.04	\$0.00	\$0.00	\$0.00 3/	\$0.00 3/	180	17	82
BellSouth	4.35	6.96	7.84	0.00	0.00	4.31	0.48	14,845	2,527	6,736
Cincinnati Bell	4.35	6.07	6.22	0.00	0.00	0.69	0.08	650	87	297
Citizens	4.34	6.97	9.12	0.00	0.00	4.22	0.63	765	39	201
Global Crossing	4.35	6.05	8.34	0.00	0.00	1.47	0.24	648	81	263
Iowa Telecom	4.35	7.00	9.20	0.00	0.00	4.31	0.86	225	12	47
Qwest	4.35	6.39	8.33	0.00	0.00	2.78	2.78	10,371	1,767	4,748
SBC	4.35	5.14	5.65	0.00	0.00	0.53	0.11	31,160	7,093	19,038
Sprint	4.32	6.37	8.13	0.00	0.00	3.28	0.45	5,138	736	1,794
Verizon	4.35	6.40	7.41	0.00	0.00	3.55	0.55	35,491	6,458	16,905
All Price Caps	4.35	5.99	6.92	0.00	0.00	2.43	0.37	99,472	18,819	50,112
NECA	3.50	NA	5.97	NA	NA	NA	NA	9,003	NA	2,062
All Price Caps and NECA	\$4.28	\$5.99	\$6.88	\$0.00	\$0.00	\$2.30	\$0.37	108,475	18,819	52,174

Source: Access tariff filings.

NA - Not Available.

1/ This table shows average rates (weighted by access lines) for all local exchange carriers (LECs) that file access tariffs subject to price-cap regulation and all LECs in the National Exchange Carrier Association (NECA) pool. Rates are composites of all regions and subsidiaries of each local exchange carrier. No information is available for those carriers that are not in the NECA pool, but are subject to rate-of-return regulation.

2/ Access line counts measure lines that companies report as qualified to receive subscriber line charges (SLCs). ISDN-BRI lines, which are charged non-primary SLC and PICC rates, are included in the non-primary residential line counts. ISDN-PRI lines, which are charged rates equal to five times the multiline business SLC and PICC rates, are multiplied by five and added to multiline business counts.

3/ Charges are zero in this case since ALLTEL, a rate-of-return carrier, acquired Alliant, a price-cap carrier.

**Table 1.4**  
**Interstate Per-Minute Access Charges by Carrier**  
(In Cents per Minute) 1/

Company	Rates Effective from 08/11/00 to 12/31/00					1999 Minutes of Use		
	Carrier Common Line per Originating Access Minute	Carrier Common Line per Terminating Access Minute	Switched Traffic Sensitive Per Access Minute	Switched Non-Traffic Sensitive Per Access Minute 2/	Total Charge per Conversation Minute 3/	(Millions)		
						CCL Originating	CCL Terminating	Local Switching
ALLTEL	0.00 ¢	0.00 ¢	0.97 ¢	0.46 ¢	2.93 ¢	246	561	815
BellSouth	0.02	0.00	0.38	0.26	1.33	28,738	52,997	81,100
Cincinnati Bell	0.00	0.00	0.52	0.19	1.47	1,059	2,191	3,251
Citizens	1.28	0.00	0.92	1.14	5.56	1,550	1,486	3,015
Global Crossing	0.64	0.00	0.72	0.42	3.02	774	1,826	2,604
Iowa Telecom	1.66	0.00	0.84	0.22	3.96	252	516	770
Qwest	0.00	0.00	0.49	0.19	1.41	21,588	40,107	62,239
SBC	0.00	0.00	0.50	0.21	1.46	63,313	86,767	152,856
Sprint	0.30	0.00	0.70	0.18	2.12	9,467	14,759	24,349
Verizon	0.35	0.00	0.48	0.21	1.79	61,426	127,515	190,453
All Price Caps	0.16	0.00	0.49	0.22	1.63	188,412	328,724	521,451
NECA	1.00	1.39	1.59	1.43	8.62	14,074	16,181	15,903
All Price Caps and NECA	0.23 ¢	0.07 ¢	0.52 ¢	0.26 ¢	1.91 ¢	202,487	344,905	537,355

Source: Access tariff filings.

1/ This table shows average rates (weighted by minutes of use) for all local exchange carriers (LECs) that file access tariffs subject to price-cap regulation and all LECs in the National Exchange Carrier Association (NECA) pool. Rates are composites of all regions and subsidiaries of each local exchange carrier. No information is available for those carriers that are not in the NECA pool, but are subject to rate-of-return regulation. The average rates reported here do not include the average revenue per minute from subscriber line charges (SLCs) or primary interexchange carrier charges (PICCs), both of which are reported in Table 1.1.

2/ Non-traffic sensitive charges include charges assessed on a per-month, per-unit basis. Prior to 07/01/94 these charges were included in the average traffic-sensitive rates.

3/ The total charge per conversation minute consists of charges on the originating end of the call, which are adjusted for dialing and call setup time, plus charges on the terminating end. Originating charges per conversation minute equal the carrier common line charge per originating access minute plus the traffic-sensitive charge per switched minute, both multiplied by 1.07 to account for dialing and call setup time, plus the non-traffic-sensitive charge per switched minute. Terminating charges per conversation minute equal carrier common line charges per terminating access minute plus both traffic-sensitive and non-traffic-sensitive charges per switched minute.

## 2 Advanced Telecommunications

Congress directed the Commission and the states, in section 706 of the Telecommunications Act of 1996, to encourage deployment of advanced telecommunications capability in the United States on a reasonable and timely basis. To assist in its evaluation of such deployment, the Commission launched a formal data collection program (FCC Form 477) to gather standardized information about subscribership to high-speed services, including advanced services, from wireline telephone companies, cable providers, terrestrial wireless providers, satellite providers, and any other facilities-based providers of advanced telecommunications capability.

A facilities-based provider of high-speed service lines (or wireless channels) in a given state reports to the Commission basic information about its service offerings and customers if the provider has at least 250 such lines in service in that state. While providers not meeting the reporting threshold may provide information on a voluntary basis, as some have done, we have no assurance that all such providers have reported data.

Table 2.1 shows high-speed lines (over 200 kbps in at least one direction) for the following types of technology: Asymmetric digital subscriber lines (ADSL), wireline other than ADSL, coaxial cable, fiber, and satellite and fixed wireless. ADSL technologies provide speed in one direction greater than speed in the other direction. Wireline technologies other than ADSL include traditional telephone company high-speed services and symmetric DSL services that provide equivalent functionality. Coaxial cable includes the typical hybrid fiber-coax (HFC) architecture of upgraded cable TV systems. Optical fiber technologies are fiber to the subscriber's premises (e.g., fiber-to-the-home, or FTTH). Satellite and fixed terrestrial wireless systems use radio spectrum to communicate with a radio transmitter attached to the subscriber's premises.

Table 2.2. shows advanced services lines (over 200 kbps in both directions) by the above technologies and Table 2.3 shows residential and small business high-speed lines (over 200 kbps in at least one direction) for the above technologies. Table 2.4 shows high-speed lines by state for the above technologies.



**Table 2.1**  
**High-Speed Lines**  
**(Over 200 Kbps in at Least One Direction)**

<b>Type of Technology*</b>	<b>December 1999</b>	<b>June 2000</b>	<b>% Change</b>
ADSL	369,792	950,590	157%
Other Wireline	609,909	747,028	22
Coaxial Cable	1,414,183	2,248,981	59
Fiber	312,204	307,151	n.m.
Satellite & Fixed Wireless	50,404	65,615	n.m.
<b>Total Lines</b>	<b>2,756,492</b>	<b>4,319,365</b>	<b>57%</b>

**Table 2.2**  
**Advanced Services Lines**  
**(Over 200 Kbps in Both Directions)**

<b>Type of Technology*</b>	<b>December 1999</b>	<b>June 2000</b>	<b>% Change</b>
ADSL	185,950	325,901	75%
Other Wireline	609,909	747,028	22
Coaxial Cable	879,671	1,434,237	63
Fiber	307,315	301,551	n.m.
Satellite & Fixed Wireless	7,816	3,649	n.m.
<b>Total Lines</b>	<b>1,990,662</b>	<b>2,812,366</b>	<b>41%</b>

**Table 2.3**  
**Residential and Small Business High-Speed Lines**  
**(Over 200 Kbps in at Least One Direction)**

<b>Type of Technology*</b>	<b>December 1999</b>	<b>June 2000</b>	<b>% Change</b>
ADSL	291,757	771,311	164%
Other Wireline	46,856	104,647	123
Coaxial Cable	1,404,600	2,179,749	55
Fiber	1,023	325	n.m.
Satellite & Fixed Wireless	50,404	64,320	n.m.
<b>Total Lines</b>	<b>1,794,640</b>	<b>3,121,653</b>	<b>74%</b>

Source: Industry Analysis Division, *High Speed Services for Internet Access: Subscribership as of June 30, 2000*.

n.m. - Not meaningful due to previously unidentified inconsistencies in reported data.

\* Footnote for Tables 2.1 - 2.4.

The mutually exclusive types of technology are: Asymmetric digital subscriber line (ADSL) technologies, which provide speed in one direction greater than speed in the other direction; wireline technologies other than ADSL, including traditional telephone company high-speed services and symmetric DSL services that provide equivalent functionality; coaxial cable, including the typical hybrid fiber-coax (HFC) architecture of upgraded cable TV systems; optical fiber to the subscriber's premises (e.g., fiber-to-the-home, or FTTH); and satellite and fixed terrestrial wireless systems, which use radio spectrum to communicate with a radio transmitter attached to the subscriber's premises.

**Table 2.4**  
**High-Speed Lines by Technology**

	December 1999	June 2000			Percentage Change from 1999 to 2000	
	Total	ADSL	Coaxial Cable	Other 1/ Total		
Alabama	19,796	*	17,164	*	32,679	65 %
Alaska	*	0	0	*	*	NA
Arizona	58,825	*	*	48,983	111,678	90
Arkansas	8,155	*	*	3,688	15,484	90
California	547,179	373,574	297,415	238,700	909,689	66
Colorado	36,726	*	*	13,127	64,033	74
Connecticut	36,488	*	47,127	*	63,772	75
Delaware	1,558	*	*	1,506	3,660	135
District of Columbia	13,288	*	*	10,766	16,926	27
Florida	190,700	37,806	127,238	75,851	240,895	26
Georgia	75,870	*	48,947	*	130,292	72
Hawaii	*	*	*	*	*	NA
Idaho	*	*	*	*	8,070	NA
Illinois	77,672	12,812	83,737	70,384	166,933	115
Indiana	20,059	*	33,431	*	49,599	147
Iowa	19,258	*	42,081	*	49,159	155
Kansas	26,179	*	*	5,171	42,679	63
Kentucky	23,570	*	*	*	24,019	2
Louisiana	28,133	*	*	11,749	43,294	54
Maine	19,878	*	*	*	17,864	-10
Maryland	52,749	*	42,412	*	71,005	35
Massachusetts	114,116	15,802	148,233	19,922	183,957	61
Michigan	81,223	*	94,586	*	135,318	67
Minnesota	38,268	25,975	30,485	8,375	64,835	69
Mississippi	*	*	*	*	6,514	NA
Missouri	23,347	*	16,482	*	46,903	101
Montana	*	*	*	*	*	NA
Nebraska	36,748	*	*	5,609	44,184	20
Nevada	23,514	*	*	10,441	40,582	73
New Hampshire	22,807	*	*	2,580	33,045	45
New Jersey	101,832	*	*	36,909	144,203	42
New Mexico	*	*	0	2,919	2,925	NA
New York	186,504	41,576	*	*	311,839	67
North Carolina	57,881	8,662	42,290	30,158	81,110	40
North Dakota	*	*	*	1,632	3,467	NA
Ohio	160,792	33,603	*	*	156,888	-2
Oklahoma	*	*	*	*	162,790	NA
Oregon	27,062	19,989	*	*	44,186	63
Pennsylvania	71,926	18,313	38,340	23,239	79,892	11
Puerto Rico	*	0	0	*	*	NA
Rhode Island	*	*	*	*	20,628	NA
South Carolina	25,229	*	20,190	*	32,824	30
South Dakota	*	*	*	5,414	7,991	NA
Tennessee	66,307	*	*	23,979	85,500	29
Texas	152,518	73,117	135,999	65,014	274,130	80
Utah	11,635	*	*	4,828	19,612	69
Vermont	*	*	*	*	1,551	NA
Virginia	51,305	9,510	40,337	22,153	72,000	40
Washington	71,930	52,345	*	*	118,318	64
West Virginia	*	*	*	*	1,835	NA
Wisconsin	18,599	1,063	*	*	34,220	84
Wyoming	*	*	0	*	*	NA
<b>Nationwide Reported Total</b>	<b>2,756,492</b>	<b>950,590</b>	<b>2,248,981</b>	<b>1,119,794</b>	<b>4,319,365</b>	<b>57</b>

Source: Industry Analysis Division, *High-Speed Services for Internet Access:Subscribership as of June 30, 2000*.

NA - Not available.

\* Data withheld to maintain firm confidentiality.

1/ Other includes other wireline, fiber, satellite, fixed wireless.

### **3 Consumer Expenditures**

The Bureau of Labor Statistics conducts surveys of consumer expenditures, in part, to develop weights for CPI indices. Table 3.1 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 \$830 in 1998.

Bill harvesting data collected by TNS Telecoms, provide information on the telecommunications expenditures of households. Expenditures can be classified by the type of carrier providing the service. Table 3.2 presents average monthly household expenditures for local exchange and long distance carriers for 1995 through 1999. Further information on TNS Telecoms and the bill harvesting data can be found in Section 15.

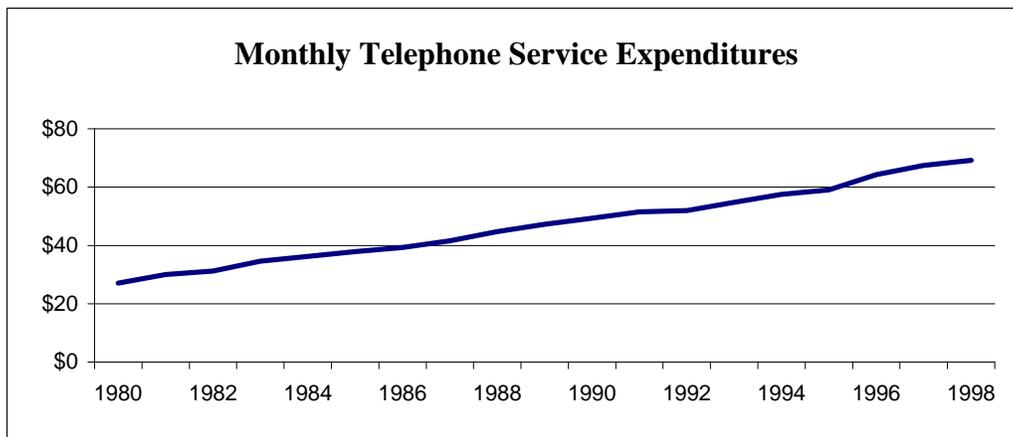


**Table 3.1**  
**Household Expenditures for Telephone Service**

Year	Annual Expenditures for All Households		Telephone Expenditures as a Percent of All Expenditures
	All Expenditures	Telephone Expenditures	
1980	\$16,723	\$325	1.9 %
1981	17,558	360	2.1
1982	18,071	375	2.1
1983	19,692	415	2.1
1984	21,975	435	2.0
1985	23,490	455	1.9
1986	23,866	471	2.0
1987	24,414	499	2.0
1988	25,892	537	2.1
1989	27,810	567	2.0
1990	28,381	592	2.1
1991	29,614	618	2.1
1992	29,846	623	2.1
1993	30,692	658	2.1
1994	31,731	690	2.2
1995	32,264	708	2.2
1996	33,797	772	2.3
1997	34,819	809	2.3
1998	35,535	830	2.3

Source: Consumer Expenditure Survey, Bureau of Labor Statistics.

**Chart 3.1**



**Table 3.2**  
**Average Monthly Household Telecommunications Expenditures for**  
**Local Exchange and Long Distance Carriers 1/ 2/**

	<b>Local Exchange Carriers 3/</b>	<b>Long Distance Carriers</b>	<b>Total</b>
<b>1995</b>	\$30	\$21	\$51
<b>1996</b>	30	21	51
<b>1997</b>	32	25	57
<b>1998</b>	33	23	56
<b>1999</b>	34	21	55

Source: Calculated by IAD staff with data provided by TNS Telecoms (formerly PNR and Associates), *Telecoms Market MonitorTM*.

1/ Household payments to long distance carriers are based on monthly household bills for those households with wireline telephone service.

2/ This sample does not include households from Alaska and Hawaii.

3/ Includes incumbent local exchange carriers and competitive local exchange carriers. Does not include DSL or other high-speed services.

## 4 Earnings

Beginning in the mid-1980s, local exchange carriers that file access tariffs with the Commission were required to file rate of return reports (FCC Form 492). The first reports were filed for the monitoring period October 1, 1985 - December 31, 1986. Carriers filed reports for each subsequent two-year monitoring period (1987-88 and 1989-90).

In 1991, carriers that became subject to price-cap incentive regulation began filing reports on a yearly basis. Non-price-cap carriers continued to file reports for each two-year monitoring period (1991-1992, 1993-1994, 1995-1996, and 1997-1998) as well as annual reports for 1991, 1993, 1995, 1997, and 1999. Rate-of-return reports were previously required for AT&T but have been discontinued. Table 4.1 is a summary of rates of return for 1991-1999 for price-cap carriers.

The rates of return were posted at the time of the carrier's individual Form 492 filings. They do not reflect revisions filed by the carriers at a later date. Thus, they are not necessarily the official versions relevant for rate-of-return enforcement and other regulatory purposes, but they do illustrate general industry trends. Copies of the individual carrier's Form 492 reports are on file in the FCC's Reference Information Center, Courtyard Level, 445 12th Street S.W., Washington, D.C.



**Table 4.1**  
**Interstate Rate of Return Summary**  
**Years 1991 through 1999**  
**Price-Cap Companies**  
**(Final Reports for 1991 through 1998 and Initial Report for 1999)**

As of April 4, 2000.

Reporting Entity	1999	1998	1997	1996	1995	1994	1993	1992	1991
<b>AT&amp;T Communications 1/</b>						13.26 %	13.49 %	12.77 %	13.4 %
<b>Bell Atlantic Companies 2/</b>	13.64 %								
1 Bell Atlantic		13.88 %	14.73 %	11.24 %	13.74 %	14.00	14.01	12.50	12.83
2 Bell Atlantic (NYNEX) 3/		11.40	13.72	15.23	12.12	11.79	12.55	12.50	
New England Telephone and Telegraph Co. New York Telephone									8.54 9.82
<b>BellSouth Telephone Companies *</b>	21.05	20.80	17.91	16.40	15.78	15.92	13.68	12.80	12.62
<b>SBC Communications, Inc. 4/</b>									
4 Southwestern Bell Telephone Company 5/	10.27	9.91	10.32	11.63	13.38	13.01	12.91	11.80	10.75
5 Ameritech Operating Companies 5/	28.93	22.59	18.22	18.27	16.78	13.39	14.80	12.79	13.00
6 Nevada Bell 5/	18.99	16.02	19.47	17.75	17.31	17.92	17.44	14.51	12.98
7 Pacific Bell 5/	20.87	16.50	11.98	17.68	15.76	14.93	12.89	12.68	11.85
8 Southern New England Telephone Company 5/	12.12	10.99	12.70	11.64	11.58	11.34	11.52	12.90	8.56
<b>US WEST Communications, Inc. 6/</b>	19.09	16.56	15.41	13.64	12.00	12.40	13.62	12.41	12.40
<b>GTE 7/ 8/ 9/</b>									
10 GTE South Inc. (Kentucky - COKY) 10/	9.65	5.97	6.62	4.49	4.79	5.56			
11 GTE South Inc. (N. Carolina - CONC) 10/	19.90	12.78	16.63	11.98	14.16	10.75			
GTE South Inc. (S. Carolina - COSC) 10/ 18/		26.14	25.09	17.40	12.32	9.77			
12 GTE South Inc. (Virginia - COVA) 10/	34.99	35.19	33.65	30.90	23.18	23.45			
13 GTE Systems of The South (Alabama - COAL) 10/	10.87	7.97	15.31	9.69	11.88	12.58			
GSTC - South (East South Contel) 10/							15.09	9.90	9.67
14 GTE North Inc. (Illinois - COIL) 11/	41.27	14.11	41.14	36.34	24.21	26.48			
15 GTE North Inc. (Indiana - COIN) 11/	41.91	34.61	33.26	29.02	23.27	22.44			
16 GTE Midwest Inc. (COIA + COSI = COIT) 11/	34.19	38.27	35.04	30.39	22.39	18.31			
17 GTE Midwest Inc. (Missouri - COMO + COCM + COEM = COMT) 11/	15.28	12.56	12.39	11.97	9.57	10.79			
18 GTE Arkansas, Inc. (COAR + COSA = COAT) 11/	16.93	15.87	16.13	19.13	18.24	17.44			
19 Contel of Minnesota - COMN 11/	32.36	30.00	33.81	32.38	23.81	22.12			
GSTC - Central (Central Contel) 11/							16.28	10.24	11.22
20 GTE North Inc. (COPA + COQS = COPT) 12/	40.03	45.97	36.83	40.55	36.38	32.60	22.33	17.11	12.79
21 GTE Alaska, Inc. (Alaska - GTAK)	13.34	26.89	29.58	19.44	22.48	24.78	16.13	14.84	14.69
22 GTE California Inc. (California - GTCA)	22.00	17.19	17.68	13.72	6.95	9.08	7.05	10.73	12.45
23 GTE California, Inc. (California - COCA) 13/	28.35	22.71	19.16	17.63	16.03	12.19			
24 GTE California, Inc. (Arizona - COAZ) 13/	18.10	13.80	14.17	4.15	2.95	6.24			
25 GTE California, Inc. (Nevada - CONV) 13/	21.00	24.01	31.44	25.50	19.15	27.39			
Contel of California, Inc. 13/							15.43	8.51	11.87
26 GTE Florida Inc. (Florida - GTFL)	19.20	14.58	19.14	15.17	8.56	7.36	7.36	9.52	12.64
27 GTE Hawaiian Telephone Co. Inc. (Hawaii - GTHI)	17.62	15.64	10.55	9.42	7.87	8.15	9.18	8.98	11.75
28 GTE North/GTE South (GTIL + GLIL = GAIL)	22.55	23.07	21.59	18.36	14.69	17.12	13.77	12.60	12.65
29 GTE North/Contel Systems of South (GTIN + GLIN = GAIN)	32.85	29.06	23.61	26.23	18.80	18.21	14.50	14.17	14.16
30 GTE North/Contel Systems of South (GTMI + GLMI = GAMI)	16.04	13.17	15.33	14.85	11.45	11.10	9.82	14.21	12.89
31 GTE Midwest Inc. (IOWA - GTIA) 14/	22.65	23.59	25.59	22.68	16.49	19.05			
32 Contel of Minnesota - GTMN 14/	2.03	(1.33)	4.01	(13.13)	(10.88)	(0.04)			
GTE North Inc. (Total IA+MN GTE) 14/							13.16	13.69	9.97
33 GTE Midwest Inc. (Missouri - GTMO)	11.87	16.08	17.88	19.84	17.18	18.20	13.48	13.99	13.30
34 GTE Midwest Inc. (Nebraska - GTNE)	35.21	30.08	27.35	28.86	21.67	20.35	13.84	12.74	8.70
35 GTE North Inc. (Ohio - GTOH)	22.13	21.83	24.37	21.20	17.21	16.90	12.66	12.91	10.55
36 GTE North Inc. (Pennsylvania - GTPA)	23.11	14.67	20.62	18.91	14.02	14.81	11.72	12.42	12.82
37 GTE North Inc. (Wisconsin - GTWI)	18.12	16.08	18.75	17.99	13.96	13.65	13.85	13.00	10.43
38 GTE Northwest Inc. (Oregon - GTOR) 15/ 17/	31.75	27.03	28.23	23.50	18.89	16.20			
39 GTE Northwest Inc. (Washington- GTWA) 15/	33.08	27.33	24.41	21.60	15.87	13.67			
40 GTE Northwest Inc. (West Coast CA - GNCA) 15/	(10.09)	(6.85)	(25.83)	(24.03)	(16.99)	(15.37)			
GTE Northwest Inc. (Total OR+WA+NWCA GTE) 15/							9.90	10.82	11.83
41 GTE Northwest Inc. (Idaho - GTID) 16/	32.23	30.89	30.52	23.94	20.78	19.60			
GTE Northwest Inc. (Montana - GTMT) 16/						15.37			
GTE Northwest Inc. (Total ID + MT GTE) 16/							16.00	17.34	14.53
42 GTE Northwest Inc. (Washington - COWA) 17/	39.41	30.41	31.85	29.43	22.24	18.07			
GTE Northwest Inc. (Contel Oregon - COOR) 16/ 17/						9.18			
GTE Systems of Northwest (Northwest Contel) 17/							18.1	10.3	8.96
43 GTE South Inc. (Alabama - GTAL) 18/	22.20	17.59	23.49	17.68	11.39	11.83			
44 GTE South Inc. (Kentucky - GTKY) 18/	24.20	22.34	20.57	18.46	13.89	10.96			
45 GTE South Inc. (North Carolina - GTNC) 18/	24.66	27.92	24.48	23.83	14.99	19.02			
GTE South Inc. (South Carolina - GTSC) 18/		30.62	24.06	25.70	18.93	17.60			
46 GTE South Inc. (GTSC + COSC = GTST) 18/	30.76								
47 GTE South Inc. (Virginia - GTVA) 18/	11.43	20.56	23.76	11.07	10.91	9.29			
GTE South Inc. (Total South GTE) 18/							11.91	12.61	11.50
48 GTE Southwest Inc. (Arkansas - GTAR) 19/	4.23	5.17	3.21	(1.97)	(1.57)	0.65			
49 GTE Southwest Inc. (New Mexico - GTNM) 19/	39.15	31.79	24.21	24.60	17.18	10.00			
50 GTE Southwest Inc. (Oklahoma - GTOK) 19/	19.02	15.97	14.90	10.77	6.70	6.44			
51 GTE Southwest Inc. (Texas - GTTX) 19/	21.57	16.43	14.81	11.53	7.11	7.24			
GTE Southwest Inc. (Total Southwest GTE) 19/							9.00	11.52	10.22

**Table 4.1**  
**Interstate Rate of Return Summary**  
**Years 1991 through 1999**  
**Price-Cap Companies - Continued**  
**(Final Reports for 1991 through 1998 and Initial Report for 1999)**

As of April 4, 2000.

Reporting Entity	1999	1998	1997	1996	1995	1994	1993	1992	1991
52 GTE Southwest Inc. (Texas - COTX) 12/	17.33	14.96	18.10	22.42	14.62	8.29	17.89	9.64	10.22
53 GTE Southwest Inc. (New Mexico - CONM) 20/ Contel of the West dba GTE West (Arizona only - COWZ) 20/ GTE West (West Contel) 20/	28.70	47.21	48.69	42.53	47.29	27.57 14.86	17.26	13.81	10.51
54 Micronesian Telecomms. Corp. (N. Mariana Is. - GTMC) 21/ GTE New York (New York Contel) 22/ GSTC - North (East North Contel) 22/	28.53	34.45	21.17	15.49	7.49	2.53	12.10 15.51	8.60 10.15	9.90 10.36
<b>Sprint</b>									
55 Central Telephone of Nevada 23/	21.40	17.79	17.07	20.42	20.46	18.90	14.23	12.44	
56 Sprint - Florida Central Telephone of Florida 23/ United Telephone Co. of Florida	27.25	26.14	20.05	17.85 19.79	17.16 19.28	15.93 17.63	14.66 14.44	11.44 12.27	13.00
57 Sprint Local Telephone Cos. - Eastern (NJ & PA)	20.88	14.59	17.36	17.42	14.87	16.12	13.98	12.32	11.71
58 Sprint Local Telephone Cos. - Midwest (MO,KS,MN,NE,WY,TX) Central Telephone of Texas 23/ United Telephone - Midwest (MO,KS,MN,NE,WY,TX)	17.83	19.66	19.97	21.58 21.52	21.81 19.64	18.39 17.44	16.19 13.92	14.94 15.35	14.57
59 Sprint Local Telephone Cos. - North Carolina Central Telephone of North Carolina 23/ Carolina Telephone And Telegraph Company	16.04	12.55	16.54	15.75 15.38	15.36 17.77	14.19 15.39	11.97 11.10	11.29 10.14	11.43
60 Sprint Local Telephone Cos. - Northwest	29.92	32.54	30.59	34.55	34.17	29.32	19.39	17.72	17.27
61 Sprint Local Telephone Cos. - Southeast (TN, VA & SC) Central Telephone of Virginia 23/ United Telephone - Southeast (TN, VA & SC)	17.55	15.87	17.62	17.46 20.66	15.87 19.05	14.30 19.17	15.55 13.39	12.91 13.48	13.66
62 United Telephone Co. of Indiana, Inc.	29.92	24.19	26.13	24.30	20.33	18.41	15.55	14.93	14.06
63 United Telephone Co. of Ohio Central Telephone of Illinois 23/ 24/	20.20	17.33	13.91 18.92	16.12 18.40	15.93 19.55	16.54 18.87	13.15 10.18	12.33 11.54	12.75
<b>All Other Companies</b>									
64 Aliant Communications Company (ALLTEL) 25/	10.20	15.02	12.27	14.95	16.09	15.47	14.95	12.36	
65 Cincinnati Bell Telephone Company 26/	25.45	17.81	20.04						
66 Citizens Telecommunications Cos. (Tariff 1) 27/	16.71	17.87	9.77	15.42					
67 Citizens Telecommunications Cos. (Tariff 2) 27/	15.74	14.29	13.25	13.58					
68 Citizens Telecommunications Cos. (Tariff 3)	15.56								
69 Frontier Telephone of Rochester, Inc. 28/ 29/	16.77	18.37	13.19	10.20	11.87	12.02	11.63	12.11	11.82
70 Frontier Tier 2 Concurring Companies 29/	43.42	45.45	31.93	26.91	19.32	17.69	16.4		
71 Frontier Communications of Minnesota & Iowa 29/ 30/	35.40	29.28	28.26	23.71	21.90	19.65	15	13.7	13.71
Maximum Rate of Return	43.42 %	47.21 %	48.69 %	42.53 %	47.29 %	32.60 %	22.33 %	17.72 %	17.27 %
Minimum Rate of Return	(10.09)	(6.85)	(25.83)	(24.03)	(16.99)	(15.37)	7.05	8.51	8.54
Weighted Arithmetic Mean	18.52	16.52	15.60	15.15	14.02	13.58	13.12	12.42	11.78
Standard Deviation	5.98	5.13	3.96	3.64	3.03	2.59	1.76	0.96	1.49

## Notes to Table 4.1.

- 1/ AT&T Communications filed individual reports for 1991-1994 ninety days after end of each calendar year. The local telephone companies filed final reports for each year fifteen months after the calendar year.
- 2/ Bell Atlantic filed revised reports August 12, 1999 reflecting the reassignment of expenses and revenues associated with internet service provider (ISP)-bound traffic to the intrastate jurisdiction. For 1999, Bell Atlantic filed a combined report.
- 3/ In 1992, NYNEX started to file a combined report.
- 4/ Southwestern Bell Telephone Co., Nevada Bell, and Pacific Bell filed revised reports June 25, 1999 reflecting the reassignment of expenses and revenues associated with ISP-bound traffic to the intrastate jurisdiction.
- 5/ Southern New England Telephone Company merged with SBC October 1998. Nevada Bell, and Pacific Bell, and Ameritech merged with SBC October 1999.
- 6/ US WEST Communications, Inc. filed a revised report June 16, 1999 to correct the state and local composite tax rate.
- 7/ It should be noted that GTE in 1993 consolidated various study areas so that some individual company reports may not be totally consistent with prior years.
- 8/ In 1994, GTE reported many study areas by state. For the GTE companies, GTE of Alaska, California, Florida, Hawaii, Illinois, Indiana, Michigan, Missouri, Nebraska, Ohio, Pennsylvania, and Wisconsin are the only study areas that appear consistent between 1993 and 1994.
- 9/ GTE companies filed revised reports May 28, 1999 to properly report the expenses associated with funding the USAC-USF.
- 10/ In 1994, GSTC - South (East South Contel) was separated and became GTE South, Inc. (Kentucky only - COKY); GTE South, Inc. (N. Carolina only - CONC); GTE South, Inc. (S. Carolina only - COSC); GTE South, Inc. (Virginia only - COVA); and GTE Systems of the South (COAL only). The property for Georgia, which had also been included in 1993, was sold and not included in 1994.
- 11/ In 1994, GSTC - Central Region (Central Contel) was separated and became GTE North, Inc. (Illinois Contel); GTE North, Inc. (Indiana Contel); GTE Midwest, Inc. (Contel Iowa COIA + COSI); GTE Midwest, Inc. (Contel Missouri - COMO + COCM + COEM); Total Contel Arkansas (COAR + COSA); and Contel of Minnesota - COMN. In 1996, Total Contel Arkansas was renamed GTE Arkansas, Inc.
- 12/ For the GTE Contel companies, GTE Pennsylvania (Contel) and GTE Texas (Contel) are the two companies that appear consistent between 1993 and 1994. In 1995, GTE of Pennsylvania (Contel) name changed to GTE North, Inc., (COPA + COQS); and GTE Texas (Contel) name changed to GTE Southwest, Inc. (Texas Contel).
- 13/ In 1994, Contel of California, Inc., was separated and became Contel of California (California only - COCA); Contel of California (AZ only - COAZ); and Contel of Nevada (NV only - CONV). In 1996, names were changed to GTE California, Inc., (California Contel), GTE California, Inc. (Arizona Contel), and GTE California, Inc. (Nevada Contel).
- 14/ In 1994, GTE of the North, Inc. (Total IA + MN GTE) was separated and became GTE Midwest, Inc. (Iowa only - GTIA) and Contel Minnesota - GTMN.
- 15/ In 1994, GTE of the Northwest, Inc. (Total OR+WA+NWCA GTE) was separated and became GTE of the Northwest, Inc. (Oregon only - GTOR); GTE of the Northwest, Inc. (Washington only - GTWA); and West Coast Telephone Co. of California - GNCA. In 1995, GTE of the Northwest, Inc. (Contel Oregon - COOR) merged with GTE of the Northwest, Inc. (Oregon only - GTOR).
- 16/ In 1994, GTE of the Northwest, Inc. (Total ID + MT GTE) was separated and became GTE of the Northwest, Inc. (Idaho only - GTID) and GTE of the Northwest, Inc. (Montana only - GTMT). GTE of the Northwest, Inc. (Montana only - GTMT) did not file a 1995 report because its property had been sold.
- 17/ In 1994, GTE Systems of Northwest (Northwest Contel) was separated and became GTE Northwest, Inc. (Contel Oregon - COOR); and GTE Northwest, Inc. (Contel Washington only - COWA). In 1995, GTE Northwest, Inc. (Contel Oregon - COOR) merged with GTE Northwest, Inc. (Oregon only - GTOR).
- 18/ In 1994, GTE South, Inc. (Total South GTE) was separated and became GTE South, Inc. (Alabama only - GTAL); GTE South, Inc. (Kentucky only - GTKY); GTE South, Inc. (North Carolina only - GTNC); GTE South, Inc. (South Carolina only - GTSO); and GTE South, Inc. (Virginia only - GTVA). The properties for Georgia, Tennessee, and West Virginia which had been included in GTE South, Inc. in 1993, were not included in 1994 because these properties had been sold. GTSC and COSC were combined in 1999 to form GTST.
- 19/ In 1994, GTE Southwest, Inc. (Total Southwest GTE) was separated and became GTE Southwest, Inc. (Arkansas only - GTAR); GTE Southwest, Inc. (New Mexico only - GTNM); GTE Southwest, Inc. (Oklahoma only - GTOK); and GTE Southwest Inc. (Texas only - GTTX).
- 20/ In 1994, GTE West (West Contel) was separated and became Contel of the West (New Mexico only - CONM) and Contel of the West dba GTE West (Arizona only - COWZ). Utah, which had been included in 1993 was not included in 1994; their property was sold. Contel of the West dba GTE West (Arizona only - COWZ) did not file a 1995 report because its property had been sold. In 1995, Contel of the West (New Mexico only - CONM) changed its name to GTE Southwest, Inc., (Contel New Mexico).
- 21/ Micronesian Telecommunications Corp. filed a rate-of-return report for the first time in 1994.
- 22/ GTE New York (New York Contel) and GSTC - North (East North Contel) did not file in 1994 because its property was sold.
- 23/ The Contel companies and Lincoln Telephone and Telegraph Company reported subject to price caps beginning 7/1/93. Rate of return for 1993 is for the filing period July through December. For 1992, information for these companies is from their final non-price-cap reports, filed 9/30/93 for the two-year 1992 monitoring period, 1991-1992.
- 24/ Sold to Galatin River Communications, October 31, 1998.
- 25/ In 1996, Lincoln Telephone and Telegraph Company changed its name to Aliant Communications Company.
- 26/ Cincinnati Bell Telephone Company went price-cap in 1997.
- 27/ The Citizens Telecommunications Cos. became price-cap July 1, 1996; its reporting period for 1996 is July 1 - December 31, 1996. Rates for 1996 are from the initial report.
- 28/ The Rochester Telephone Corporation (now Frontier Telephone of Rochester) and Southern New England Telephone Company reported subject to price caps beginning 7/1/91. The rate-of-return report for each is for the filing period July 1 through December 31, 1991.

**Notes to Table 4.1 - Continued.**

- 29/ The Rochester Telephone Corporation (now Frontier Telephone of Rochester), Rochester Telephone subsidiaries and Frontier Communications of Minnesota and Iowa (name changed in 1994 from Vista Communications Co. of Minnesota and Iowa) did not have any changes to their original reports so they did not file final reports on March 31, 1995 for 1993.
- 30/ Reports for Frontier Communications of Minnesota and Iowa, formerly known as Vista Telephone Companies were filed by Rochester Telephone Company as of 7/1/92. For 1992, the rate of return is for 7/1/92-12/31/92 when they reported subject to price-cap regulation. For 1991, Vista filed a rate-of-return report for Vista Telephone Company of Iowa and Vista Telephone Company of Minnesota.

## 5 Employment and Labor Productivity

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 1999. 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 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 6.0% per year from 1951-1997, with 1997 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 5.3 presents estimates of the number of telecommunications service providers that are small businesses as defined by the Small Business Administration's Office of Size Standards (i.e., 1,500 or fewer employees, including all affiliates).

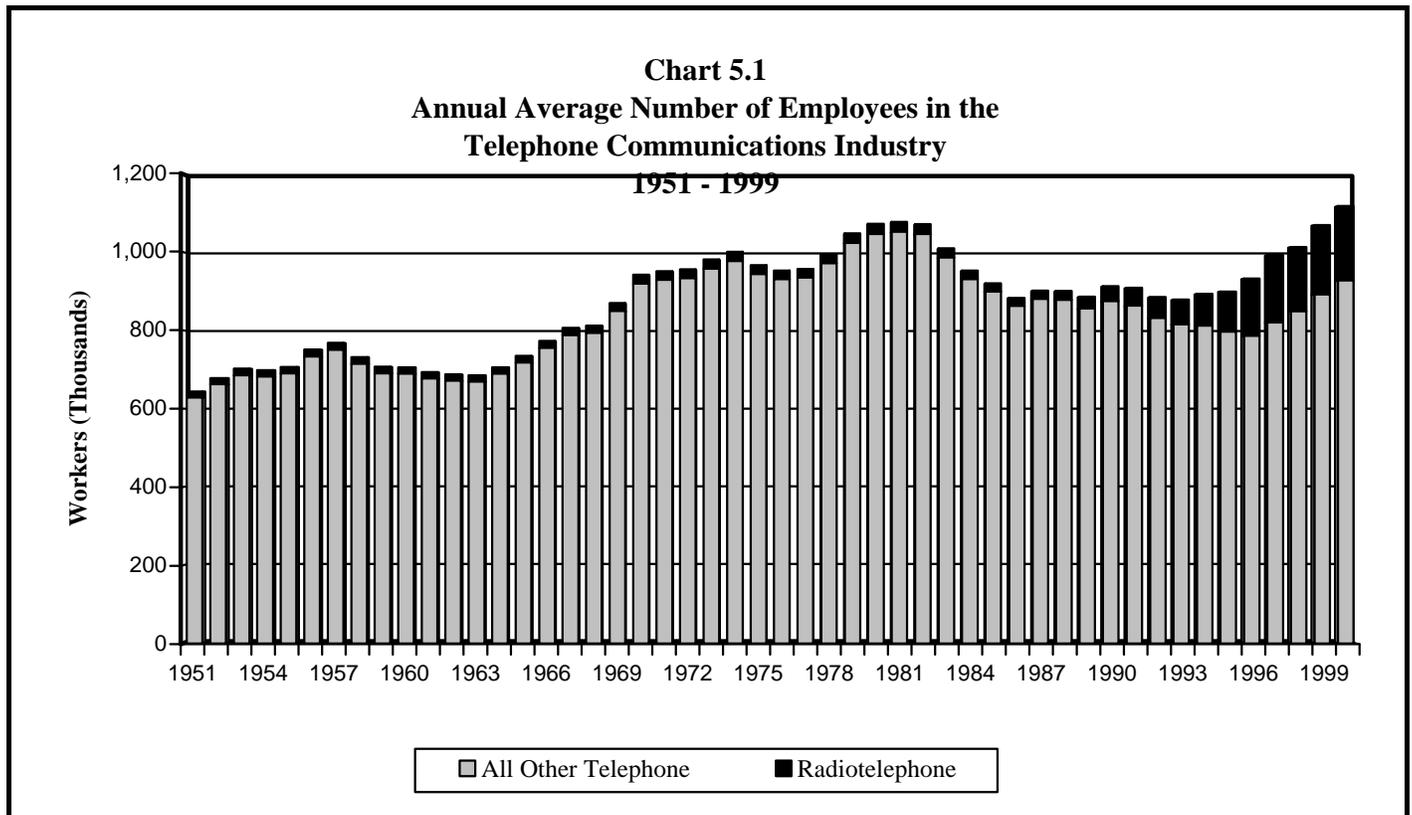


**Table 5.1**  
**Annual Average Number of Employees in the Telephone**  
**Communications Industry**  
**(In Thousands)**

Year	Radiotelephone	All Other Telephone	Year	Radiotelephone	All Other Telephone	Year	Radiotelephone	All Other Telephone
1951	15.2	628.8	1968	19.2	793.2	1985	21.6	899.1
1952	16.0	662.4	1969	20.5	849.5	1986 1/	20.7	862.7
1953	16.6	685.6	1970	22.2	919.9	1987	21.1	880.8
1954	16.5	682.3	1971	22.4	929.2	1988	23.2	877.9
1955	16.6	690.1	1972	22.5	933.6	1989 1/	29.9	856.0
1956	17.7	733.5	1973	23.2	958.0	1990	38.2	874.8
1957	18.1	750.1	1974	23.6	977.2	1991	45.6	863.6
1958	17.2	714.9	1975	22.8	943.8	1992	53.1	832.1
1959	16.7	690.4	1976	22.5	930.7	1993	63.1	815.9
1960	16.6	689.4	1977	22.6	934.7	1994	81.0	812.4
1961	16.3	677.0	1978	23.4	971.4	1995	102.5	797.2
1962	16.2	671.3	1979	24.8	1023.4	1996	146.9	786.1
1963	16.2	669.3	1980	25.3	1046.9	1997	172.7	820.3
1964	16.6	689.5	1981	25.3	1052.0	1998	164.3	848.5
1965	17.3	717.9	1982	25.3	1046.5	1999	177.3	892.4
1966	18.3	755.1	1983 1/	23.8	986.5	2000 2/	190.6	927.6
1967	19.0	787.5	1984	22.4	931.0			

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 2000 figures are preliminary.



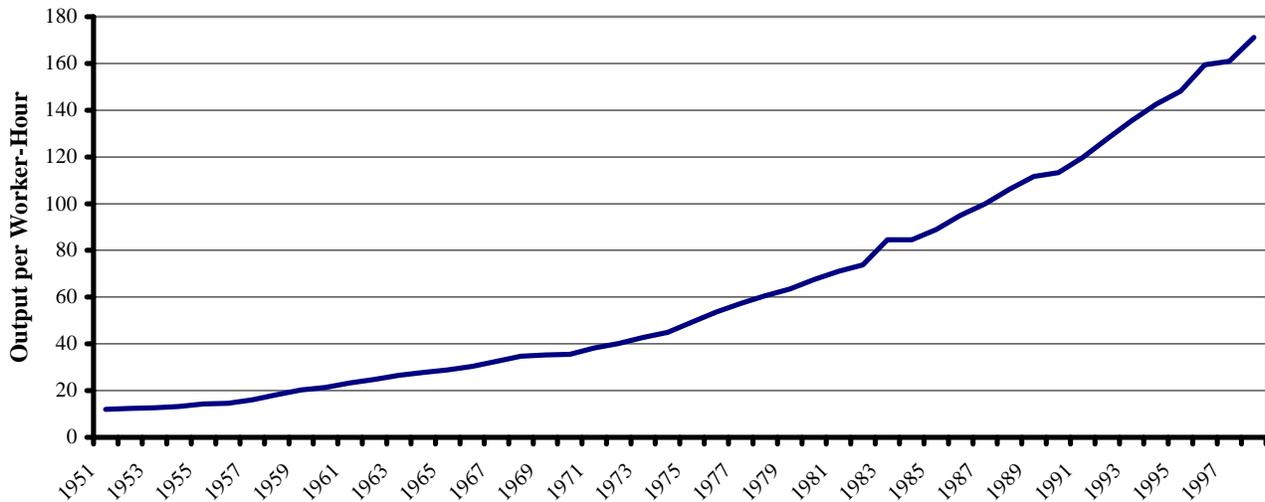
Source: Bureau of Labor Statistics.

**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	1967	32.6	1983	84.6
1952	12.4	1968	34.7	1984	84.5
1953	12.6	1969	35.3	1985	88.9
1954	13.2	1970	35.6	1986	95.0
1955	14.3	1971	38.3	1987	100.0
1956	14.6	1972	40.1	1988	106.2
1957	16.1	1973	42.7	1989	111.6
1958	18.2	1974	45.0	1990	113.3
1959	20.3	1975	49.3	1991	119.8
1960	21.4	1976	53.6	1992	127.7
1961	23.3	1977	57.3	1993	135.5
1962	24.8	1978	60.6	1994	142.2
1963	26.6	1979	63.5	1995	148.1
1964	27.8	1980	67.6	1996	159.5
1965	28.9	1981	71.1	1997	160.9
1966	30.3	1982	73.8	1998	171.2

**Chart 5.2  
Telephone Communications Industry  
(SIC 481) Labor Productivity Index**



Source: Bureau of Labor Statistics.

**Table 5.3**  
**Number of Telecommunications Service Providers**  
**That Are Small Businesses**

Service Provider Category	Number of Form 499-A Filers <sup>1/</sup>	Filers that in Combination with Affiliates Have 1,500 or Fewer Employees <sup>2/</sup>	Filers that in Combination with Affiliates Have More Than 1,500 Employees <sup>2/</sup>
Incumbent Local Exchange Carriers	1,335	1,037	298
Competitive Access Providers (CAPs) and Competitive Local Exchange Carriers (CLECs)	349	297	52
Local Resellers	87	86	1
<u>Other Local Exchange Carriers</u>	<u>60</u>	<u>56</u>	<u>4</u>
Competitors of ILECs	496	439	57
Fixed Local Service Providers	1,831	1,476	355
Payphone Providers	758	755	3
Wireless Telephony Including Cellular, Personal Communications Service (PCS) and SMR Telephony Carriers	806	323	483
Paging & Messaging Service	427	407	20
Specialized Mobile Radio (SMR) Dispatch	212	211	1
Wireless Data Service Providers	6	5	1
Other Mobile Service Providers	44	43	1
Wireless Service Providers	1,495	989	506
Interexchange Carriers (IXCs)	204	163	41
Operator Service Providers (OSPs)	21	20	1
Pre-paid Calling Card Providers	21	20	1
Satellite Service Carriers	21	16	5
Toll Resellers	454	423	31
Other Toll Carriers	17	15	2
Toll Service Providers	738	656	82
All Filers	4,822	3,875	947

1/ Source: Industry Analysis Division, *Carrier Locator*.

2/ Estimates were based on gross revenues information filed April 1, 2000 on FCC Form 499-A worksheets, combined with employment information obtained from ARMIS and Securities and Exchange Commission filings as well as industry employment estimates published by the Bureau of Labor Statistics. Actual Form 499-A filings are not available to the public. For this table, filers were considered to be affiliated based on information published in the Industry Analysis Division, *Carrier Locator*. The estimates do not reflect affiliates that do not provide telecommunications services or that operate only in foreign countries.

## 6 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 made from the United States to other countries increased from 200 million in 1980 to 5.2 billion in 1999. Americans spent about \$14 billion on international calls in 1999. On average, carriers billed 51 cents per minute for international calls in 1999, a decline of more than 50% since 1980. 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 6.1.

U.S. and foreign carriers compensate each other when one carries traffic that the other bills. Since 1980, 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 were \$4.6 billion in 1999. Trends in settlement payments are shown in Table 6.2.

International traffic data are available on a country-by-country basis. Table 6.3 summarizes traffic by region of the world. Five markets -- Canada, Mexico, the United Kingdom, Germany, and Japan -- currently account for about 44% 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 1999 by using their own facilities or lines leased from other carriers. These carriers provided \$14.5 billion of international telephone service between the U.S. and foreign points and \$1.2 billion of international private line service. Table 6.4 shows the U.S.-billed revenues for each of the 47 carriers. Together, AT&T, MCI WorldCom, and Sprint, accounted for 90% of the international service billed in the United States.

In addition to the 47 carriers that owned or leased facilities, about 416 carriers reported the resale of international message telephone service. These carriers reported \$4.3 billion of resale revenue in 1999. The revenues of the fifty largest resellers are shown in Table 6.5.

The data compiled in Tables 6.1 - 6.5 are filed pursuant to Section 43.61 of the Commission's rules. Preliminary data are filed July 31st of each year and final data are filed October 31st. Additional information can be found in a number of international reports on the **FCC-State Link** web page.



**Table 6.1**

**International Service from the United States to Foreign Points  
(Minute, Message, and Revenue Amounts Shown in Millions)**

	Telephone Service					Other Services			
	Minutes	Messages	Billed Revenues			Billed Revenues			
			Total	Per Minute 1/	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	367	3,197	1.05	8.71	394	46	158	
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	4,480	570	4,559	1.02	8.00	360	35	191	
1988	5,190	687	5,507	1.06	8.02	310	30	194	
1989	6,109	835	6,517	1.07	7.80	243	27	208	
1990	7,215	984	7,626	1.06	7.75	196	24	201	
1991	8,986	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
1997	22,611	4,233	15,135	0.67	3.58	110	4	840	36
1998	24,026	4,439	14,154	0.59	3.19	64	2	902	21
1999	27,966	5,215	14,398	0.51	2.76	57	2	1,181	20

Source: Industry Analysis Division, *Trends in the International Telecommunications Industry; Section 43.61 International Telecommunications Data*. 1999 data are preliminary.

Note: Data represent traffic and circuits from domestic U.S. points to foreign points.

1/ Billed revenue per minute for international service differs in Table 14.5 and Table 6.1. Data in Table 14.5 are based on traffic to foreign points for all U.S. carriers serving all U.S. points and staff estimates of end-user revenues. Data for Table 6.1 are based on traffic for domestic U.S. points only and revenues billed by underlying carriers. The domestic U.S. includes Puerto Rico but excludes American Samoa, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands.

**Table 6.2**  
**International Telephone Service Settlements**  
**(Revenue Amounts Shown in Millions)**

							Average per Minute		
							Settlement Owed to Foreign Carriers for U.S. Billed Calls	Settlement Due from Foreign Carriers for Foreign Billed Calls	U.S. Carrier Net Revenues All Traffic
	Billed Revenues	Owed to Foreign Carriers	Retained Revenues	Due from Foreign Carriers	Net Settlements	Net Revenues			
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	1,066	(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	7,626	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	1/ (3,298)	5,798	0.64	0.49	0.42 2/
1992	10,179	5,945	4,234	2,601	1/ (3,344)	6,835	0.59	0.46	0.43 2/
1993	11,353	6,327	5,027	2,678	1/ (3,649)	7,704	0.56	0.43	0.44 2/
1994	12,255	6,947	5,308	2,658	1/ (4,289)	7,966	0.52	0.40	0.39 2/
1995	13,990	7,559	6,432	2,623	1/ (4,936)	9,054	0.48	0.35	0.39 2/
1996	14,079	8,206	5,873	2,560	1/ (5,645)	8,434	0.43	0.30	0.30 2/
1997	15,135	8,016	7,119	2,572	1/ (5,444)	9,691	0.35	0.26	0.30 2/
1998	14,154	6,985	7,169	2,512	1/ (4,473)	9,681	0.29	0.21	0.27 2/
1999	14,398	6,312	8,085	1,751	1/ (4,561)	9,836	0.23	0.15	0.25 2/

Source: Industry Analysis Division, *Trends in the International Telecommunications Industry*; Section 43.61 *International Telecommunications Data*. 1999 data are preliminary.

Note: Data are for traffic between domestic U.S. points and foreign points.

1/ Includes net settlement receipts for transiting traffic.

2/ Includes transiting traffic.

**Table 6.3**  
**International Message Telephone Service for 1999**  
**(Figures Rounded to the Nearest Million)**

Region of the World 1/	Traffic Billed in the United States					Traffic Billed in Foreign Countries				Total U.S. Carrier Retained Revenues
	Number of Messages	Number of Minutes	U.S. Carrier Revenues	Owed to Foreign Carriers	Retained Revenues	Originating or Terminating in the United States			Transiting Retained Revenues	
						Number of Messages	Number of Minutes	Due from Foreign Carriers		
Africa	179	903	\$644	\$399	\$244	26	110	\$59	\$18	\$321
Asia	838	4,866	3,099	1,725	1,374	224	989	276	14	1,664
Caribbean	303	1,922	965	646	318	90	357	126	7	450
Eastern Europe	159	1,042	587	262	325	25	108	34	6	365
Middle East	170	930	663	387	276	91	354	113	12	401
North and Central America	1,686	9,265	3,841	1,487	2,355	1,324	5,224	533	17	2,905
Oceania	111	598	359	152	208	60	539	50	12	270
South America	396	2,024	1,266	617	649	98	442	147	11	807
Western Europe	1,411	6,625	3,022	649	2,373	740	2,611	227	104	2,704
Other Regions	1	4	13	16	(3)	*	6	1	*	(2)
Total for Foreign Points	5,225	28,025	14,437	6,328	8,109	2,664	10,644	1,557	201	9,867
Total for U.S. Points	33	178	33	16	16	16	110	11	*	28
Total for All International Points	5,258	28,202	\$14,469	\$6,344	\$8,125	2,680	10,755	\$1,569	\$201	\$9,895

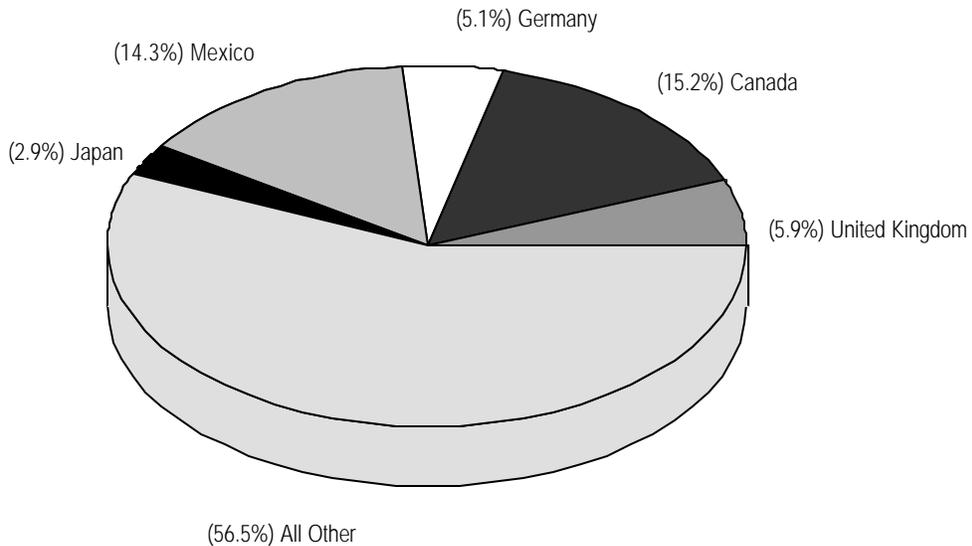
Source: Industry Analysis Division, *Section 43.61 International Telecommunications Data*. Data are preliminary.

\* Denotes values that are less than half a million.

1/ 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 shown separately as the total for U.S. points, and also is included in the total for all international points. The total for all international points also includes traffic originating in American Samoa and the Northern Mariana Islands, which is excluded from the regional totals.

**Chart 6.1**

**U.S. Billed Minutes by Country**



**Table 6.4**  
**U.S. Billed Revenues of Facilities-Based and Facilities-Resale Carriers in 1999 1/**  
**(Revenue Amounts Shown in Millions)**

	International Service			Total International Billed Revenues
	Telephone	Private Line	Telex, Telegraph and Other Miscellaneous	
ABS-CBN Telecom North America, Inc.	\$6			\$6
AM Telecom, LLC				
American Samoa Telecomm. Authority	2			2
Andrew Telecom, Inc.	1	2		2
AT&T Corp.	6,755	556	\$33	7,153
Communication TeleSys. Int'l./WorldxChange	25			25
COMSAT Corporation		46		46
Energis (Switzerland) AG		1		1
Far East Gateway, Inc.	*			*
GE American Communications, Inc.		6		6
Geocomm Corporation		*		*
GTE Corporation	40	4		44
IDT Corporation	23			23
IMPSAT USA, Inc.		16		16
International Telecom Inc.	3			3
IT&E Overseas, Inc.	19	3		22
Japan Telecom America, Inc.	3	*		3
KDD America, Inc.	2	4		6
Level 3 Communications, LLC		1		1
Local Communications Network, Inc.		4		4
Madge.web International (C.I.) Limited		4		4
Masatepe Communications, U.S.A., L.L.C.	1			1
MCI WorldCom, Inc.	5,056	372	25	5,448
Medley International Teleport, Inc.			1	1
Melbourne International Comm., Ltd.	**	2		3
Metromedia Fiber Network Services, Inc.		1		1
Mobile Satellite Communications, Inc.		1	*	1
Norlight Telecommunications, Inc.		*		*
ntta.com, inc.		3		3
PanAmSat Comm. Carrier Services, Inc.		*		*
Primus Telecommunications, Inc.	241			241
PSO, Inc. d/b/a Canal Uno			*	*
RSL Communications, Ltd.	107	*		108
Satellite Communication Systems, Inc.	*	3		3
SBC Telecommunications, Inc.	2	2		4
Sprint	1,379	120	16	1,514
Star Telecommunications, Inc.	140			140
Startcomm Corporation	*			*
Startec Global Communications Corp.	75			75
Telecomunicaciones Ultramarinas-Puerto Rico		1		1
Telefonica Larga Distancia, Inc.	19	2		21
Telstra Incorporated	*			*
TRICOM USA, Inc.	9			9
V-SAT Telecom, Inc.	*	*		*
Viatel, Inc.	212			212
Williams Communications, Inc.			4	4
World Access (Facilicom Int'l.)	276			276
<b>Total All Carriers 2/</b>	<b>\$14,469</b>	<b>\$1,201</b>	<b>\$88</b>	<b>\$15,759</b>

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

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

1/ Totals exclude pure resale services.

2/ Includes revenues for American Samoa, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands. Other tables in this section exclude this traffic. The data shown in this table include \$67 million of revenues billed in these points as well as \$33 million of revenues for calls between the domestic United States and these points.

**Table 6.5**

**Top Providers of Pure Resale International MTS in 1999**

	<b>Number of Messages</b>	<b>Number of Minutes</b>	<b>U.S. Carrier Revenues</b>	<b>Percent of Total IMTS Resale Revenues</b>
Access Authority, Inc.	9,762,704	69,902,160	\$20,870,738	0.49 %
ACS Systems, Inc.	44,781,532	203,974,633	58,847,458	1.38
ALLTEL Corporation	1,459,787	10,844,746	5,451,108	0.13
AmeriVision Communications, Inc.	569,274	4,531,445	4,202,999	0.10
AT&T Corp.	141,932,631	884,898,390	254,016,193	5.97
BellSouth Corporation	2,355,611	11,275,534	8,954,830	0.21
Broadwing Companies	56,820,588	220,064,637	51,128,611	1.20
Business Telecom, Inc. (BTI)	9,102,584	45,516,432	12,553,650	0.30
CapRock Telecommunications Corporation	25,518,740	176,080,786	43,391,366	1.02
Communication TeleSystems Int'l., d/b/a CTS and WorldxChange	65,549,703	342,092,121	58,679,415	1.38
DirectNet Telecommunications	50,822,341	272,088,214	75,924,324	1.78
eGlobe	3,148,536	30,418,884	7,549,525	0.18
Elephant Talk, Inc.	5,100,331	61,203,977	20,080,033	0.47
Empire One Telecommunications, Inc.	745,987	14,919,373	4,662,304	0.11
EqualNet Corporation	1,244,525	24,890,502	7,778,282	0.18
eVentures Group, Inc.	524,384	537,822,936	42,631,224	1.00
Global Crossing Telecommunications, Inc.	70,554,799	285,041,392	232,194,464	5.46
Globalcom, Inc.	1,222,766	24,455,318	7,642,287	0.18
GTE	26,143,910	171,350,271	151,443,671	3.56
Heritage Communications Corporation	8,105,820	84,071,750	9,510,190	0.22
Intermedia Communications, Inc.	1,491,609	29,832,176	9,322,555	0.22
Interoute Telecommunications, Inc. (incl. American Telecom)	10,604,886	147,036,505	33,525,465	0.79
Lightyear Communications, Inc.	9,014,712	36,347,332	14,261,265	0.34
MCI WorldCom, Inc.	387,182,338	1,858,724,000	618,211,602	14.53
McLeodUSA	7,075,098	25,276,847	8,952,586	0.21
NET-tel Corporation	2,907,033	58,140,659	18,168,956	0.43
NEXTLINK Communications, Inc.	2,727,555	9,837,728	4,187,042	0.10
NOSVA Limited Partnership	1,643,239	15,339,765	4,694,231	0.11
Primus Telecommunications, Inc.	3,388,458	17,823,289	4,444,782	0.10
Progress International, L.L.C. (Progress)	4,297,747	28,365,131	7,341,038	0.17
Qwest Communications Corporation incl. LCI & USLD	108,301,660	492,344,044	177,850,185	4.18
RSL Communications, Ltd.	78,967,849	579,213,182	126,721,682	2.98
SBC Telecommunications, Inc.	37,098,762	125,668,884	70,706,293	1.66
Sprint	102,531,423	533,332,140	243,736,675	5.73
Star Telecommunications, Inc. incl PT-1	601,503,888	4,135,593,245	922,797,050	21.69
Startec Global Communications, Corporation	7,284,118	53,146,309	19,105,404	0.45
Talk.com Holding Corp.	10,631,048	212,620,960	66,444,050	1.56
Teleglobe Companies incl. Excel	30,155,007	268,579,480	164,506,371	3.87
Teligent incl. Associated Communications	26,667,030	50,003,799	7,752,479	0.18
United States Cellular Corporation	20,693,200	37,522,689	17,024,260	0.40
URSUS Telecom Corporation	5,201,718	19,096,929	12,547,739	0.29
US West Communications, Inc.	6,239,560	124,791,200	38,997,250	0.92
USA Global Link, Inc.	6,369,622	32,541,627	10,526,082	0.25
USC Telecom, Inc.	2,042,191	40,843,814	12,763,692	0.30
VarTec Telecom, Inc.	17,583,515	67,676,456	62,434,785	1.47
VDC Telecommunications, Inc.	5,919,242	17,089,568	4,671,864	0.11
Verizon Wireless	56,536,041	211,282,250	49,806,763	1.17
VoiceStream Wireless Corporation	2,899,603	7,793,712	5,624,342	0.13
Winstar Communications, Inc.	3,053,257	10,767,053	5,378,260	0.13
World Access Telecommunications Group, Inc.	211,462,004	1,238,406,098	329,380,477	7.74
Total for 366 Carriers Not Shown Above	62,559,645	274,095,569	104,701,782	2.46
Grand Total	2,359,499,611	14,234,575,941	\$4,254,099,679	100.00 %

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

## 7 Lifeline

In 1984, the FCC, in conjunction with the states and local telephone companies, established a Lifeline program designed to promote universal service by helping low-income individuals afford the monthly cost of telephone service. In 1985, the FCC expanded the Lifeline program. In 1987, the FCC adopted LinkUp America, a program designed to help low-income households pay the costs of connection and installation of telephone service. In June 2000, the Commission expanded the Lifeline and LinkUp programs to address the needs of those living on Indian reservations.

The LinkUp America program, which supports affordable connection to the network, has enabled 9.4 million telephone subscribers to commence service since 1987. In 1999, an estimated 5.6 million subscribers paid reduced local rates under the low-income provisions of the Lifeline programs.

### 1. Lifeline Support:

Under the Commission's rules, there are four tiers of federal Lifeline support. The first tier represents a waiver of the federal subscriber line charge, which increased from \$3.50 to a maximum of \$4.35 per month on July 1, 2000. All eligible subscribers receive first tier support. Second tier support is a \$1.75 per month reduction in the basic local rate, and it is available if all relevant non-federal regulatory authorities approve such a reduction, which all states have done.

The third tier of federal support is based on the amount of additional state support mandated by the relevant state or otherwise provided by carriers. Federal support is available to match half the non-federal support provided, up to a maximum of \$1.75 in federal support to match \$3.50 in non-federal support, assuming that the carrier has all necessary approvals to pass on the full amount of this total support in discounts to subscribers.

Eligible subscribers living on federally recognized Indian reservations also qualify to receive a fourth tier of Lifeline support if they meet the eligibility standards described above. Tier four support provides up to an additional \$25 per month towards reducing basic local service rates to \$1 per month. This enhanced support should bring basic rates down to \$1 for most Lifeline customers on reservations.

To qualify for Lifeline benefits, a consumer must meet criteria established by the appropriate state commission. The state commission is required to establish narrowly targeted qualification criteria based on income or factors directly related to income. In states that do not provide state support, a consumer must participate in one of the following programs: Medicaid; food stamps; Supplemental Security Income (SSI); federal public housing assistance; or the Low-Income Home Energy Assistance Program (LIHEAP). The named subscriber to the local telecommunication service (not any member of a household) must participate in one of these assistance programs in order for that household to receive Lifeline support. All carriers designated by their state commission as eligible telecommunications carriers must offer Lifeline and LinkUp support to qualifying consumers.

In states that provide Lifeline support, Lifeline and LinkUp are available to all subscribers who meet those state standards. Although states have some latitude in selecting means tests, state commissions must establish narrowly targeted qualification criteria that are based solely on income or

factors directly related to income for its low-income residents to be eligible.

A state with eligible residents of tribal lands must insure that its qualification criteria are reasonably designed to apply to eligible residents of tribal lands within the state. Eligible subscribers, living on a federally recognized Indian reservation qualify if they certify benefits from one of the five national programs: Medicaid; food stamps; Supplemental Security Income (SSI); federal public housing assistance; or the Low-Income Home Energy Assistance Program (LIHEAP). In addition, these residents may be eligible if they meet the income qualifying standard set in the Bureau of Indian Affairs general assistance program, tribally administered Temporary Assistance for Needy Families (TANF), National School Lunch, or Head Start programs.

## 2. LinkUp Support:

The Commission's LinkUp program provides qualified low-income individuals with a federally-financed 50% discount (up to a maximum \$30 discount) on initial connection charges. In addition, these subscribers can choose to schedule deferred payments of up to \$200 over a one-year period, with the customary interest charges financed by federal support.

In addition to \$30 support on the first \$60 in initial connection charges, eligible residents of federally recognized Indian reservations can receive support to fully cover any charges between \$60 and \$130, representing up to a maximum of \$100 in discounts on initial connection charges of \$130 or more.

## 3. Services:

Basic service must include, at a minimum: single-party service, voice-grade access to the public switched telephone network, Dual Tone Multifrequency signaling or its functional digital equivalent, access to emergency services, access to operator services, access to interexchange service, access to directory assistance, and toll limitation. The federal program compensates eligible telecommunications carriers for toll limitation based on the carrier's incremental cost of providing toll-limitation services.

Table 7.1 reports Lifeline monthly support by state as of September 2000. The table shows both federal and state support, and indicates the additional contribution from the federal program to reduce local rates where states have authorized statewide or carrier-specific intrastate local rate reductions. Basic federal support reflects an increase from \$5.25 per month to \$6.10.

Table 7.2 reports historical Lifeline assistance state subscribership statistics for 1988 through December 1999. Subscriber data reported for 1997 are estimated for all states.

Table 7.3 reports historical subscriber participation in the LinkUp program by state or jurisdiction. The subscribership data shows annual connection assistance statistics for 1988 through 1999.

Table 7.4 provides a twelve-year view of Lifeline assistance annual payments to subscribers through local rate discounts. The payments shown in this table do not include state or local rate contributions.

Table 7.5 reports LinkUp assistance annual payments by state or jurisdiction between January 1988 and December 1999.



**Table 7.1**  
**Lifeline Monthly Support by State or Jurisdiction**  
**(As of September 2000)**

<b>State or Jurisdiction</b>	<b>Basic Federal Support</b>	<b>Additional State Support</b>	<b>Federal Match</b>	<b>Total Federal Support</b>	<b>Total Federal and State Support</b>
Alabama	\$6.10	\$3.50	\$1.75	\$7.85	\$11.35
Alaska	6.10	3.50	1.75	7.85	11.35
American Samoa	6.10	0.00	0.00	6.10	6.10
Arizona	6.10	3.50	1.14	7.24	10.74
Arkansas	6.10	0.00	0.00	6.10	6.10
California	6.10	3.50	1.75	7.85	11.35
Colorado	6.10	3.50	1.75	7.85	11.35
Connecticut	6.10	1.17	0.58	6.68	7.85
Delaware	6.10	0.00	0.00	6.10	6.10
District of Columbia	6.10	3.50	1.75	7.85	11.35
Florida	6.10	3.50	1.75	7.85	11.35
Georgia	6.10	3.50	1.75	7.85	11.35
Guam	6.10	3.50	1.75	7.85	11.35
Hawaii	6.10	0.00	0.00	6.10	6.10
Idaho	6.10	3.50	1.75	7.85	11.35
Illinois	6.10	1.50	0.75	6.85	8.35
Indiana	6.10	0.00	0.00	6.10	6.10
Iowa	6.10	0.00	0.00	6.10	6.10
Kansas	6.10	3.50	1.75	7.85	11.35
Kentucky	6.10	3.50	1.75	7.85	11.35
Louisiana	6.10	0.00	0.00	6.10	6.10
Maine	6.10	3.50	1.75	7.85	11.35
Maryland	6.10	3.50	1.75	7.85	11.35
Massachusetts	6.10	6.00	1.75	7.85	13.85
Michigan	6.10	2.00	1.00	7.10	9.10
Minnesota	6.10	0.00	0.00	6.10	6.10
Mississippi	6.10	3.50	1.75	7.85	11.35
Missouri	6.10	0.00	0.00	6.10	6.10
Montana	6.10	3.50	1.75	7.85	11.35
Nebraska	6.10	3.50	1.75	7.85	11.35
Nevada	6.10	3.50	1.75	7.85	11.35
New Hampshire	6.10	0.00	0.00	6.10	6.10
New Jersey	6.10	0.00	0.00	6.10	6.10
New Mexico	6.10	3.50	1.75	7.85	11.35
New York	6.10	3.50	1.75	7.85	11.35
North Carolina	6.10	3.50	1.75	7.85	11.35
North Dakota	6.10	3.50	1.75	7.85	11.35
Northern Mariana Islands	6.10	0.00	0.00	6.10	6.10
Ohio	6.10	0.00	0.00	6.10	6.10
Oklahoma	6.10	1.17	0.58	6.68	7.85
Oregon	6.10	3.50	1.75	7.85	11.35
Pennsylvania	6.10	2.50	1.25	7.35	9.85
Puerto Rico	6.10	0.00	0.00	6.10	6.10
Rhode Island	6.10	3.50	1.75	7.85	11.35
South Carolina	6.10	3.50	1.75	7.85	11.35
South Dakota	6.10	0.00	0.00	6.10	6.10
Tennessee	6.10	3.50	1.75	7.85	11.35
Texas	6.10	3.50	1.75	7.85	11.35
Utah	6.10	3.50	1.75	7.85	11.35
Vermont	6.10	3.50	1.75	7.85	11.35
Virginia	6.10	3.50	1.75	7.85	11.35
Virgin Islands	6.10	7.05	1.75	7.85	14.90
Washington	6.10	3.50	1.75	7.85	11.35
West Virginia	6.10	2.00	1.00	7.10	9.10
Wisconsin	6.10	3.50	1.75	7.85	11.35
Wyoming	6.10	3.50	1.75	7.85	11.35

Source: Universal Service Administrative Company.

**Table 7.2**  
**Lifeline Assistance - Subscribers by State or Jurisdiction**

State or Jurisdiction	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997 <sup>1</sup>	1998 <sup>2</sup>	1999 <sup>2</sup>
Alabama	0	0	0	0	0	0	0	2,648	11,052	14,346	17,201	18,676
Alaska	0	0	0	0	0	0	887	1,445	1,684	1,761	2,530	4,169
American Samoa	0	0	0	0	0	0	0	0	0	0	156	427
Arizona	5,431	5,959	6,723	6,214	5,748	7,587	9,146	9,820	10,679	9,438	21,461	22,118
Arkansas	5,618	6,262	6,703	7,295	7,479	7,370	6,859	7,988	9,730	8,926	8,870	8,843
California	1,310,277	1,467,859	1,578,458	1,792,884	2,000,234	2,327,740	2,534,160	2,817,982	3,032,960	3,000,571	3,105,856	3,157,704
Colorado	17,281	0	9,897	17,871	20,110	18,814	18,136	16,992	22,195	22,452	21,950	23,995
Connecticut	0	0	0	0	0	15,294	50,510	62,982	62,610	61,683	59,547	61,437
Delaware	0	0	0	0	0	0	0	0	0	0	368	606
District of Columbia	2,952	2,964	2,894	2,866	5,422	12,344	11,572	10,252	9,888	7,580	0	10,593
Florida	0	0	0	0	0	0	61,442	108,431	134,258	129,723	131,749	130,210
Georgia	0	0	0	31,681	58,497	67,112	72,548	79,545	79,606	75,341	73,660	74,604
Guam	0	0	0	0	0	0	0	0	0	0	313	905
Hawaii	6,025	6,378	6,081	5,950	5,862	6,005	6,200	6,444	6,731	6,465	9,008	12,590
Idaho	7,962	7,861	8,186	8,411	8,149	8,212	7,090	7,347	7,526	7,408	6,907	14,780
Illinois	0	0	0	0	0	26	0	0	0	0	29,103	49,347
Indiana	0	0	0	0	0	0	0	0	0	0	12,439	19,058
Iowa	0	0	0	0	0	0	0	0	0	0	2,460	6,105
Kansas	0	0	0	0	0	0	0	0	0	0	4,260	5,591
Kentucky	0	26	0	0	0	0	0	0	0	0	5,044	23,604
Louisiana	0	0	0	0	0	0	0	0	0	0	5,838	10,435
Maine	31,752	33,308	44,392	53,020	63,411	70,029	68,482	62,949	61,177	63,553	63,407	67,401
Maryland	2,948	2,930	5,465	5,203	5,395	5,228	5,226	4,663	4,028	3,964	3,784	3,885
Massachusetts	0	0	87,285	131,635	143,216	160,221	165,723	167,182	162,384	156,294	161,657	167,699
Michigan	0	41,121	66,053	96,044	116,398	130,586	138,870	135,599	131,786	129,337	129,208	132,432
Minnesota	22,386	45,625	57,529	57,075	51,151	55,380	59,431	51,089	48,494	47,575	49,073	54,787
Mississippi	0	0	0	2,153	2,405	4,493	8,438	9,717	9,282	8,321	10,471	13,370
Missouri	16,064	15,187	14,639	16,980	17,295	17,356	15,807	13,897	11,272	10,368	7,885	10,709
Montana	4,589	5,023	5,507	5,405	5,698	6,617	6,744	6,813	8,031	7,613	7,963	9,570
Nebraska	0	0	0	0	0	0	0	0	0	0	9,650	11,255
Nevada	1,665	4,497	5,702	5,748	6,339	7,528	8,927	9,408	8,472	9,284	3,438	10,551
New Hampshire	0	0	0	0	0	0	0	0	0	0	2,581	5,205
New Jersey	0	0	0	0	0	0	0	0	0	0	6,037	6,434
New Mexico	10,692	11,722	12,770	15,190	18,660	28,742	32,244	28,380	30,075	30,314	30,816	32,823
New York	197,339	271,386	327,808	393,684	456,174	522,684	592,705	705,871	756,657	698,267	703,001	657,267
North Carolina	16,438	15,852	14,996	15,812	21,208	23,496	23,446	22,791	23,086	22,595	29,640	44,434
North Dakota	2	0	10,037	10,610	10,664	10,029	9,411	8,657	7,146	7,369	10,895	11,329
Northern Mariana Islands	0	0	0	0	0	0	0	0	0	0	192	494
Ohio	7,504	15,420	14,885	15,712	33,450	44,801	47,126	54,706	58,392	60,366	69,358	95,666
Oklahoma	0	0	0	0	0	0	0	0	532	532	1,521	2,401
Oregon	49,632	22,330	21,551	23,064	25,229	28,305	30,475	35,820	34,804	31,213	27,953	28,928
Pennsylvania	0	0	0	0	0	0	0	0	4,797	7,114	23,202	39,511
Puerto Rico	0	0	0	0	0	0	0	0	0	0	10,168	16,895
Rhode Island	12,854	14,017	15,757	23,765	26,906	38,672	39,992	40,835	42,524	43,881	45,066	46,244
South Carolina	0	0	0	0	0	0	0	10,624	16,498	18,386	22,222	21,091
South Dakota	4,019	4,657	4,764	4,924	5,018	5,076	3,561	3,690	3,718	3,708	10,698	11,403
Tennessee	0	0	0	0	18,749	20,419	20,721	19,934	19,926	18,819	22,915	30,264
Texas	11,878	21,055	33,698	48,453	96,405	103,232	136,352	165,609	190,095	193,444	210,672	236,432
Utah	16,262	14,746	16,006	21,565	27,717	28,379	28,157	26,930	24,088	22,625	20,096	19,237
Vermont	15,599	17,013	18,044	20,661	21,895	22,973	24,322	25,624	24,791	25,356	26,475	28,464
Virgin Islands	0	0	0	0	0	316	594	253	296	471	567	402
Virginia	12,129	14,895	16,201	17,365	19,143	21,293	22,100	20,744	22,180	23,187	22,040	22,305
Washington	33,372	34,685	49,985	68,235	74,879	85,571	90,148	87,276	84,149	63,965	61,563	61,809
West Virginia	6,180	4,930	4,490	4,262	4,115	4,160	4,704	4,230	4,336	5,164	5,320	5,546
Wisconsin	12	31	7	54,137	55,829	54,576	59,744	58,071	50,714	50,894	42,514	59,332
Wyoming	0	0	0	416	1,366	1,271	1,119	818	776	864	1,113	1,337
National Totals	1,828,862	2,107,739	2,466,513	2,984,290	3,440,216	3,971,937	4,423,119	4,914,056	5,233,425	5,110,537	5,371,881	5,622,709

Source: Universal Service Administrative Company.

<sup>1</sup> Subscriber data were not actually collected in 1997. USAC used estimated number of subscribers for all states.

<sup>2</sup> Average number of subscribers reported for 1998 and 1999 for companies requesting reimbursement (including true-ups through April 2000).

**Table 7.3**  
**LinkUp Assistance - Subscribers by State or Jurisdiction**

State or Jurisdiction	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997 <sup>1</sup>	1998	1999 <sup>2</sup>
Alabama	4,314	1,810	1,927	2,182	1,381	736	308	276	362	NA	2,277	1,590
Alaska	0	0	0	0	0	0	395	777	732	NA	917	970
American Samoa	0	0	0	0	0	0	0	0	0	NA	122	694
Arizona	95	138	416	206	88	257	367	387	906	NA	528	4,805
Arkansas	8,439	4,846	5,240	6,522	7,067	12,082	16,124	8,549	11,577	NA	8,183	5,395
California	0	0	180	0	0	0	0	0	0	NA	1,543,016	1,325,959
Colorado	0	0	585	1,749	1,614	1,257	859	593	2,216	NA	2,537	1,278
Connecticut	2,970	2,737	3,499	6,661	9,164	10,316	17,176	18,410	13,934	NA	8,938	7,391
Delaware	0	0	0	0	0	0	0	7	406	NA	132	62
District of Columbia	1,016	531	514	510	1,145	1,863	1,675	1,920	1,784	NA	0	28
Florida	1,570	3,924	3,342	3,824	4,690	2,811	2,290	1,639	3,831	NA	9,799	9,268
Georgia	0	0	0	13,052	28,108	21,446	20,753	20,656	15,368	NA	10,701	8,723
Guam	0	0	0	0	0	0	0	0	0	NA	201	703
Hawaii	0	87	905	1,326	1,708	2,047	2,746	3,989	3,276	NA	6,408	10,126
Idaho	0	64	240	362	396	465	658	571	671	NA	793	1,231
Illinois	0	3,963	23,213	11,721	0	21,278	24,365	15,794	10,077	NA	12,304	12,934
Indiana	17	1,681	1,475	2,747	4,939	4,782	5,010	3,001	4,318	NA	4,605	5,507
Iowa	2,158	5,997	6,228	5,522	5,221	4,784	4,382	3,249	2,575	NA	2,093	1,529
Kansas	942	613	722	582	635	557	493	435	421	NA	1,385	1,483
Kentucky	8,496	6,951	6,633	8,931	11,660	10,963	11,819	13,902	14,173	NA	7,550	9,139
Louisiana	244	17,186	28,356	18,693	12,992	7,053	4,943	3,275	1,571	NA	3,911	1,358
Maine	415	7,244	10,128	12,132	5,576	14,450	19,363	14,798	20,783	NA	21,640	25,887
Maryland	246	243	4,985	3,540	3,168	2,772	2,837	2,613	2,091	NA	1,264	908
Massachusetts	0	0	8,569	4,366	4,661	17,390	19,464	18,601	11,727	NA	5,864	10,036
Michigan	0	7,572	23,675	36,639	40,339	36,512	34,640	26,198	20,097	NA	18,587	19,501
Minnesota	123	734	949	787	427	443	1,871	834	832	NA	1,058	521
Mississippi	1,110	1,558	1,663	1,369	932	2,371	4,236	4,151	2,974	NA	1,819	1,224
Missouri	1,546	2,067	1,105	840	766	735	1,633	742	627	NA	4,777	1,150
Montana	960	1,624	1,607	1,157	1,181	1,291	1,253	988	1,909	NA	1,676	1,539
Nebraska	267	438	526	688	878	650	522	496	331	NA	707	1,181
Nevada	0	79	324	487	562	866	685	708	640	NA	117	3,284
New Hampshire	2	351	407	1,009	1,544	1,805	1,570	1,312	1,246	NA	1,315	1,374
New Jersey	1,251	452	524	580	696	565	567	342	237	NA	1,042	474
New Mexico	1,534	2,461	3,173	4,178	5,848	9,963	12,600	12,277	9,171	NA	7,894	7,588
New York	274	44,221	188,182	241,477	290,856	238,856	290,922	327,123	346,089	NA	199,181	53,961
North Carolina	16,889	4,661	2,100	2,348	2,175	1,762	1,207	841	569	NA	2,408	3,237
North Dakota	207	499	313	373	337	398	355	355	220	NA	1,446	1,026
Northern Mariana Islands	0	0	0	0	0	0	0	0	0	NA	1,475	3,891
Ohio	10,857	11,838	11,157	18,239	37,191	46,028	40,071	29,338	23,196	NA	19,058	23,698
Oklahoma	0	0	728	1,582	1,271	1,281	1,087	1,040	1,260	NA	3,121	1,479
Oregon	2,427	1,352	3,664	3,657	4,588	6,335	7,144	8,043	7,862	NA	5,901	4,863
Pennsylvania	2,463	13,702	79,532	85,695	97,585	94,897	100,651	99,105	92,128	NA	63,713	53,967
Puerto Rico	0	2,519	5,523	4,308	3,886	3,138	3,455	4,116	3,640	NA	3,870	1,783
Rhode Island	79	584	1,023	960	1,483	2,002	2,808	2,728	2,100	NA	1,766	1,565
South Carolina	4,954	3,037	1,535	2,265	1,897	2,113	2,053	1,495	1,158	NA	2,270	2,052
South Dakota	173	1,038	542	443	439	362	451	369	221	NA	2,330	1,698
Tennessee	122	6,613	3,278	5,418	4,126	5,203	5,004	3,561	3,684	NA	4,190	6,064
Texas	17,124	15,553	22,587	30,915	41,381	44,184	66,010	72,210	75,708	NA	121,794	121,765
Utah	1,812	1,043	387	1,781	6,286	4,843	3,758	3,525	5,584	NA	2,880	2,061
Vermont	0	0	1,349	2,073	2,104	2,217	2,485	2,074	1,396	NA	1,366	1,500
Virgin Islands	0	0	0	0	0	38	111	35	13	NA	199	106
Virginia	5,507	5,957	9,598	14,642	14,523	15,701	15,797	15,847	14,428	NA	10,261	7,698
Washington	414	0	3,787	30,134	34,413	37,419	43,429	41,462	45,284	NA	27,780	27,456
West Virginia	4,741	481	327	363	322	586	577	657	997	NA	488	865
Wisconsin	0	17,555	36,444	40,515	40,942	37,380	34,903	28,209	21,937	NA	25,933	27,187
Wyoming	0	500	169	95	94	109	82	56	17	NA	21	50
National Totals	105,758	206,504	513,335	639,645	743,285	737,362	837,964	823,679	808,354	NA	2,195,611	1,832,812

Source: Universal Service Administrative Company.

NA - Not Available.

<sup>1</sup> Subscriber data were not actually collected in 1997.

<sup>2</sup> Subscribers are reported for January through December 1999 for companies requesting reimbursement.

**Table 7.4**  
**Lifeline Assistance Annual Payments by State or Jurisdiction**

State or Jurisdiction	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Cumulative Total
Alabama	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$56,744	\$372,371	\$602,521	\$1,449,303	\$1,584,031	\$4,064,970
Alaska	0	0	0	0	0	0	24,330	55,101	69,116	73,941	205,648	372,631	800,767
American Samoa	0	0	0	0	0	0	0	0	0	0	8,167	26,893	35,060
Arizona	140,515	117,744	136,518	127,419	144,290	188,216	307,699	346,595	383,752	396,391	1,606,287	1,712,557	5,607,983
Arkansas	168,737	251,116	276,742	301,087	316,837	310,979	295,293	301,808	362,497	374,881	585,933	594,392	4,140,302
California	20,016,990	29,082,569	32,228,252	36,072,671	40,381,514	47,512,283	52,461,134	57,460,181	62,231,440	63,011,988	244,372,835	249,492,762	934,324,619
Colorado	559,027	405,491	173,248	751,056	843,519	802,077	775,750	727,801	829,354	942,972	1,860,917	2,077,440	10,748,652
Connecticut	0	0	0	0	0	57,033	1,493,569	2,586,972	2,660,608	2,590,702	3,660,711	3,948,382	16,997,977
Delaware	0	0	0	0	0	0	0	0	0	0	23,198	38,185	61,383
District of Columbia	92,964	112,180	99,980	90,500	128,348	312,684	429,396	313,998	293,322	318,368	0	876,337	3,068,077
Florida	0	0	0	0	0	0	1,290,282	4,396,137	5,191,213	5,448,368	10,368,040	11,037,073	37,731,113
Georgia	0	0	0	794,088	2,247,925	2,764,461	3,003,777	3,315,787	3,383,638	3,164,320	6,187,332	6,308,652	31,169,980
Guam	0	0	0	0	0	0	0	0	0	0	18,061	68,177	86,238
Hawaii	106,534	203,052	198,943	186,490	182,555	190,166	196,554	202,107	273,471	271,524	551,150	805,625	3,368,171
Idaho	237,219	328,732	347,270	358,515	355,127	349,344	328,583	321,830	320,845	311,156	576,367	1,304,269	5,139,257
Illinois	0	0	18	414,457	0	0	0	0	0	0	1,856,512	3,285,155	5,556,142
Indiana	0	0	0	0	0	0	0	0	0	0	795,195	1,231,268	2,026,463
Iowa	0	0	0	0	0	0	0	0	0	0	161,566	409,165	570,731
Kansas	0	0	0	0	0	0	0	0	0	38	340,226	474,877	815,141
Kentucky	0	0	0	0	0	0	0	0	0	0	315,271	2,032,532	2,347,803
Louisiana	0	0	0	0	0	0	0	0	0	0	379,066	680,967	1,060,033
Maine	955,728	1,324,559	1,720,591	2,165,485	2,605,855	2,902,206	2,959,351	2,652,482	2,737,366	2,669,234	5,338,338	5,703,267	33,734,462
Maryland	93,757	120,042	220,346	216,947	213,303	221,574	218,052	211,819	180,079	166,473	317,814	326,288	2,506,494
Massachusetts	0	0	2,552,254	5,126,895	5,996,798	6,598,801	7,064,939	7,146,757	6,952,050	6,564,336	13,628,125	14,207,842	75,838,797
Michigan	0	433,487	1,348,992	2,163,526	2,742,396	3,081,708	3,351,293	3,288,234	3,203,533	3,104,079	9,761,204	10,045,234	42,523,686
Minnesota	452,885	1,658,815	2,256,567	2,416,108	2,258,780	2,295,299	2,332,178	2,170,211	2,080,597	1,998,168	3,534,194	3,470,968	26,924,770
Mississippi	0	0	0	16,962	29,506	109,841	339,633	399,633	401,106	349,468	887,098	1,136,422	3,669,669
Missouri	488,662	633,736	620,605	648,102	711,138	699,011	653,539	590,212	486,547	435,466	551,102	754,501	7,272,621
Montana	144,515	192,095	234,696	228,885	234,046	266,870	281,441	290,312	328,627	319,745	677,995	822,939	4,022,166
Nebraska	0	0	0	0	0	0	0	0	0	0	619,118	809,272	1,428,390
Nevada	20,499	113,400	122,289	134,038	147,595	172,658	194,440	206,654	196,662	215,016	214,714	754,020	2,491,985
New Hampshire	0	0	0	0	0	0	0	0	0	0	162,362	331,956	494,318
New Jersey	0	0	0	0	0	0	0	0	0	0	317,708	404,857	722,565
New Mexico	318,373	465,455	528,392	615,450	744,810	1,167,110	1,357,828	1,216,787	1,264,979	1,273,169	2,620,225	2,875,429	14,448,007
New York	4,104,279	8,917,964	11,253,994	15,649,754	18,295,637	20,970,135	23,844,744	27,188,016	30,924,772	29,327,216	54,776,809	51,472,733	296,726,053
North Carolina	521,322	681,469	637,444	647,593	875,130	962,905	1,003,092	922,046	972,403	948,969	2,443,055	3,755,503	14,370,931
North Dakota	25	159	299,829	438,302	447,187	421,896	412,255	378,733	333,434	309,496	876,274	908,229	4,825,819
Northern Mariana Islands	0	0	0	0	0	0	0	0	0	0	10,659	30,391	41,050
Ohio	240,387	643,659	643,996	650,084	1,304,827	1,963,353	2,293,070	2,409,791	2,366,359	2,535,383	5,390,963	7,098,397	27,540,269
Oklahoma	0	0	0	0	0	0	0	0	10	900	106,526	168,808	276,244
Oregon	516,432	891,600	894,729	944,221	1,044,746	1,175,398	1,262,606	1,499,920	1,479,004	1,310,954	2,381,568	2,483,848	15,885,026
Pennsylvania	0	0	0	0	0	0	0	0	87,639	298,771	1,742,564	3,011,977	5,140,951
Puerto Rico	0	0	0	0	0	0	0	0	0	0	587,156	1,064,389	1,651,545
Rhode Island	404,621	571,349	643,660	960,213	1,111,414	1,487,776	1,693,628	1,713,982	1,772,985	1,843,008	3,776,998	3,898,361	19,877,995
South Carolina	0	0	0	0	0	0	0	264,326	647,296	772,226	1,825,532	1,735,670	5,245,050
South Dakota	65,802	190,399	201,953	207,281	211,499	214,402	160,110	156,115	152,834	155,737	674,584	731,494	3,122,210
Tennessee	0	0	0	0	506,187	844,079	881,488	837,524	841,342	790,409	1,874,811	2,522,540	9,098,380
Texas	126,953	800,535	1,120,002	1,736,759	3,576,193	4,181,609	5,335,092	6,723,118	7,776,103	8,124,667	17,624,701	20,318,198	77,443,930
Utah	468,875	381,945	609,049	874,025	1,161,879	1,203,870	1,208,738	1,179,200	1,057,483	950,263	1,699,274	1,663,687	12,458,288
Vermont	486,211	691,848	755,646	858,766	924,333	979,697	1,041,838	1,094,178	1,039,649	1,064,932	2,214,987	2,402,458	13,554,543
Virgin Islands	0	0	0	0	0	5,753	29,075	22,459	14,293	19,779	49,229	40,225	180,813
Virginia	328,559	599,744	669,972	704,087	782,585	907,400	920,012	912,437	911,374	973,851	1,789,384	1,858,165	11,357,570
Washington	722,883	858,824	1,474,869	2,199,086	2,524,658	2,997,455	2,966,094	2,813,846	2,743,597	2,686,537	4,182,773	4,960,169	31,130,791
West Virginia	169,363	206,163	192,927	181,082	175,309	188,356	206,594	190,638	176,422	216,891	367,974	383,484	2,655,203
Wisconsin	124	117	234	217,958	482,544	521,821	617,261	676,880	653,204	610,732	2,767,939	3,879,309	10,428,123
Wyoming	0	0	0	5,833	57,652	54,640	49,077	36,101	33,007	36,306	93,464	113,024	479,104
Industry Total	\$31,952,241 <sup>1</sup>	\$50,878,248 <sup>2</sup>	\$62,464,007 <sup>2</sup>	\$79,103,725 <sup>2</sup>	\$93,766,122 <sup>2</sup>	\$109,082,866 <sup>2</sup>	\$123,283,835 <sup>2</sup>	\$137,277,472 <sup>2</sup>	\$148,186,383 <sup>2</sup>	\$147,579,351 <sup>2</sup>	\$421,209,006 <sup>3</sup>	\$444,505,424 <sup>3</sup>	\$1,849,288,702

Source: Universal Service Administrative Company.

1 Amounts are based on local carrier's actuals.

2 Payments are final and not subject to further adjustment.

3 Dollars reported are for companies requesting reimbursement. Approximately 99% have reported at this time. Data include true-ups submitted through 4/2000. Lifeline dollars for 1998 and 1999 include toll limitation services (TLS) and presubscribed interexchange carrier charges (PICCs).

**Table 7.5**  
**LinkUp Assistance Annual Payments by State or Jurisdiction**

State or Jurisdiction	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Cumulative Total
Alabama	\$87,561	\$36,757	\$41,125	\$47,246	\$30,322	\$16,881	\$7,021	\$5,467	\$6,661	\$9,738	\$37,868	\$28,862	\$355,509
Alaska	0	0	0	0	0	0	8,541	16,530	14,673	10,485	18,647	24,134	93,010
American Samoa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,660	20,820	24,480
Arizona	2,145	2,815	9,260	4,792	2,054	6,000	8,533	23,340	22,359	23,234	12,473	104,539	221,544
Arkansas	149,962	92,263	102,651	128,727	152,380	304,253	337,111	164,617	232,383	221,128	142,354	101,090	2,128,919
California	0	0	0	0	0	0	0	0	0	0	28,645,433	24,062,256	52,707,689
Colorado	0	0	15,586	47,146	43,867	34,417	15,065	10,498	38,773	48,230	44,545	22,506	320,633
Connecticut	56,098	51,674	66,848	125,749	169,970	205,974	386,459	414,224	313,522	256,225	201,089	149,399	2,397,231
Delaware	0	0	0	0	0	0	0	126	7,308	8,268	2,376	1,116	19,194
District of Columbia	15,262	8,955	7,909	7,848	17,611	27,500	22,288	27,760	27,102	27,399	NA	430	190,064
Florida	29,714	85,917	76,242	82,224	113,225	69,296	73,744	88,707	100,275	87,753	196,450	188,296	1,191,843
Georgia	0	0	0	277,968	604,321	461,379	449,418	444,097	330,076	146,239	204,709	167,716	3,085,923
Guam	0	0	0	0	0	0	0	0	0	3,521	0	12,304	15,825
Hawaii	0	1,968	13,660	14,969	19,168	24,428	33,051	46,507	37,856	34,115	145,251	229,187	600,160
Idaho	0	839	4,136	5,860	6,407	7,418	10,578	8,985	9,861	18,754	11,539	16,003	100,380
Illinois	0	106,872	628,664	320,216	0	555,206	617,419	477,288	282,633	232,685	318,391	332,878	3,872,252
Indiana	169	36,987	35,646	63,398	119,317	112,484	117,045	71,478	40,189	58,703	103,940	127,536	886,892
Iowa	36,369	107,881	115,069	92,333	81,214	18,711	74,162	56,111	40,437	21,526	19,421	21,526	772,772
Kansas	16,881	11,367	14,320	10,914	11,530	10,673	9,573	8,141	8,429	35,655	26,737	28,662	192,882
Kentucky	157,286	168,846	174,698	191,793	245,518	233,258	262,990	263,666	274,776	175,728	143,852	177,708	2,470,119
Louisiana	7,318	490,741	838,721	551,215	386,163	210,409	147,015	76,603	38,121	15,288	74,074	26,208	2,861,876
Maine	4,549	160,899	222,351	271,175	120,532	321,595	430,941	327,363	461,108	522,810	477,470	574,671	3,895,464
Maryland	5,304	5,840	118,647	85,142	81,999	71,223	52,782	63,008	50,178	46,278	30,336	21,760	632,497
Massachusetts	0	0	140,028	76,355	86,415	322,410	366,427	344,862	217,417	131,948	108,720	186,067	1,980,649
Michigan	0	172,430	501,015	761,801	840,265	786,106	720,903	472,243	224,317	477,688	384,073	405,932	5,746,773
Minnesota	1,873	11,131	11,455	12,644	12,660	38,742	35,475	8,435	7,622	14,189	15,793	6,078	176,097
Mississippi	21,273	39,512	29,533	26,277	17,743	45,472	81,156	94,989	67,873	31,033	38,302	24,647	517,810
Missouri	32,561	42,064	19,760	14,615	17,047	27,775	23,702	12,190	10,308	9,880	83,766	18,640	312,308
Montana	19,715	35,833	35,615	25,154	25,074	26,475	19,726	13,413	24,502	24,304	22,356	20,819	292,986
Nebraska	3,453	6,996	7,964	11,267	15,382	11,950	9,001	6,892	5,253	4,391	8,584	18,270	109,403
Nevada	0	390	3,004	9,338	10,999	15,107	11,838	11,691	13,445	8,605	1,902	55,557	141,876
New Hampshire	40	7,107	8,510	21,420	36,328	44,199	42,146	32,147	30,530	31,583	26,155	26,750	306,915
New Jersey	25,923	9,232	10,755	12,054	11,745	18,711	8,106	4,995	3,844	22,502	10,043	145,515	145,515
New Mexico	38,458	61,605	79,198	107,467	152,371	304,961	262,693	131,859	137,238	128,193	116,668	114,301	1,635,012
New York	3,386	1,026,301	4,483,514	5,962,604	6,611,528	7,243,113	8,120,361	8,972,155	9,586,748	5,604,194	5,480,654	1,470,599	64,565,157
North Carolina	209,615	66,490	31,302	33,805	32,761	24,042	19,718	13,958	9,510	8,720	38,545	51,344	539,810
North Dakota	2,672	7,493	5,082	6,182	5,713	6,682	5,534	5,636	3,491	17,922	23,026	16,357	105,790
Northern Mariana Islands	0	0	0	0	0	0	0	0	0	0	5,887	11,435	17,322
Ohio	197,143	226,194	204,433	311,997	650,806	775,582	690,334	515,674	394,796	374,183	322,012	393,276	5,056,430
Oklahoma	0	0	15,826	35,077	27,986	28,251	23,936	20,142	22,082	33,908	47,878	30,271	285,357
Oregon	33,279	10,643	23,262	22,801	31,834	46,035	54,485	57,728	53,338	51,816	46,222	39,955	471,398
Pennsylvania	48,705	273,123	1,592,565	1,743,115	1,976,702	1,904,903	2,022,887	1,969,372	1,850,064	1,735,564	1,257,631	1,039,848	17,414,479
Puerto Rico	0	44,084	91,784	72,561	65,986	54,826	57,950	69,244	76,381	83,138	68,116	31,208	715,278
Rhode Island	1,187	8,498	14,527	13,634	21,059	28,427	38,416	45,309	35,531	25,226	29,878	26,478	288,170
South Carolina	100,652	62,420	38,303	34,894	36,759	40,434	38,405	30,035	21,851	19,639	42,591	39,047	505,030
South Dakota	3,029	18,167	9,368	7,755	7,685	6,349	5,641	4,614	2,765	2,257	29,490	22,401	119,521
Tennessee	2,539	137,758	73,824	62,690	69,673	86,711	85,071	89,617	60,589	22,082	78,322	107,929	876,805
Texas	496,217	424,313	636,839	591,565	811,837	825,340	1,258,838	1,371,343	1,632,153	1,517,075	2,244,255	2,322,352	14,132,127
Utah	32,164	18,515	6,870	31,614	111,578	85,963	35,478	32,798	74,404	53,213	36,078	25,779	544,454
Vermont	0	0	22,132	34,041	34,358	36,314	40,478	34,039	24,863	19,126	24,174	26,545	296,070
Virgin Islands	0	0	0	0	0	1,012	2,584	1,001	317	1,392	2,005	1,004	9,315
Virginia	85,198	122,944	173,149	267,462	289,381	323,486	248,128	292,190	269,695	267,013	183,002	140,954	2,662,602
Washington	7,465	1,179	59,277	467,920	532,652	561,632	668,199	693,528	676,482	623,757	417,353	424,654	5,134,098
West Virginia	55,983	8,050	7,002	7,878	7,366	11,983	16,145	15,119	14,508	16,102	8,966	12,814	181,916
Wisconsin	0	256,423	526,066	581,758	569,079	537,514	490,668	426,278	356,626	370,939	378,836	450,177	4,944,364
Wyoming	0	10,098	3,510	1,865	1,934	2,180	1,449	938	342	400	338	893	23,947
Industry Total	\$1,991,148 <sup>1</sup>	\$4,479,614 <sup>2</sup>	\$11,351,005 <sup>2</sup>	\$13,705,470 <sup>2</sup>	\$15,342,180 <sup>2</sup>	\$17,019,329 <sup>2</sup>	\$18,573,322 <sup>2</sup>	\$18,392,061 <sup>2</sup>	\$18,246,756 <sup>2</sup>	\$13,710,810 <sup>2</sup>	\$42,468,216 <sup>3</sup>	\$34,012,031 <sup>3</sup>	\$209,291,942

Source: Universal Service Administrative Company.

NA - Not Available.

<sup>1</sup> Amounts are based on local exchange carrier's actuals.

<sup>2</sup> Payments are final and are not subject to further adjustment.

<sup>3</sup> Dollars reported are for companies requesting reimbursement. Approximately 99% have reported at this time. Data include true-ups through April 2000.

## 8 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. Since 1970, over 90% of households and virtually all businesses have subscribed to telephone service. Therefore, line growth over time, averaging about 3% per year, has historically reflected growth in the population and the economy. In recent years, the growth in lines has increased as households have added additional lines.

Table 8.1 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 before 1998 to determine the amount of payments by the interexchange carriers to support the Universal Service Fund and the Lifeline and LinkUp programs. The third measure, access lines, are estimates for the whole industry based on data filed with the Commission by large local exchange carriers.

Table 8.2 shows the number of local exchange operating areas (study areas) and loops in each state, and shows breakdowns by loops for price-cap and average-schedule companies. Table 8.3 shows the number of loops by holding companies.

Table 8.4 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 8.4 shows that the percentage of additional lines for households with telephone service has increased dramatically, from about 3% in 1988 to about 29% in 1999.



**Table 8.1**  
**Total U.S. Telephone Lines**

<b>Year End</b>	<b>Presubscribed Lines</b>	<b>Annual Growth (%)</b>	<b>Local Loops</b>	<b>Annual Growth (%)</b>	<b>Access Lines</b>	<b>Annual Growth (%)</b>
1980			102,216,367			
1981			105,559,222	3.3 %		
1982			107,519,214	1.9		
1983			110,612,689	2.9		
1984			112,550,739	1.8	113,880,538	
1985			115,985,813	3.1	117,434,802	3.1 %
1986			118,289,121	2.0	120,781,565	2.8
1987	121,466,500		122,789,249	3.8	124,678,710	3.2
1988	124,360,829	2.4 %	127,086,765	3.5	126,953,616	1.8
1989	128,482,479	3.3	131,504,568	3.5	130,915,695	3.1
1990	132,408,608	3.1	136,114,201	3.5	134,743,029	2.9
1991	135,286,582	2.2	139,412,884	2.4	139,672,703	3.7
1992	138,725,040	2.5	143,341,581	2.8	142,428,028	2.0
1993	142,809,280	2.9	148,106,159	3.3	147,095,681	3.3
1994	148,479,328	4.0	153,447,946	3.6	151,607,529	3.1
1995	152,601,177	2.8	159,658,662	4.0	158,219,924	4.4
1996	158,672,243	4.0	166,445,580	4.3	165,420,650	4.6
1997	NA	NA	173,868,033	4.5	173,705,523	5.0
1998	NA	NA	179,846,360	3.4	180,471,261	3.9
1999	NA	NA	184,985,055	2.9	186,260,652	3.2

Source: Presubscribed lines and local loops: National Exchange Carrier Association.  
Access Lines: *Statistics of Communications Common Carriers*, 1999 edition,  
Table 4.10 after inflating access lines of reporting carriers to represent the  
total industry.

NA - Not Available.

**Table 8.2**

**Telephone Loops of Incumbent Local Exchange Carriers by State  
(As of December 31, 1999)**

	Study Areas	Price Cap		Non-Price Cap		Total Loops
		Bell Company Loops	Other Company Loops	Average Schedule Company Loops	Other Company Loops	
Alabama	28	2,000,061	323,533	52,741	145,298	2,521,633
Alaska	25	0	23,493	226	434,981	458,700
American Samoa	1	0	0	10,506	0	10,506
Arizona	16	2,774,707	162,506	0	34,337	2,971,550
Arkansas	28	1,039,166	222,076	25,768	214,271	1,501,281
California	22	17,782,239	4,749,226	0	204,992	22,736,457
Colorado	28	2,737,393	0	3,288	123,489	2,864,170
Connecticut	2	2,411,062	0	24,144	0	2,435,206
Delaware	1	582,735	0	0	0	582,735
District of Columbia	1	926,875	0	0	0	926,875
Florida	12	6,686,776	4,439,100	0	183,683	11,309,559
Georgia	36	4,338,146	28,652	76,750	765,277	5,208,825
Guam	1	0	0	0	77,609	77,609
Hawaii	2	0	722,147	0	269	722,416
Idaho	21	529,331	156,648	5,014	42,307	733,300
Illinois	56	7,089,259	970,306	43,616	227,244	8,330,425
Indiana	42	2,280,543	1,242,839	93,824	64,078	3,681,284
Iowa	153	1,088,216	349,338	199,238	40,837	1,677,629
Kansas	39	1,445,327	145,017	21,327	108,435	1,720,106
Kentucky	19	1,240,607	760,175	142,721	48,085	2,191,588
Louisiana	20	2,396,531	0	9,964	179,284	2,585,779
Maine	20	718,057	0	36,539	107,339	861,935
Maryland	2	3,833,217	0	7,714	0	3,840,931
Massachusetts	3	4,582,859	0	2,964	1,159	4,586,982
Michigan	39	5,514,290	809,602	35,278	172,044	6,531,214
Minnesota	88	2,246,696	424,521	235,467	163,035	3,069,719
Mississippi	19	1,326,316	6,321	23,931	63,474	1,420,042
Missouri	43	2,716,232	726,282	21,206	162,963	3,626,683
Montana	18	366,557	8,742	4,129	159,005	538,433
Nebraska	41	508,081	384,729	29,554	84,103	1,006,467
Nevada	14	358,700	926,999	0	31,879	1,317,578
New Hampshire	10	818,682	0	2,164	54,456	875,302
New Jersey	3	6,519,258	219,929	0	10,492	6,749,679
New Mexico	15	811,430	99,748	0	43,318	954,496
New York	44	11,466,333	1,067,356	21,518	263,337	12,818,544
North Carolina	26	2,544,247	1,828,529	253,485	467,061	5,093,322
North Dakota	24	253,914	0	63,272	100,680	417,866
Northern Mariana Islands	1	0	24,945	0	0	24,945
Ohio	42	4,133,557	2,346,160	65,313	460,929	7,005,959
Oklahoma	39	1,724,420	121,945	5,791	233,530	2,085,686
Oregon	33	1,395,086	575,748	11,922	146,252	2,129,008
Pennsylvania	36	6,530,158	1,109,767	576,536	252,360	8,468,821
Puerto Rico	2	0	0	0	1,294,704	1,294,704
Rhode Island	1	678,123	0	0	0	678,123
South Carolina	27	1,503,586	320,727	77,107	428,067	2,329,487
South Dakota	31	280,323	0	95,463	53,611	429,397
Tennessee	25	2,743,845	354,059	143,060	206,426	3,447,390
Texas	57	10,192,419	2,404,248	9,652	568,084	13,174,403
Utah	13	1,117,319	23,317	4,932	30,801	1,176,369
Vermont	10	352,186	0	4,384	59,697	416,267
Virgin Islands	1	0	0	0	67,229	67,229
Virginia	21	3,629,926	1,016,550	97,479	18,157	4,762,112
Washington	23	2,527,498	955,970	4,124	261,316	3,748,908
West Virginia	10	848,375	149,635	8,445	7,654	1,014,109
Wisconsin	88	2,207,612	591,493	217,039	462,125	3,478,269
Wyoming	10	247,234	7,508	0	42,301	297,043
<b>Total</b>	<b>1,432</b>	<b>142,045,510</b>	<b>30,799,886</b>	<b>2,767,595</b>	<b>9,372,064</b>	<b>184,985,055</b>

Source: NECA universal service filings.

**TABLE 8.3**

**Telephone Loops by Holding Company 1/  
(As of December 31, 1999)**

<b>Holding Companies</b>	<b>Loops</b>	<b>Percent of Loops</b>
Verizon Communications	62,276,224	33.67 %
SBC Communications	58,918,970	31.85
BellSouth Telecommunications, Inc.	24,780,115	13.40
Qwest	16,883,785	9.13
Sprint Corporation	7,874,408	4.26
ALLTEL Corporation	2,271,645	1.23
Century Telephone Enterprises, Inc.	1,264,311	0.68
Global Crossing Ltd.	1,126,253	0.61
Citizens Utility Company	1,011,101	0.55
Cincinnati Bell, Inc.	998,991	0.54
Telephone And Data Systems, Inc.	588,355	0.32
Alaska Communications Systems	329,876	0.18
C-TEC Corporation	297,405	0.16
Madison River Telephone Company	148,614	0.08
MJD Communications	140,031	0.08
North State Telephone Company	133,533	0.07
Rock Hill Telephone Company	123,806	0.07
Roseville Telephone Company	123,520	0.07
The Concord Telephone Company	118,218	0.06
TXU Communications	117,268	0.06
Consolidated Communications, Inc.	88,953	0.05
Horry Telephone Cooperative, Inc.	86,423	0.05
Conestoga Enterprises, Inc.	80,169	0.04
North Pittsburgh Telephone Company	79,042	0.04
Guam Telephone Authority	77,609	0.04
Hargray Communications Group, Inc.	67,645	0.04
Virgin Islands Telephone Corporation	67,229	0.04
Denver & Ephrata Telephone Company	59,395	0.03
Farmers Telephone Cooperative, Inc.	57,255	0.03
Matanuska Telephone Association	56,575	0.03
Pioneer	50,282	0.03
GTC, Inc.	49,710	0.03
Chorus Communications Group	43,543	0.02
Fort Bend Communication Company	41,677	0.02
Mankato Citizens Telephone Company	40,573	0.02
Lynch Telephone Corporation	40,437	0.02
Coastal Utilities, Inc.	39,332	0.02
East Ascension Telephone Company, Inc.	39,289	0.02
CFW Communication Companies	38,342	0.02
Atlantic Telephone Membership Corporat	38,083	0.02
Twin Lake Telephone Cooperative	36,574	0.02
SRT Service Corporation	35,985	0.02
Ben Lomand	35,813	0.02
The Chillicothe Telephone Company	35,566	0.02
Golden West Telecommunications	35,384	0.02
Telephone Electronics Corporation	35,102	0.02
Lexington Communications, Inc.	34,739	0.02
Guadalupe Valley Telephone Cooperative	34,713	0.02
Skyline Telephone Membership Corporat	34,663	0.02
Great Plains Communication, Inc.	34,478	0.02
Smithville Telephone Company, Inc.	33,333	0.02
Wood County Telephone Company	30,921	0.02
Yadkin Valley Telephone	30,785	0.02
Eastex Telephone Cooperative, Inc.	30,748	0.02
Ollig Utilities	28,233	0.02
Brandenburg Telephone Company	27,652	0.01
South Central Rural Telephone Cooperati	27,596	0.01
Millington Telephone Company, Inc.	26,336	0.01
Kerrville Telephone Company	25,645	0.01
Grand River Mutual Telephone Corporati	25,520	0.01
All Other Companies	3,677,277	1.99
<b>Total</b>	<b>184,985,055</b>	<b>100.00</b>

Source: NECA universal service filings.

1/ Includes incumbent local exchange carriers loops for holding companies with more than 25,000 loops.

**Table 8.4**  
**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	14.7
1996	111.6	54.6	166.2	95.1	16.5	17.3
1997	115.6	58.7	174.3	96.5	19.1	19.8
1998	119.9	64.1	183.9	98.0	21.9	22.3
1999	127.8	66.1	193.9	99.1	28.6	28.9

Source: FCC staff estimates.

1/ Total loops are from the Universal Service Fund subscriber line counts provided by the National Exchange Carrier Association. Guam, 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 Guam, the Northern Mariana Islands, and the U.S. Virgin Islands). Loop counts beginning in 1996 have been increased by estimated competitive local exchange carrier lines from Association for Local Telecommunications Services (ALTS) and New Paradigm Resources Group.

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

## 9 Local Telephone Competition

For most of the past century, households and businesses have had no choice in selecting their local telephone company. Mobile or wireless 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, competitive access providers (CAPs) began to market to business customers access services provided over CAPs' wired networks. To some extent they also carried local telephone calls among their customers. In the 1990s, some CAPs and other companies, including affiliates of cable television companies and local service divisions of long distance companies, began to offer local telephone calling services to a broader range of customers. Companies with operations in larger cities added operations in smaller cities, where the typical customer is more likely to be a small or medium-sized business than a large business, and some new companies focused on smaller cities from the beginning. The newer competitors are often called competitive local exchange carriers (CLECs), although the terms CAPs and CLECs are sometimes used interchangeably.

The Telecommunications Act of 1996 (1996 Act) contemplated three incrementally powerful vehicles for competitors to enter local telephone service markets. First, CLECs may resell the services of incumbent local exchange carriers (ILECs). Second, CLECs may make use of ILEC facilities, for example, by leasing ILEC unbundled network element (UNE) loops to use in combination with the CLECs' own switching capabilities, or by leasing the so-called UNE-platform that combines the loop with ILEC switching services. (Here, we use the term "UNE loop" to refer to these and other combinations of ILEC unbundled network elements that include the UNE loop.) Third, CLECs may build the complete set of facilities they need to compete. Individual competitors have used various combinations of these methods at different times.

### 1. CLEC Share of Local Telephone Lines:

Table 9.1 shows that, as of June 30, 2000, CLECs provided 12.7 million (or 6.7%) of the approximately 192 million nationwide local telephone lines that were in service to end-users, according to information reported semiannually in the Commission's "Local Competition and Broadband" data collection program (FCC Form 477). By contrast, CLECs provided 8.3 million (or 4.4%) of nationwide local telephone lines at the end of 1999. This represents a 53% growth in CLEC market size during the first six months of this year. Table 9.2 indicates that more than 60% of CLEC local telephone lines served medium and large business, institutional, and government customers at mid-year 2000. By contrast, almost 80% of ILEC local telephone lines served residential and small business customers.

About one-third of CLEC end-user lines are served over "local loop" facilities that the CLECs own, according to information CLECs report to the Commission, which is summarized in Table 9.3. To serve the remainder of their end-user lines, CLECs resell the services of ILECs or use UNE loops that they lease from other carriers. As shown in Table 9.4, ILECs reported providing other carriers about 5.7 million lines on a resale basis, at mid-year 2000, compared to over 3 million UNE loops. The number of UNE loops provided to CLECs has increased rapidly since the end of 1997 (when the Commission began to survey large ILECs for this information) and more than doubled during the first six months of 2000.

The Commission's semiannual data collection provides information about CLEC local telephone lines (and thus the CLEC share of total end-user lines in service) in individual states. See Table 9.5. Relatively large numbers of CLEC lines are associated with the more populous states. With respect to the calculated CLEC share of local telephone lines in service, however, relatively large values are reported for some less populous states, such as Kansas, Louisiana, and Iowa, as well as for some more populous states, such as New York and Illinois.

## 2. CLEC Share of Local Telephone Service Revenues:

Table 9.6 shows that carriers competing with the ILECs nearly doubled their local telephone service revenues from 1998 to 1999 – from \$3.5 billion to \$6.3 billion. The share of nationwide local telephone service revenues claimed by the competitors increased from 3.5% in 1998 to 5.8% in 1999.

## 3. Telephone Numbers Transferred Among Carriers:

Table 9.7 presents information on telephone numbers “ported” (transferred) from one telephone switch to another (usually between carriers). Telephone numbers are transferred between local switches for a variety of reasons. For instance, some telephone numbers are ported from one carrier to another as part of a telephone number conservation measure known as number pooling, which is where carriers with spare telephone numbers port large blocks of numbers to a carrier in need of numbers. Such quantities appear in the first set of columns in Table 9.7.

Telephone numbers are also ported between carriers for other reasons, including, in particular, accommodating customers who switch local telephone service providers and wish to keep their same telephone numbers. Quantities of telephone numbers transferred between local telephone companies to accommodate customer requests and for other, non-pooling, reasons appear in the second set of columns. Over 6.7 million such telephone numbers were transferred as of August 1, 2000. Most, but not all of those 6.7 million numbers, were ported from ILECs to CLECS, but some of them were ported from CLECs to ILECs, and others from CLECs to CLECs.

Finally, carriers sometimes port numbers to themselves, to enable telephone customers to be hooked up to a switch that had no other available telephone numbers. Such quantities appear in the third set of columns. In all, as of August 1, 2000, over 8.3 million telephone numbers had been transferred.

This information is developed from the telephone number porting database, managed by the Local Number Portability Administrator (currently NeuStar, Inc.). The database contains all telephone numbers that are ported at that point in time. If a telephone number is ported a second time, the database contains only the information from the most recent port. Monthly “snapshots” of the database are taken, which allow the Commission to determine the number of telephone numbers that have been ported, the reason those numbers were ported, and the date those numbers were most recently ported. The snapshot does not allow the Commission to determine if a particular number has been ported. Sequential snapshots of the database should help quantify both the number of customer lines served by competitive local telephone carriers over time, and telephone number churn.

Table 9.7 shows the same information at two different points in time - August 1, 2000 and

January 1, 2000. Table 9.8 of the March 2000 edition of *Trends* should not be used for comparison purposes because it was developed from an inaccurate database snapshot.

The information in Table 9.7 can be used to quantify telephone number churn. Telephone number churn happens when a single telephone number is ported from one carrier to another, then to another (or back to the original carrier), and so on. Table 9.8 shows telephone number churn for one category of telephone numbers (those telephone numbers ported due to customer request or for other non-pooling reasons). The information in Table 9.8 can best be examined by looking at an example. The January 1, 2000 portion of Table 9.7 shows that 430,141 telephone numbers had been ported between carriers for “customer requests and other reasons” during December 1999. The August 1, 2000 portion of Table 9.7 shows that 408,944 of those numbers were still ported as of August 1, 2000. The difference of 21,197 is shown in Table 9.8, and reflects the number of telephone numbers that were either ported to yet another carrier or ported back to the original carrier between January 1, 2000 and August 1, 2000. The difference of 21,197 represents 4.9% of the telephone numbers that had been ported for customer requests or for other non-pooling reasons in December 1999. This translates into an annualized churn rate of 8.4%. The same type of calculation can be made with data from the other months in Table 9.7, but the reader should beware that some of the telephone numbers that had originally been ported in (say) January 1999 had already been ported to yet a third carrier or back to the original carrier before the January 1, 2000 snapshot was taken.



**Table 9.1**  
**Total End-User Lines Reported**

	<b>ILEC Lines</b>	<b>CLEC Lines</b>	<b>Total</b>	<b>CLEC Share</b>
December 1999	181,307,695	8,318,244	189,625,939	4.4%
June 2000	178,864,907	12,746,924	191,611,831	6.7%

Source: Industry Analysis Division, *Local Telephone Competition: Status as of June 30, 2000*.

**Table 9.2**  
**End-User Lines by Customer Type**

	<b>ILECs</b>			<b>CLECs</b>		
	<b>Residential &amp; Small Business</b>	<b>Other 1/</b>	<b>% Residential &amp; Small Business</b>	<b>Residential &amp; Small Business</b>	<b>Other 1/</b>	<b>% Residential &amp; Small Business</b>
December 1999	143,388,368	37,919,327	79%	3,373,662	4,944,582	41%
June 2000	140,486,770	38,378,137	79%	4,597,807	8,149,117	36%

Source: Industry Analysis Division, *Local Telephone Competition: Status as of June 30, 2000*.

1/ Medium and large business, institutional, and government customers.

**Table 9.3**  
**Reporting Competitive Local Exchange Carriers**  
**(End-User Lines in Thousands)**

Date	CLECs Reporting	Total End-User Lines	Acquired Lines 1/	Percent	CLEC Owned Lines	Percent
December 1999	81	8,318	5,471	65.8 %	2,847	34.2 %
June 2000	76	12,747	8,443	66.2	4,304	33.8

Source: Industry Analysis Division, *Local Telephone Competition: Status as of June 30, 2000*.

1/ Lines acquired from other carriers as UNE loops or under resale arrangements.

**Table 9.4**  
**Reporting Incumbent Local Exchange Carriers**  
**(Lines in Thousands)**

Date 1/	ILECs Reporting	Total Lines	End-User Lines	Lines Provided to Other Carriers			
				Lines Resold	UNE Loops Leased	Total	Percent of Total Lines
December 1997	9	159,008	157,132	1,743	133	1,876	1.2 %
June 1998	8	161,810	159,118	2,448	244	2,692	1.7
December 1998	7	164,614	161,191	3,062	361	3,423	2.1
June 1999	7	167,177	162,909	3,583	685	4,268	2.6
December 1999	168	187,431	181,308	4,649	1,474	6,123	3.3
June 2000	160	187,784	178,865	5,662	3,257	8,919	4.7

Source: Industry Analysis Division, *Local Telephone Competition: Status as of June 30, 2000*.

1/ Data for December 1997 through June 1999 are from Common Carrier Bureau voluntary surveys. Data for December 1999 and June 2000 are from FCC Form 477 filings.

**Table 9.5**  
**End-User Lines Served by Reporting LECs**  
**(As of June 30, 2000)**

<b>State</b>	<b>ILECs</b>	<b>CLECs</b>	<b>Total</b>	<b>CLEC Share</b>
Alabama	2,380,178	140,901	2,521,079	6 %
Alaska	486,337	*	*	*
Arizona	3,051,648	155,657	3,207,305	5
Arkansas	1,422,736	*	*	*
California	23,436,793	1,317,414	24,754,207	5
Colorado	2,887,311	204,608	3,091,919	7
Connecticut	2,438,119	136,086	2,574,205	5
Delaware	570,331	*	*	*
District of Columbia	914,716	72,696	987,412	7
Florida	11,121,374	983,047	12,104,421	8
Georgia	4,883,136	348,213	5,231,349	7
Hawaii	737,255	*	*	*
Idaho	724,440	0	724,440	0
Illinois	7,990,635	749,446	8,740,081	9
Indiana	3,597,365	156,280	3,753,645	4
Iowa	1,414,622	140,706	1,555,328	9
Kansas	1,533,755	295,133	1,828,888	16
Kentucky	2,135,858	*	*	*
Louisiana	2,432,846	289,798	2,722,644	11
Maine	818,979	*	*	*
Maryland	3,760,409	131,272	3,891,681	3
Massachusetts	4,313,988	384,548	4,698,536	8
Michigan	6,363,024	359,231	6,722,255	5
Minnesota	2,935,154	258,522	3,193,676	8
Mississippi	1,314,049	*	*	*
Missouri	3,508,475	178,377	3,686,852	5
Montana	514,992	*	*	*
Nebraska	1,010,682	*	*	*
Nevada	1,341,786	*	*	*
New Hampshire	813,919	*	*	*
New Jersey	6,705,441	294,690	7,000,131	4
New Mexico	947,809	*	*	*
New York	11,532,265	2,157,618	13,689,883	16
North Carolina	5,036,347	215,390	5,251,737	4
North Dakota	354,945	*	*	*
Ohio	6,944,806	266,235	7,211,041	4
Oklahoma	1,983,984	*	*	*
Oregon	2,119,998	58,699	2,178,697	3
Pennsylvania	8,200,347	671,437	8,871,784	8
Puerto Rico	1,288,076	*	*	*
Rhode Island	639,438	*	*	*
South Carolina	2,173,077	*	*	*
South Dakota	353,073	*	*	*
Tennessee	3,314,966	210,489	3,525,455	6
Texas	12,349,899	1,042,606	13,392,505	8
Utah	1,207,581	79,034	1,286,615	6
Vermont	377,987	*	*	*
Virgin Islands	69,063	0	69,063	0
Virginia	4,184,850	285,015	4,469,865	6
Washington	3,837,744	184,353	4,022,097	5
West Virginia	910,992	*	*	*
Wisconsin	3,239,809	238,306	3,478,115	7
Wyoming	237,588	*	*	*
Nationwide	178,864,907	12,746,924	191,611,831	7

Source: Industry Analysis Division, *Local Telephone Competition: Status as of June 30, 2000*.

Note: Carriers with under 10,000 lines in a state were not required to report.

\* Data withheld to maintain firm confidentiality.

**Table 9.6**  
**Nationwide Local Service Revenues and New Competitors' Share 1/**  
**(Dollar Amounts Shown in Millions)**

	TRS Data				TRS & USF Data		Form 499-A Data
	1993	1994	1995	1996	1997	1998	1999
<b>Number of Local Competitors</b>							
RBOCs & Other Incumbent LECs	1,281	1,347	1,347	1,376	1,410	1,348	1,335
CAPs & CLECs	20	30	57	94	129	212	349
Local Resellers, Shared Tenant, Private Carriers & Other Local	NA	NA	NA	25	18	64	147
All Other Carriers Reporting <u>local Exchange Service Revenues</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>74</u>	<u>109</u>	<u>133</u>	<u>143</u>
<b>Total</b>	<b>1,301</b>	<b>1,377</b>	<b>1,404</b>	<b>1,569</b>	<b>1,666</b>	<b>1,757</b>	<b>1,974</b>
<b>Local Service Revenues 2/</b>							
Incumbent LECs							
Bell Operating Companies 3/	\$58,838	\$61,415	\$65,485	\$70,290	\$68,028	\$69,801	\$76,586
<u>Other Incumbent LECs 3/</u>	<u>20,894</u>	<u>22,507</u>	<u>24,269</u>	<u>24,899</u>	<u>24,960</u>	<u>26,989</u>	<u>26,084</u>
Total 3/	79,732	83,922	89,754	95,189	92,988	96,790	102,670
Local Service Competitors							
CAPs & CLECs	174	269	595	949	1,556	2,393	4,505
Local Resellers, Shared Tenant, Private Carriers & Other Local	NA	NA	NA	NA	224	329	522
All Other Carriers (Local Exchange <u>Service Revenues Only</u> ) 4/	<u>46</u>	<u>32</u>	<u>56</u>	<u>59</u>	<u>381</u>	<u>809</u>	<u>1,319</u>
<b>Total</b>	<b>220</b>	<b>301</b>	<b>651</b>	<b>1,008</b>	<b>2,161</b>	<b>3,530</b>	<b>6,347</b>
<b>Total</b>	<b>\$79,952</b>	<b>\$84,224</b>	<b>\$90,405</b>	<b>\$96,197</b>	<b>\$95,149</b>	<b>\$100,320</b>	<b>\$109,016</b>
<b>Share of Local Service Revenues</b>							
Incumbent LECs							
Bell Operating Companies	73.6%	72.9%	72.4%	73.1%	71.5%	69.6%	70.3%
<u>Other Incumbent LECs</u>	<u>26.1%</u>	<u>26.7%</u>	<u>26.8%</u>	<u>25.9%</u>	<u>26.2%</u>	<u>26.9%</u>	<u>23.9%</u>
Total	99.7%	99.6%	99.3%	99.0%	97.7%	96.5%	94.2%
Local Service Competitors							
CAPs & CLECs	0.2%	0.3%	0.7%	1.0%	1.6%	2.4%	4.1%
Local Resellers, Shared Tenant, Private Carriers & Other Local	NA	NA	NA	NA	0.2%	0.3%	0.5%
<u>All Other Carriers</u>	<u>0.1%</u>	<u>0.0%</u>	<u>0.1%</u>	<u>0.1%</u>	<u>0.4%</u>	<u>0.8%</u>	<u>1.2%</u>
Total	0.3%	0.4%	0.7%	1.0%	2.3%	3.5%	5.8%
<b>Total Telecommunications Revenues (Including Payphone, Mobile &amp; Toll Service)</b>							
Incumbent LECs 3/	\$95,228	\$98,431	\$102,820	\$107,905	\$105,154	\$108,234	\$112,216
Local Competitors	191	274	637	1,012	2,481	4,034	6,508
Ratio of Total Telecommunications Revenues, ILEC to Local Competitor	498 : 1	351 : 1	165 : 1	107 : 1	42 : 1	27 : 1	17 : 1

Source: Data filed on FCC Forms 431, 457 and 499-A worksheets. See also: *Telecommunications Industry Revenues*, September 2000.

NA - Not Available.

- 1/ Some previously published data have been revised. Some breakouts are not available prior to 1997 due to differences in how data were reported.
- 2/ For 1993 through 1996, for most categories of carriers, local service revenues include revenues from the following TRS reporting categories: local exchange, local private line, other local services, interstate access services and intrastate access services. The amounts shown do not include pay telephone, mobile or toll service revenues. See also note 4/ 1998 revenues for carriers that filed TRS worksheets but not universal service worksheets was estimated using 1998 TRS worksheets. These worksheets contain carrier revenue data for calendar year 1997.
- 3/ Incumbent LEC local service revenues for 1996 and prior years include significant amounts of yellow pages, billing and collection and other revenues that were reported as other local service revenues. If these revenues were included in 1997, incumbent LECs would show significant revenue growth from 1996 to 1997. Inside wire maintenance was included in local service revenue in 1997 but not thereafter.
- 4/ Toll carriers typically provide resold special access and private line services as part of toll service operations. Accordingly, the table shows local exchange revenue rather than all local revenue for these carriers.

**Table 9.7**  
**Telephone Numbers Transferred or Ported 1/**  
**(As of August 1, 2000)**

Year	Month	Transferred Between Carriers				Transferred Within Same Carrier		Total Numbers Transferred
		Pooling		Customer Requests and Other Reasons		Ported	Cumulative	
		Ported	Cumulative	Ported	Cumulative			
1997	December	0	0	80	80	0	0	80
1998	January	0	0	202	282	0	0	282
	February	0	0	9	291	0	0	291
	March	12	12	229	520	0	0	532
	April	16	28	503	1,023	0	0	1,051
	May	18	46	1,927	2,950	0	0	2,996
	June	24	70	4,872	7,822	0	0	7,892
	July	491	561	13,830	21,652	761	761	22,974
	August	1,393	1,954	27,446	49,098	2,192	2,953	54,005
	September	1,912	3,866	33,825	82,923	1,000	3,953	90,742
	October	2,897	6,763	92,340	175,263	1,000	4,953	186,979
	November	11,663	18,426	105,541	280,804	0	4,953	304,183
	December	21,249	39,675	140,693	421,497	2,947	7,900	469,072
1999	January	6,586	46,261	146,107	567,604	8,029	15,929	629,794
	February	6,023	52,284	172,942	740,546	3,998	19,927	812,757
	March	7,445	59,729	203,392	943,938	44,025	63,952	1,067,619
	April	8,876	68,605	214,205	1,158,143	56,703	120,655	1,347,403
	May	15,623	84,228	235,533	1,393,676	6,814	127,469	1,605,373
	June	19,360	103,588	281,460	1,675,136	41,843	169,312	1,948,036
	July	12,902	116,490	285,137	1,960,273	14,990	184,302	2,261,065
	August	35,803	152,293	303,987	2,264,260	13,670	197,972	2,614,525
	September	44,709	197,002	325,227	2,589,487	21,916	219,888	3,006,377
	October	40,249	237,251	380,190	2,969,677	18,994	238,882	3,445,810
	November	60,022	297,273	337,068	3,306,745	18,058	256,940	3,860,958
	December	37,307	334,580	408,944	3,715,689	7,000	263,940	4,314,209
2000	January	38,148	372,728	354,726	4,070,415	12,881	276,821	4,719,964
	February	55,256	427,984	407,200	4,477,615	50,352	327,173	5,232,772
	March	58,152	486,136	447,780	4,925,395	31,820	358,993	5,770,524
	April	88,949	575,085	411,542	5,336,937	109,709	468,702	6,380,724
	May	84,283	659,368	444,237	5,781,174	156,975	625,677	7,066,219
	June	116,081	775,449	486,120	6,267,294	65,000	690,677	7,733,420
	July	102,616	878,065	433,565	6,700,859	70,980	761,657	8,340,581

Source: Local Number Portability Administrator (NeuStar, Inc.)

1/ Some telephone numbers are ported to another carrier, and then sent back to the original carrier. During the time the telephone number is ported, the number will be included in this table. When the number is sent back to the original carrier, it will no longer be included in this table.

**Table 9.7**  
**Telephone Numbers Transferred or Ported 1/ -- Continued**  
**(As of January 1, 2000)**

Year	Month	Transferred Between Carriers				Transferred Within Same Carrier		Total Numbers Transferred
		Pooling		Customer Requests and Other Reasons		Numbers Ported	Cumulative	
		Numbers Ported	Cumulative	Numbers Ported	Cumulative			
1997	December	0	0	80	80	0	0	80
1998	January	0	0	202	282	0	0	282
	February	0	0	11	293	0	0	293
	March	13	13	231	524	0	0	537
	April	16	29	547	1,071	0	0	1,100
	May	20	49	1,975	3,046	0	0	3,095
	June	27	76	5,257	8,303	0	0	8,379
	July	616	692	14,494	22,797	761	761	24,250
	August	1,723	2,415	29,918	52,715	2,192	2,953	58,083
	September	2,209	4,624	36,011	88,726	1,000	3,953	97,303
	October	3,462	8,086	100,992	189,718	1,000	4,953	202,757
	November	12,467	20,553	108,952	298,670	0	4,953	324,176
	December	21,736	42,289	147,071	445,741	2,947	7,900	495,930
1999	January	7,038	49,327	158,256	603,997	8,041	15,941	669,265
	February	6,614	55,941	180,952	784,949	4,000	19,941	860,831
	March	8,236	64,177	214,692	999,641	44,599	64,540	1,128,358
	April	10,078	74,255	225,649	1,225,290	58,743	123,283	1,422,828
	May	16,428	90,683	246,746	1,472,036	6,862	130,145	1,692,864
	June	21,850	112,533	298,309	1,770,345	41,914	172,059	2,054,937
	July	19,369	131,902	296,385	2,066,730	15,002	187,061	2,385,693
	August	38,539	170,441	318,941	2,385,671	13,811	200,872	2,756,984
	September	48,739	219,180	341,902	2,727,573	21,997	222,869	3,169,622
	October	47,161	266,341	397,897	3,125,470	18,999	241,868	3,633,679
	November	67,299	333,640	352,942	3,478,412	18,999	260,867	4,072,919
	December	40,936	374,576	430,141	3,908,553	7,000	267,867	4,550,996

Source: Local Number Portability Administrator (NeuStar, Inc.)

1/ Some telephone numbers are ported to another carrier, and then sent back to the original carrier. During the time the telephone number is ported, the number will be included in this table. When the number is sent back to the original carrier, it will no longer be included in this table.

**Table 9.8**  
**Churn in Telephone Numbers Transferred at Customer Request or for Other Reasons<sup>1</sup>**

<b>Year</b>	<b>Month</b>	<b>Numbers Still Ported on January 1, 2000</b>	<b>Numbers Still Ported on August 1, 2000</b>	<b>Difference</b>	<b>7 Month Churn Rate (%)</b>	<b>Annualized Churn Rate<sup>2</sup> (%)</b>
1997	December	80	80	0	0.0%	0.0%
1998	January	202	202	0	0.0	0.0
	February	11	9	2	18.2	31.2
	March	231	229	2	0.9	1.5
	April	547	503	44	8.0	13.8
	May	1,975	1,927	48	2.4	4.2
	June	5,257	4,872	385	7.3	12.6
	July	14,494	13,830	664	4.6	7.9
	August	29,918	27,446	2,472	8.3	14.2
	September	36,011	33,825	2,186	6.1	10.4
	October	100,992	92,340	8,652	8.6	14.7
	November	108,952	105,541	3,411	3.1	5.4
	December	147,071	140,693	6,378	4.3	7.4
1999	January	158,256	146,107	12,149	7.7	13.2
	February	180,952	172,942	8,010	4.4	7.6
	March	214,692	203,392	11,300	5.3	9.0
	April	225,649	214,205	11,444	5.1	8.7
	May	246,746	235,533	11,213	4.5	7.8
	June	298,309	281,460	16,849	5.6	9.7
	July	296,385	285,137	11,248	3.8	6.5
	August	318,941	303,987	14,954	4.7	8.0
	September	341,902	325,227	16,675	4.9	8.4
	October	397,897	380,190	17,707	4.5	7.6
	November	352,942	337,068	15,874	4.5	7.7
	December	430,141	408,944	21,197	4.9	8.4

Source: Local Number Portability Administrator (NeuStar, Inc.) and the FCC.

<sup>1</sup> This table shows the number of telephone numbers that had been transferred between carriers for reasons other than pooling (e.g. customer requests and other reasons), but were either ported back to the original carrier or to yet another carrier between January 1, 2000, and August 1, 2000.

<sup>2</sup> The annualized churn rate is calculated as twelve sevenths of the 7 month churn rate.

## 10 Long Distance Telephone Industry

Until the 1970s, AT&T had a virtual monopoly on long distance service in the United States. In the 1970s, competitors such as MCI and Sprint began also to offer long distance service. With the gradual emergence of competition, basic rates dropped, calling surged, and AT&T's dominance declined.

More than 700 companies now offer long distance service. These carriers remain subject to the Commission's jurisdiction. The Commission, however, has chosen to rely on competition rather than regulation as much as possible. Thus, the Commission forbears from regulating most aspects of long distance service. Nevertheless, the Commission continues to monitor the long distance market, in part because the market for toll services remains more highly concentrated than many industries.

### 1. Toll Revenues:

In 1999, long distance carriers generated over \$99 billion in toll revenues. Local telephone companies also provide toll service, primarily intrastate calls, and usually within their local service territories. In 1999, local telephone companies provided about \$9 billion of toll service. When combined, the total long distance market was more than \$108 billion. These revenues are shown in Table 10.1.

Toll calls can be divided into three jurisdictional categories—intrastate calls, domestic interstate calls, and international calls. The revenues for each of the three types are shown in Table 10.2. Of considerable interest is the enormous growth (more than 500%) in international revenues from 1984 to 1999.

Toll revenues can also be divided between residential and nonresidential services, as in Table 10.3. In 1999, residential customers generated about 42% of toll revenues.

### 2. Number of Companies:

The number and types of carriers reporting long distance revenues are shown in Table 10.4. The Telecommunications Reporting Worksheet (Form 499-A) requires each filer to select one of 18 categories as best describing its primary line of business. Six of these categories consist of carriers that are primarily engaged in providing long distance service and are collectively described as being toll carriers: interexchange carriers (IXCs), operator service providers (OSPs), other toll service providers, prepaid calling card providers, satellite service providers, and toll resellers.

In 1999, 655 filers identified their primary activity as a toll carrier and 1,777 other carriers reported long distance revenues even though the provision of long distance service is not their primary line of business.

Carrier identification codes (CICs) 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.

CICs are currently assigned by the North American Numbering Plan Administration (NANPA), which is part of Neustar, Inc. Further information on such codes can be found on the Internet at <http://www.nanpa.com>.

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 10.5.

During the late 1980s and 1990s, alternative sources for developing counts of long distance carriers became available. Starting in 1987, information on the number of telephone lines presubscribed to each long distance carrier was collected by NECA because FCC rules required NECA to recover certain expenses from the larger long distance carriers. Pursuant to the 1996 Act, the FCC changed its rules on universal service, and as a result, NECA stopped collecting this information. Information for December 1996 is the last presubscribed line data collected by NECA. Table 10.6 shows several alternative measures of long distance carrier development.

### 3. Long Distance Market Shares:

A generation ago, when the Bell System was still intact, AT&T's local telephone companies provided most local service. At that time, there were no good means of segregating true economic costs of local and long distance services of AT&T's integrated network. At the beginning of 1984, however, AT&T's local operating companies were divested in the settlement of an antitrust case.

After the AT&T divestiture, AT&T's former operating companies were restricted to providing service within their own local access and transport areas (LATAs). Thus, they were precluded from offering toll service that crossed the boundaries of their service territories. As a result, two separate and distinct toll markets emerged.

At first, AT&T competed with small but rapidly growing competitors for calls that crossed LATA boundaries. This market included almost all interstate and international calls. It also included most intrastate toll calls as well. A second and much smaller market consisted of short distance toll calls that did not cross LATA boundaries. This second, intraLATA market was dominated, at least initially, by the local exchange carriers operating within their own service territories.

Over time, the distinctions between the two markets have blurred as customers can now select among competing carriers for their intraLATA calls. In addition, the restrictions preventing AT&T's former affiliates from providing interLATA service are being reduced as well.

Long-term trends in toll revenues are shown in Table 10.7. Over time, AT&T and the operating companies that previously monopolized telephone service have lost market share to new entrants. By 1999, carriers not even in existence a generation ago accounted for more than half of all long distance telephone toll revenues.

Table 10.8 shows market share information based on the revenues of those firms identified as primarily being long distance carriers. AT&T's 1984 toll revenues were about 90% of those reported by all long distance carriers. By 1999, AT&T's revenues had declined to 41% of those reported by all long distance carriers and since 1995, AT&T is no longer regulated as a "dominant" carrier.

Table 10.9 shows market share information based on all toll revenues, including the long distance services provided by local exchange carriers. This broader classification increasingly becomes the relevant classification of the market as these carriers increase their participation in a nationwide market. By any measure, the long-term trends have shown increasing competition and decreasing concentration.

#### 4. Residential Toll Revenues:

Bill harvesting data collected by TNS Telecoms (TNS) provides information on market shares in the long distance residential market, as opposed to the overall market for toll service. The bill harvesting data also provide information on the market shares of long distance carriers by state. Section 15 gives further information on TNS and the bill harvesting data. Table 10.10, which is based on this information, presents nationwide market shares of access lines, residential toll revenue and direct dial minutes from 1995 to 1999. In addition, Table 10.11 presents market shares of residential direct-dial minutes by state for 1999. These tables present long distance market shares for AT&T, MCI WorldCom, and Sprint.



**Table 10.1**  
**Toll Service Revenues by Carrier**  
(Dollar Amounts Shown in Millions)

Company	1999	1998	1997	1996	1995	1994	1993	1992
AT&T Companies 1/ AT&T Communications, Inc.	\$39,936	\$40,551	\$39,470	\$39,264	\$38,069	\$37,166	\$35,731	\$35,495
Alascom, Inc.					325	329	320	333
Teleport Communications Group, Inc.	284			118				
ACC Long Distance Corp.		123	122					
MCI WorldCom Companies 2/ 3/ MCI WorldCom, Inc.	23,431	22,192	17,150	16,372	14,617	11,715	10,947	9,719
MCI Telecommunications Corp.								
Telecom*USA								
WorldCom, Inc.			5,897	4,485	3,640	2,221	1,145	801
Advanced Telecommunications Corp.								
Metromedia Communications Corp.							297	369
ITT Communication Services, Inc.								
Comsystems Network Services							116	135
Wiltel, Inc.						917	664	494
MFS Intelenet, Inc.				122	118			
Sprint Companies 4/ 5/ Sprint Communications Co.	9,708	7,994	8,595	7,944	7,277	6,805	6,139	5,658
GTE Sprint								
US Telecom								
Owest Companies 6/ LCI Int'l Telecom Corp. d/b/a Owest Comm. Svcs.	1,394	1,664	1,001	1,103	671	453	317	243
Owest Communications Corp.	517	320						
USLD Communications, Inc.	216	279	241	188	155	136	100	
Teleglobe Companies 7/ Teleglobe USA, Inc.	557	275						
Excel Telecommunications, Inc.	942	1,219	1,179	1,091	363	156		
Long Distance Wholesale Club	131	121	176					
Teleglobe Business Solutions, Inc.	260	264	379	429	215			
Global Crossing Companies 8/ Global Crossing Telecom Services, Inc.	874	874	775	1,119	827	568	436	376
Lexitel								
Global Crossing Bandwidth, Inc.	692	539	324		127	144		
Global Crossing North American Networks, Inc.			223		309	306	213	168
Frontier Comm. - North Central Region, Inc.					121	123		
Star Companies Star Telecommunications, Inc. 9/ PT-1 Communications, Inc.	443	401	253	140				
Cable & Wireless USA, Inc.	482	494	358	117				
IDT Corporation	913	953	1,066	919	700	654	557	495
GTE Communications Corp.	850	376						
VarTec Telecom, Inc.	834	607	340					
Pacific Gateway Exchange	819	836	820	470	125	107		
Viatel Companies Viatel, Inc.	680	466	299	162				
Viatel Services, Inc.	333							
Broadwing Companies 10/ Broadwing Communications Services, Inc.	324							
Broadwing Telecommunications, Inc.	453	724	258					
Intermedia Communications, Inc.	150							
RSL Companies 11/ RSL Communications, Ltd.	516	380						
RSL COM USA, Inc.			192					
RSL COM Primecall, Inc.	270	171						
Westinghouse Communications	160	130						
Talk.com Holding Corp.		127						
Comm. TeleSystems Int'l d/b/a Worldxchange Comm.	398	426	305	232	180			
NOS Companies NOS Communications, Inc.	374	308	345	196	115			
NOSVA Limited Partnership	122	138						
Startec Global Operating Company	191							
Business Telecom, Inc. 12/ Primus Companies 13/ Primus Telecommunications, Inc.	261	160						
Trescom International, Inc.	260	212	195	149	115			
Telegroup, Inc.	240	176						
McLeodUSA Telecommunications			158	140	129			
Facilicom International	232	384	337	213				
UniDial Communications, Inc.	202	164						
SNET America, Inc.	189	180						
Williams Communications, Inc.	186	162	142					
General Communication, Inc. 14/ ITC/Deltacom Communications, Inc.	184	126	227					
Network Plus, Inc.	172	122	158	143	120	106	92	
Working Assets Funding Service, Inc.	153							
Total-Tel USA Communications, Inc.	140	131						
New Global Telecom, Inc.	140	137	123					
Americatel Corporation	134							
ALLTEL Communications, Inc.	129							
Others 15/	120							
<b>Total Long Distance Carriers</b>	<b>98,788</b>	<b>94,396</b>	<b>90,028</b>	<b>82,113</b>	<b>74,143</b>	<b>67,351</b>	<b>61,533</b>	<b>58,368</b>
Bell Operating Companies	6,182	6,857	7,138	7,950	8,189	9,527	9,849	9,718
Other Incumbent Local Telephone Cos. 15/ CAPs, CLECs, & Other Local Telephone Cos. 15/	1,864	2,572	3,077	3,298	3,143	3,848	3,908	3,897
	1,412	1,230	550					
<b>Total Local Exchange Carriers</b>	<b>9,458</b>	<b>10,659</b>	<b>10,765</b>	<b>11,248</b>	<b>11,332</b>	<b>13,375</b>	<b>13,757</b>	<b>13,615</b>
<b>Total Toll Service Revenues</b>	<b>\$108,246</b>	<b>\$105,055</b>	<b>\$100,793</b>	<b>\$93,361</b>	<b>\$85,475</b>	<b>\$80,726</b>	<b>\$75,290</b>	<b>\$71,983</b>

See notes following Table 10.1

**Table 10.1**  
**Toll Service Revenues by Carrier - Continued**  
(Dollar Amounts Shown in Thousands)

Company	1991	1990	1989	1988	1987	1986	1985	1984
AT&T Companies 1/ AT&T Communications, Inc.	\$34,384	\$33,880	\$34,549	\$35,407	\$35,219	\$36,514	\$36,770	\$34,935
Alascom, Inc.	338	259	278	272	262	267	271	255
Teleport Communications Group, Inc. ACC Long Distance Corp.								
MCI WorldCom Companies 2/ 3/ MCI WorldCom, Inc.								
MCI Telecommunications Corp. Telecom*USA	8,266	7,392	6,171	4,886	3,938	3,372	2,331	1,761
WorldCom, Inc.			713	524	396	291	201	105
Advanced Telecommunications Corp. Metromedia Communications Corp.	263	154	110	178	162	124	86	72
ITT Communication Services, Inc. Comsystems Network Services	356	342	326	379	287	282	241	161
Witel, Inc. MFS Intelenet, Inc.	369	381	404					
Sprint Companies 4/ 5/ Sprint Communications Co.	131	130	300					
GTE Sprint US Telecom	405	376						
Owest Companies 6/ LCI Int'l Telecom Corp. d/b/a Owest Comm. Svcs.	5,378	5,041	4,320	3,405	2,592	1,141		
Owest Communications Corp. USLD Communications, Inc.			197			779	1,122	1,052
Teleglobe Companies 7/ Teleglobe USA, Inc.	208	215				212	387	
Excel Telecommunications, Inc. Long Distance Wholesale Club Teleglobe Business Solutions, Inc.								
Global Crossing Companies 8/ Global Crossing Telecom Services, Inc.	347	326	334	394	395	450	309	127
Lexitel Global Crossing Bandwidth, Inc.								
Global Crossing North American Networks, Inc. Frontier Comm. - North Central Region, Inc.	155	142	104					
Star Companies Star Telecommunications, Inc. 9/ PT-1 Communications, Inc.								
Cable & Wireless USA, Inc. IDT Corporation	406	359	275	218	180	171	146	
GTE Communications Corp. VarTec Telecom, Inc. Pacific Gateway Exchange Viatel Companies Viatel, Inc. Viatel Services, Inc.								
Broadwing Companies 10/ Broadwing Communications Services, Inc. Broadwing Telecommunications, Inc.								
Intermedia Communications, Inc. RSL Companies 11/ RSL Communications, Ltd. RSL COM USA, Inc. RSL COM Primecall, Inc. Westinghouse Communications								
Talk.com Holding Corp. Comm. TeleSystems Int'l d/b/a Worldxchange Comm.								
NOS Companies NOS Communications, Inc. NOSVA Limited Partnership								
Startec Global Operating Company Business Telecom, Inc. 12/ Primus Companies 13/ Primus Telecommunications, Inc. Trescom International, Inc. Telegroup, Inc.								
McLeodUSA Telecommunications Facilicom International UniDial Communications, Inc. SNET America, Inc. Williams Communications, Inc. General Communication, Inc. 14/ ITC/Deltacom Communications, Inc. Network Plus, Inc. Working Assets Funding Service, Inc. Total-Tel USA Communications, Inc. New Global Telecom, Inc. Americatel Corporation ALLTEL Communications, Inc.								
Others 15/	3,437	3,105	2,976	1,823	1,352	992	639	414
<b>Total Long Distance Carriers</b>	<b>54,443</b>	<b>52,102</b>	<b>51,184</b>	<b>47,487</b>	<b>44,783</b>	<b>44,595</b>	<b>42,630</b>	<b>38,755</b>
Bell Operating Companies Other Incumbent Local Telephone Cos. 15/ CAPs, CLECs, & Other Local Telephone Cos. 15/	10,066	10,578	10,549	10,668	10,268	9,599	9,026	9,037
	4,049	4,112	4,291	4,445	3,468	3,274	3,159	3,364
<b>Total Local Exchange Carriers</b>	<b>14,115</b>	<b>14,690</b>	<b>14,840</b>	<b>15,113</b>	<b>13,736</b>	<b>12,873</b>	<b>12,185</b>	<b>12,401</b>
<b>Total Toll Service Revenues</b>	<b>\$68,558</b>	<b>\$66,792</b>	<b>\$66,024</b>	<b>\$62,600</b>	<b>\$58,519</b>	<b>\$57,468</b>	<b>\$54,815</b>	<b>\$51,156</b>

See notes following Table 10.1

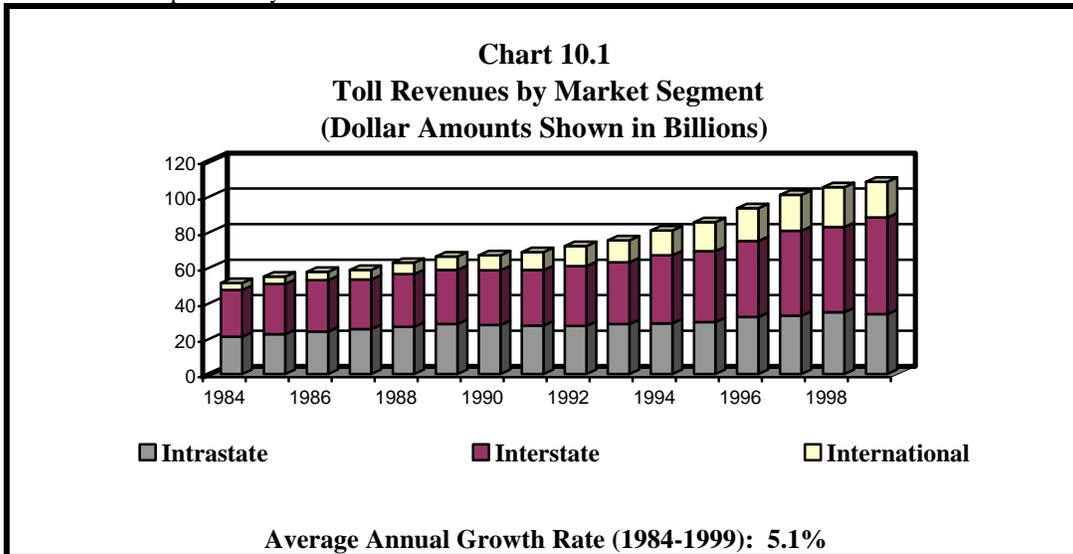
### Notes to Table 10.1 - Total Toll Service Revenues

- 1/ ACC Long Distance Corp. and Teleport Communications Group merged in April of 1998, and the combined company, Teleport Communications Group merged with AT&T Communications, Inc., in July of that year. AT&T Communications acquired Alascom, Inc., August 7, 1995 and began filing a consolidated revenue statement in 1996.
- 2/ MCI WorldCom's revenues were revised for 1998 to exclude enhanced services and to be consistent with revenues reported for 1999.
- 3/ WorldCom, Inc. completed a merger with MCI Communications Corp. in September of 1998 and filed 1998 revenue figures for the combined company, MCI WorldCom, Inc. MCI Communications Corp. and Telecom\*USA merged during 1989 and began reporting consolidated revenues in 1990. Metromedia Communications Corp. and ITT Communications Services, Inc., merged during 1988, but reported 1989 revenue separately. LDDS Communications, Inc., and Advanced Telecommunications Corp. merged in 1992. In 1993, LDDS merged with Metromedia Communications Corp. and Comsystems Network Services. For 1993, only the revenues that were received after the merger are included in LDDS's revenues; those preceding the merger are listed individually. LDDS and Wiltel merged January 5, 1995. In May 1995, LDDS changed its name to WorldCom, Inc. WorldCom acquired MFS Intelenet December 31, 1996.
- 4/ Sprint's revenues were revised for 1998 to exclude enhanced services and to be consistent with revenues reported for 1999.
- 5/ In July 1986, GTE Sprint and US Telecom merged into US Sprint. The information shown for GTE Sprint and US Telecom for 1986 is for January 1 - June 30. The information shown for Sprint Communications Corp. (then US Sprint) for 1986 is for July 1 - December 31. United Telecommunications, Inc., then majority owner of US Sprint, purchased the remaining interest from GTE in July of 1992. Effective February 16, 1992, the company's name became Sprint Communications Co.
- 6/ LCI International Telecom Corp. and USLD Communications, Inc., merged in December of 1997 and filed separate revenue statements for the year. Qwest Communications Corp. merged with LCI and USLD Communications, Inc., in June of 1998, and each of the three affiliated companies filed a separate revenue statement for 1998.
- 7/ Teleglobe Business Solutions was formerly known as Telco Holdings, Inc. Teleglobe USA, Inc., merged with Excel Telecommunications, Inc., and its affiliate in November of 1998. Excel Telecommunications, Inc. acquired Telco Holdings, Inc. in October of 1997.
- 8/ Global Crossing Ltd. acquired Frontier Corporation September 28, 1999. In 1994, RCI Long Distance, Inc., changed its name to Frontier Corporation.
- 9/ Star Telecommunications' s revenues for 1996 - 1998 have been prorated to reflect the decrease in in revised revenues reported for 1999.
- 10/ Cincinnati Bell Inc., merged with IXC Communications, Inc., on November 9, 1999 and soon began doing business as Broadwing, Inc.
- 11/ RSL COM USA bought Westinghouse Communications in August 1998.
- 12/ Data for 1996 taken from company's annual report to the Colorado Public Utilities Commission, which regulations telecommunications carriers pursuant to §40-15-301 C.R.S.
- 13/ Primus Telecommunications, Inc. acquired TresCom International, Inc., in 1998.
- 14/ For 1999, revenues exclude \$61 million from cable television operations.
- 15/ Estimated by FCC staff.

**Table 10.2**  
**Intrastate, Interstate, and International Toll Revenues**  
**(Dollar Amounts Shown in Millions)**

Year	Toll Revenues			Total Toll Revenues	As Percentage of Total Toll Revenues		
	Domestic				Domestic		
	Intrastate	Interstate	International		Intrastate	Interstate	International
1984	\$20,872	\$26,490	\$3,794	\$51,156	40.8 %	51.8 %	7.4 %
1985	22,310	28,387	4,119	54,815	40.7	51.8	7.5
1986	23,734	29,123	4,611	57,468	41.3	50.7	8.0
1987	25,339	27,844	5,336	58,519	43.3	47.6	9.1
1988	26,542	29,724	6,334	62,600	42.4	47.5	10.1
1989	28,060	30,585	7,379	66,024	42.5	46.3	11.2
1990	27,652	30,676	8,464	66,792	41.4	45.9	12.7
1991	27,149	31,331	10,078	68,558	39.6	45.7	14.7
1992	27,066	33,719	11,199	71,983	37.6	46.8	15.6
1993	28,158	34,661	12,470	75,290	37.4	46.0	16.6
1994	28,496	38,262	13,968	80,726	35.3	47.4	17.3
1995	29,147	39,903	16,425	85,475	34.1	46.7	19.2
1996	32,023	42,823	18,515	93,361	34.3	45.9	19.8
1997	32,859	47,716	20,218	100,793	32.6	47.3	20.1
1998	34,699	48,100	22,256	105,055	33.0	45.8	21.2
1999 1/	33,600	54,556	20,090	108,246	31.0	50.4	18.6

1/ 1999 data are preliminary.

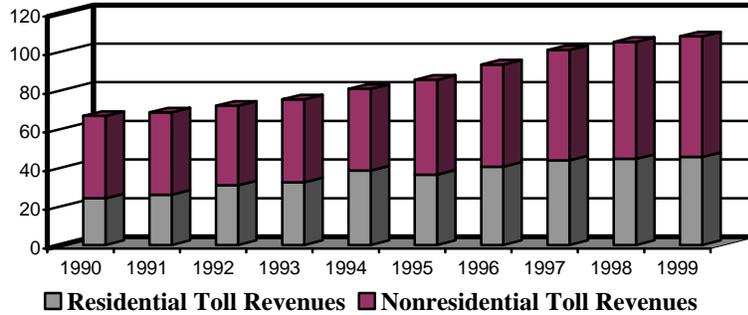


**Table 10.3**  
**Residential and Nonresidential Toll Revenues**  
**(Dollar Amounts Shown in Millions)**

Year	Toll Revenues		Total Toll Revenues	As Percentage of Total Toll Revenues	
	Residential	Nonresidential		Residential	Nonresidential
1990	\$24,089	\$42,703	\$66,792	36.1 %	63.9 %
1991	26,028	42,530	68,558	38.0	62.0
1992	30,816	41,167	71,983	42.8	57.2
1993	32,408	42,882	75,290	43.0	57.0
1994	38,526	42,200	80,726	47.7	52.3
1995	36,361	49,114	85,475	42.5	57.5
1996	40,461	52,900	93,361	43.3	56.7
###	43,754	57,039	100,793	43.4	56.6
###	44,543	60,512	105,055	42.4	57.6
### 1/	45,896	62,350	108,246	42.4	57.6

1/ 1999 residential/nonresidential breakdown projected from 1998 data.

**Chart 10.2**  
**Residential and Nonresidential Toll Revenues**  
**(Dollar Amounts Shown in Billions)**



**Residential Average Annual Growth Rate (1990-1999): 7.4%**  
**Nonresidential Average Annual Growth Rate (1990-1999): 3.9%**

**Table 10.4**  
**Number of Toll Carriers**

	TRS Data				TRS & USF Data		Form 499-A Data
	1993	1994	1995	1996	1997	1998	1999
Carriers That Provide Toll Service							
Toll Carriers							
Interexchange Carriers (IXCs)	83	97	130	149	151	171	204
Other Toll Carriers							
Operator Service Providers (OSPs)	35	29	25	27	32	24	21
Pre-paid Calling Card Providers	NA	NA	8	16	18	20	21
Satellite Service Carriers	NA	NA	NA	22	13	13	21
Toll Resellers	171	206	260	345	340	388	457
<u>Other Toll Carriers</u>	<u>32</u>	<u>34</u>	<u>30</u>	<u>28</u>	<u>15</u>	<u>31</u>	<u>17</u>
Total Toll Carriers	321	366	453	587	569	647	741
Fixed Local Service, Payphone and Mobile Service Carriers Reporting Toll Service Revenues	NA	NA	NA	NA	1,537	1,740	1,870
Total	NA	NA	NA	NA	2,106	2,387	2,611

Source: Data filed in response to CFR §43.21(c) and data filed on FCC Forms 431, 457 and 499-A worksheets. See also Industry Analysis Division, *Telecommunications Industry Revenues*, September 2000, and *Carrier Locator: Interstate Service Providers*, October 2000.

Note: Some previously published data have been revised.

NA - Not Available.

**Table 10.5**

**Number of Carrier Identification Codes (CICs)  
Assigned by  
North American Numbering Plan Administrator**

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 1/		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			

Year	Quarter	FGB	FGD
1993	First Quarter	694 2/	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 3/
	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
	Fourth Quarter	909	1,538
1998	First Quarter	943	1,557
	Second Quarter	937	1,614
	Third Quarter	943	1,671
	Fourth Quarter	952	1,721
1999	First Quarter	949	1,842
	Second Quarter	953	1,909
	Third Quarter	954	1,980
	Fourth Quarter	956	2,032

1/ Conversion from 2-digit to 3-digit codes.

2/ Conversion from 3-digit to 4-digit codes.

3/ Includes both 3-digit and 4-digit codes.

**Table 10.6**

**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 Worksheets 2/
1986	March	*	169	231	*	*
	June	*	183	276	*	*
	September	*	190	302	506	*
	December	*	210	334	533	*
1987	March	*	211	360	561	*
	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	*	*	*	587
1997	December 3/	*	*	*	*	569
1998	December	*	*	*	*	647
1999	December	*	*	*	*	738

\* 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 toll resellers.

3/ The number of carriers with presubscribed lines is no longer available. The only measure available after December 1996 is the number of carriers filing TRS annual worksheets. One company that had filed about fifty separate worksheets in 1996 filed only one consolidated worksheet for 1997. Starting in 1997, the measure used is the number of filers submitting Telecommunications Reporting Worksheets (FCC Form 499-A).

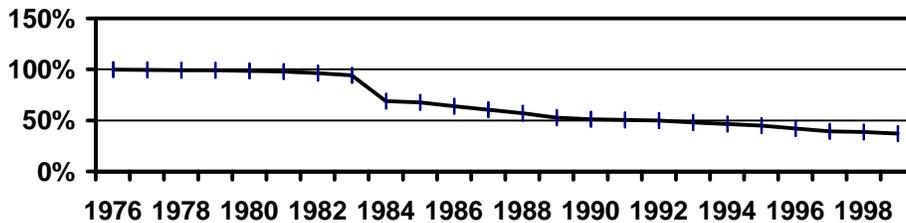
**Table 10.7**  
**Toll Revenues of AT&T, ILECs and Other Toll Service Providers**  
**(Dollar Amounts Shown in Millions)**

Year	Long Distance Carriers		Local Exchange Carriers		Total Industry Toll Revenues
	AT&T 1/ 2/	Other Long Distance Carriers	Incumbent Local Exchange Carriers	Competitive Local Exchange Carriers	
1976	\$19,800	\$67			\$19,867
1977	22,429	146			22,575
1978	25,891	188			26,079
1979	29,262	289			29,551
1980	32,855	480			33,335
1981	38,309	871			39,180
1982	42,332	1,587			43,919
1983	44,298	2,672			46,970
1984	35,190	3,565	\$12,401		51,156
1985	37,041	5,589	12,185		54,815
1986	36,782	7,813	12,873		57,468
1987	35,481	9,302	13,736		58,519
1988	35,679	11,807	15,113		62,600
1989	34,827	16,160	14,840		66,024
1990	34,139	17,748	14,690		66,792
1991	34,722	19,513	14,115		68,558
1992	35,828	22,297	13,615		71,983
1993	36,051	24,660	13,757		75,290
1994	37,495	29,856	13,375		80,726
1995	38,394	35,749	11,332		85,475
1996	39,382	42,769	11,248		93,361
1997	39,592	50,558	10,215	\$550	100,793
1998	40,674	53,722	9,429	1,230	105,055
1999	40,220	58,568	8,046	1,412	108,246

1/ AT&T's revenues include the long distance revenues of Alascom (acquired in 1995) and Teleport Communications Group (including ACC Long Distance Corporation) which merged with AT&T in July of 1998.

2/ Prior to 1984, AT&T and Alascom toll revenues include local exchange carrier toll revenues, which were not reported separately to the FCC.

**Chart 10.3**  
**AT&T's Share of Toll Revenues**



**Table 10.8**  
**Total Toll Service Revenues: Long Distance Carriers Only 1/**

<b>Year</b>	<b>AT&amp;T</b>	<b>MCI WorldCom</b>	<b>Sprint</b>	<b>All Other Long Distance Carriers</b>
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	12.3	8.4	11.8
1990	65.0	14.5	9.7	10.8
1991	63.2	15.6	9.9	11.3
1992	60.8	18.1	9.7	11.5
1993	58.1	19.7	10.0	12.3
1994	55.2	20.7	10.1	14.0
1995	51.8	24.6	9.8	13.8
1996	47.9	25.4	9.7	17.0
1997	43.8	25.7	9.5	19.8
1998	43.1	23.5	8.5	24.9
1999	40.7	23.7	9.8	25.7

1/ Excludes independent local exchange carriers and competitive local exchange carriers.

**Table 10.9**  
**Total Toll Service Revenues: All Long Distance Toll Providers 1/**

<b>Year</b>	<b>AT&amp;T</b>	<b>MCI WorldCom</b>	<b>Sprint</b>	<b>All Other Long Distance Carriers</b>	<b>Bell Operating Companies</b>	<b>Other Local Telephone Companies</b>
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	9.5	6.5	9.1	16.0	6.5
1990	50.7	11.3	7.5	8.4	15.8	6.2
1991	50.2	12.5	7.8	9.0	14.7	5.9
1992	49.3	14.6	7.9	9.3	13.5	5.4
1993	47.5	16.0	8.2	10.1	13.1	5.2
1994	46.0	17.3	8.4	11.7	11.8	4.8
1995	44.9	21.4	8.5	12.0	9.6	3.7
1996	42.1	22.4	8.5	15.0	8.5	3.5
1997	39.2	22.9	8.5	18.8	7.1	3.6
1998	38.7	21.1	7.6	22.4	6.5	3.6
1999	37.2	21.6	9.0	23.5	5.7	3.0

1/ Includes independent local exchange carriers and competitive local exchange carriers.

**Table 10.10**  
**Residential Market Share: 1995 - 1999**

	<b>AT&amp;T</b>	<b>MCI WorldCom 1/</b>	<b>Sprint</b>	<b>Other</b>
<b>Access Lines 2/</b>				
1995	74.6 %	13.0 %	4.2 %	8.2 %
1996	69.9	14.1	5.0	11.0
1997	67.2	13.2	5.7	13.8
1998	62.6	15.1	5.7	16.6
1999	62.5	16.0	6.2	15.4
<b>Toll Revenues</b>				
1995	68.5 %	14.6 %	5.6 %	11.3 %
1996	63.3	16.0	6.6	14.1
1997	61.1	16.6	5.6	16.7
1998	58.3	18.4	5.7	17.6
1999	56.1	21.6	6.2	16.1
<b>Direct-Dial Minutes</b>				
1995	69.5 %	16.1 %	5.8 %	8.6 %
1996	62.5	15.9	7.1	14.5
1997	62.4	14.9	6.5	16.2
1998	58.4	17.0	6.5	18.1
1999	53.2	20.9	6.6	19.3

Source: Calculated by IAD staff with data provided by TNS Telecoms (formerly PNR and Associates), *Telecoms Market MonitorTM*.

Note: Market shares for past years have been revised to take into account mergers and acquisitions and changes in methodology.

1/ In 1995 for MCI only. In 1996, includes MCI and LDDS.

2/ In 1995, 1996 and 1999, TNS Telecoms defined the household's primary long distance carrier. In 1997, a household's primary long distance carrier was determined based on calls made through long distance carriers, and in 1998, a household's primary long distance carrier was determined based on interLATA calls.

**Table 10.11**  
**Market Shares of Residential Direct Dial-Minutes by State: 1999 1/**

	AT&T	MCI WorldCom	Sprint	Other	Minutes 2/
Alabama	55.0 %	27.6 %	3.1 %	14.2 %	40,262
Arizona	56.3	13.7	8.9	21.1	46,349
Arkansas	61.1	10.2	9.7	19.0	22,415
California	47.5	22.3	7.2	23.0	234,299
Colorado	48.3	26.9	4.7	20.1	32,515
Connecticut	37.7	15.4	4.6	42.2	20,635
Delaware	54.5	27.2	0.6	17.7	5,240
District of Columbia	14.7	31.9	14.3	39.1	3,357
Florida	56.6	19.7	8.5	15.2	177,347
Georgia	59.2	20.2	6.7	13.8	62,934
Idaho	47.6	21.9	1.9	28.6	9,416
Illinois	57.4	17.9	4.0	20.7	88,251
Indiana	51.7	21.9	10.4	16.0	43,339
Iowa	47.0	27.5	3.3	22.2	32,687
Kansas	59.3	5.0	7.9	27.8	19,350
Kentucky	50.8	21.3	1.8	26.1	32,412
Louisiana	61.2	19.9	2.9	16.0	28,922
Maine	70.7	19.6	4.0	5.7	6,963
Maryland	53.1	20.7	9.1	17.1	49,389
Massachusetts	56.8	25.6	3.3	14.3	36,519
Michigan	57.5	17.9	6.8	17.8	62,187
Minnesota	49.3	24.4	4.5	21.8	68,411
Mississippi	53.2	33.2	2.7	10.9	16,298
Missouri	54.9	16.6	9.2	19.3	37,674
Montana	44.4	19.9	5.6	30.0	10,402
Nebraska	56.3	19.7	2.8	21.2	15,979
Nevada	46.7	13.1	7.8	32.4	19,573
New Hampshire	61.4	11.2	5.4	22.0	8,211
New Jersey	62.3	17.4	3.2	17.0	80,164
New Mexico	40.6	26.8	8.0	24.6	11,638
New York	58.0	22.3	4.4	15.3	139,423
North Carolina	53.7	18.9	12.0	15.5	75,385
North Dakota	39.9	28.2	3.2	28.7	7,438
Ohio	55.8	23.5	7.2	13.4	97,804
Oklahoma	45.8	14.9	15.9	23.3	32,545
Oregon	60.3	12.3	3.7	23.6	32,706
Pennsylvania	52.8	23.0	5.2	19.0	105,628
Rhode Island	53.5	21.2	12.9	12.4	4,210
South Carolina	53.8	20.3	6.4	19.5	33,056
South Dakota	46.0	24.2	2.6	27.1	7,727
Tennessee	58.6	19.4	5.9	16.1	49,391
Texas	44.3	19.0	11.9	24.9	127,652
Utah	49.8	22.1	6.7	21.4	14,397
Vermont	67.6	21.4	0.6	10.4	4,575
Virginia	49.2	26.2	7.3	17.3	81,643
Washington	52.6	20.4	5.8	21.2	40,838
West Virginia	50.2	21.3	5.5	22.9	20,727
Wisconsin	54.5	22.8	3.5	19.2	64,499
Wyoming	31.8	49.2	0.0	18.9	8,048
Total	53.2	20.9	6.6	19.3	2,270,828

Calculated by IAD staff with data provided by TNS Telecoms (formerly PNR and Associates), *Telecoms Market Monitor*<sup>TM</sup> .

1/ Based on interLATA toll calls.

2/ Total minutes of direct-dial toll calling in the Bill Harvesting study. Caution should be used in interpreting market shares for states with few minutes, where sample sizes are generally small.

## 11 Minutes

### 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 11.1, are measured as calls enter and leave telephone switches; therefore, two DEMs are counted for every conversation minute. (Individual company and state data can be found in our *Monitoring Report* on the **FCC-State Link** web page.) Until recently, the volume of local calling grew 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 1998. During that same period, interstate calling minutes increased from 8% of the total to 14%.

As shown in Table 11.2, the average telephone line is used primarily for local calling and is used about 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. In recent years, however, it has begun to surge due to the introduction of facsimile machines, computer modems, and other devices that use telephone lines. Increases in local and long distance calling have caused the total usage per line to increase from 46 minutes per day in 1980 to 60 minutes per day in 1998.

### 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 11.3 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 11.1**  
**Dial Equipment Minutes**  
**(Minutes Shown in Billions)**

	<b>Local</b>	<b>Intrastate Toll</b>	<b>Interstate Toll</b>	<b>Total</b>
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	1,926	311	381	2,618
1993	2,027	316	396	2,739
1994	2,126	327	420	2,873
1995	2,224	346	454	3,025
1996	2,402	373	490	3,265
1997	2,695	407	528	3,630
1998	2,986	422	555	3,962
<b>Increase Over Prior Year</b>				
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	6	8	5
1996	8	8	8	8
1997	12	9	8	11
1998	11	4	5	9
<b>Percent Distribution</b>				
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
1997	74	11	15	100
1998	75	11	14	100

Source: National Exchange Carrier Association.

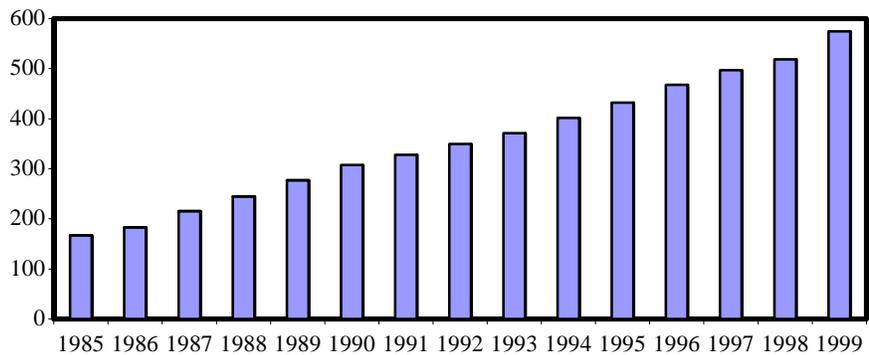
**Table 11.2**  
**Line Usage Per Day**  
**(Dial Equipment Minutes per Local Loop)**

	<b>Local</b>	<b>Intrastate Toll</b>	<b>Interstate Toll</b>	<b>Total</b>
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	37	6	7	51
1994	38	6	8	51
1995	38	6	8	52
1996	39	6	8	54
1997	42	6	8	57
1998	45	6	8	60
<b>Increase Over Prior Year</b>				
1981	-1 %	4 %	5 %	0 %
1982	1	3	5	2
1983	0	2	7	1
1984	1	17	21	4
1985	-1	9	17	2
1986	-0	5	6	1
1987	-3	3	5	-1
1988	1	2	5	2
1989	-1	3	4	-0
1990	-2	1	-1	-2
1991	-2	-1	1	-1
1992	0	-0	1	0
1993	2	-1	1	2
1994	1	-0	3	1
1995	1	2	4	1
1996	3	3	3	3
1997	8	5	3	7
1998	7	0	2	6

**Table 11.3**  
**Interstate Switched Access Minutes**  
**(In Billions)**

Year	Period	Access Minutes	Year	Period	Access Minutes	Year	Period	Access Minutes
1984	Third Quarter	37.5	1990	First Quarter	74.7	1996	First Quarter	115.7
	Fourth Quarter	39.6		Second Quarter	75.8		Second Quarter	114.7
				Third Quarter	77.9		Third Quarter	117.5
				Fourth Quarter	79.1		Fourth Quarter	120.2
		Total 1990		307.4	Total 1996		468.1	
1985	First Quarter	39.6	1991	First Quarter	79.2	1997	First Quarter	122.1
	Second Quarter	41.5		Second Quarter	81.9		Second Quarter	124.4
	Third Quarter	42.8		Third Quarter	82.6		Third Quarter	124.9
	Fourth Quarter	43.3		Fourth Quarter	84.4		Fourth Quarter	125.8
	Total 1985	167.1		Total 1991	328.0		Total 1997	497.3
1986	First Quarter	43.0	1992	First Quarter	85.6	1998	First Quarter	124.0
	Second Quarter	44.8		Second Quarter	86.5		Second Quarter	131.3
	Third Quarter	46.7		Third Quarter	87.9		Third Quarter	130.7
	Fourth Quarter	48.5		Fourth Quarter	89.8		Fourth Quarter	132.8
	Total 1986	183.1		Total 1992	349.7		Total 1998	518.8
1987	First Quarter	51.2	1993	First Quarter	90.6	1999	First Quarter	135.7
	Second Quarter	52.5		Second Quarter	91.2		Second Quarter	145.5
	Third Quarter	55.0		Third Quarter	93.6		Third Quarter	145.4
	Fourth Quarter	57.0		Fourth Quarter	95.9		Fourth Quarter	147.7
	Total 1987	215.7		Total 1993	371.2		Total 1999	574.3
1988	First Quarter	59.0	1994	First Quarter	98.7	2000	First Quarter	150.4
	Second Quarter	59.6		Second Quarter	97.9		Second Quarter	149.8
	Third Quarter	62.1		Third Quarter	101.9			
	Fourth Quarter	64.0		Fourth Quarter	102.9			
	Total 1988	244.6		Total 1994	401.4			
1989	First Quarter	66.2	1995	First Quarter	105.6			
	Second Quarter	68.5		Second Quarter	106.8			
	Third Quarter	69.7		Third Quarter	109.0			
	Fourth Quarter	72.6		Fourth Quarter	110.6			
	Total 1989	277.1		Total 1995	431.9			

**Chart 11.1**  
**Interstate Switched Access Minutes**  
**(In Billions)**



## 12 Mobile Wireless Service

The Commission collects data on the number of wireless subscribers per state as part of a recently adopted local competition and broadband data gathering program (FCC Form 477). The new program requires providers of wireless service to file information twice each year for each state in which they have at least 10,000 subscribers. Table 12.1 shows the number of wireless subscribers per state as of June 30, 2000.

The Cellular Telecommunications & Internet Association (CTIA) periodically publishes summary information on the industry; a selection of which is shown in Tables 12.2 and 12.3. CTIA can be found on the Internet at <http://www.wow-com.com>.

The wireless industry has grown dramatically. Table 12.2 shows that there were 92,000 subscribers in 1984, as compared with over 97 million subscribers as of June 2000. As seen in Table 12.3, the industry's annual revenues rose from less than a half billion in 1984 to over \$40 billion in 1999 and more than half of that in the first half of 2000. The table also shows that the industry had nearly 160,000 employees as of June 2000, as compared to about 1,000 employees in 1984; and there was a significant drop in the average monthly bill from \$96.83 at the end of 1987 to \$45.15 as of June 2000.



**Table 12.1**  
**Mobile Wireless Telephone Subscribers**  
**as Reported on FCC Form 477**  
**(As of June 30, 2000)**

<b>State</b>	<b>Reporting Carriers 1/</b>	<b>Subscribers</b>	<b>Percentage of Nation</b>	<b>Population 2/</b>	<b>Subscribers per Capita</b>
Alabama	11	1,253,084	1.4 %	4,370	0.29
Alaska	4	169,892	0.2	620	0.27
Arizona	8	1,614,082	1.9	4,778	0.34
Arkansas	4	715,467	0.8	2,551	0.28
California	9	12,222,475	14.0	33,145	0.37
Colorado	8	1,654,989	1.9	4,056	0.41
Connecticut	6	1,136,618	1.3	3,282	0.35
Delaware	6	275,219	0.3	754	0.37
District of Columbia	5	333,815	0.4	519	0.64
Florida	10	4,863,185	5.6	15,111	0.32
Georgia	11	2,636,040	3.0	7,788	0.34
Hawaii	7	454,364	0.5	1,185	0.38
Idaho	*	*	*	1,252	*
Illinois	11	4,158,088	4.8	12,128	0.34
Indiana	9	1,523,437	1.7	5,943	0.26
Iowa	5	536,718	0.6	2,869	0.19
Kansas	8	708,352	0.8	2,654	0.27
Kentucky	15	999,544	1.1	3,961	0.25
Louisiana	10	1,185,493	1.4	4,372	0.27
Maine	4	189,564	0.2	1,253	0.15
Maryland	6	1,979,823	2.3	5,172	0.38
Massachusetts	7	2,228,169	2.6	6,175	0.36
Michigan	13	3,318,570	3.8	9,864	0.34
Minnesota	12	1,595,560	1.8	4,776	0.33
Mississippi	6	509,038	0.6	2,769	0.18
Missouri	8	1,752,820	2.0	5,468	0.32
Montana	*	*	*	883	*
Nebraska	4	600,885	0.7	1,666	0.36
Nevada	6	825,163	0.9	1,809	0.46
New Hampshire	6	230,149	0.3	1,201	0.19
New Jersey	5	2,750,024	3.2	8,143	0.34
New Mexico	4	395,111	0.5	1,740	0.23
New York	8	5,016,524	5.7	18,197	0.28
North Carolina	*	*	*	7,651	*
North Dakota	*	*	*	634	*
Ohio	11	3,250,790	3.7	11,257	0.29
Oklahoma	10	786,080	0.9	3,358	0.23
Oregon	7	995,060	1.1	3,316	0.30
Pennsylvania	11	3,848,701	4.4	11,994	0.32
Puerto Rico	*	*	*	3,890	*
Rhode Island	6	313,550	0.4	991	0.32
South Carolina	5	1,233,970	1.4	3,886	0.32
South Dakota	*	*	*	733	*
Tennessee	11	1,740,726	2.0	5,484	0.32
Texas	19	6,580,637	7.5	20,044	0.33
Utah	8	106,374	0.1	2,130	0.05
Vermont	*	*	*	594	*
Virgin Islands	*	*	*	121	*
Virginia	10	2,065,110	2.4	6,873	0.30
Washington	8	267,499	0.3	5,756	0.05
West Virginia	7	753,594	0.9	1,807	0.42
Wisconsin	7	139,197	0.2	5,250	0.03
Wyoming	*	*	*	480	*
Nationwide	75	87,246,834	100.0	276,701	0.32

Source: Industry Analysis Division, *Local Competition Report*.

\* Data withheld to maintain firm confidentiality.

1/ Carriers with under 10,000 subscribers in a state were not required to report.

2/ Population as of July 1999.

**Table 12.2**  
**Wireless Telephone Subscribers**

		<b>Number of Systems</b>	<b>Subscribers</b>
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
	December	2,228	55,312,293
1998	June	2,300	60,831,431
	December	3,073	69,209,321
1999	June	3,447	76,284,753
	December	3,518	86,047,003
2000	June	2,306 1/	97,035,925

Source: Cellular Telecommunications & Internet Association (CTIA).

1/ The drop in the number of systems from December 1999 to June 2000 was due to the reclassification of Nextel's systems from city-by-city to consolidated MSAs and BTAs.

**Table 12.3**

**Wireless Telephone Service: Industry Survey Results**

		Survey Results		Estimates for Total Industry		
		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	58.65
	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
	December	2,017	94.9	109,387	14,351,082	42.78
1998	June	2,026	94.7	113,111	15,286,660	39.88
	December	2,869	93.3	134,754	17,846,515	39.43
1999	June	3,175	95.6	141,929	19,368,304	40.24
	December	3,216	93.4	155,817	20,650,185	41.24
2000	June	1,949 1/	91.8	159,645	24,645,365	45.15

Source: Cellular Telecommunications & Internet Association (CTIA).

1/ The drop in the number of systems from December 1999 to June 2000 was due to the reclassification of Nextel's systems from city-by-city to consolidated MSAs and BTAs.

## 13 Price Indices 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. They can be found on the Internet at <http://stats/bls.gov/blshome.html>. The following material illustrates the range of information available from price indices.

### 1. Long-Term Trends in Price Indices:

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 indices 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 Indices:

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, long distance, and cellular 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 chain-type 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, and subscriber line 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 indices of local costs are presented in Table 13.3.

### 4. Price Indices for Long Distance Service:

Price indices are available for intrastate toll and interstate toll services. These series are also presented in Table 13.3.

## 5. Price Index Limitations:

Price indices 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 indices.

**Table 13.1**  
**Long-Term Changes for Various Price Indices**  
**(Annual Rates of Change)**

	1936 - 1999	1989 - 1999
CPI All Items	4.0 %	3.2 %
CPI All Services	4.4	3.7
CPI Telephone Services 1/	2.0	0.9
<b>CPI Major Categories:</b>		
- Food & Beverages	*	3.1
- Housing	*	3.0
- Apparel	2.9	1.4
- Transportation	3.7	2.8
- Medical Care	5.1	5.5
- Recreation 2/	*	1.9
- Other Goods & Services	*	5.9
CPI Public Transportation	4.9	4.3
CPI Utility Natural Gas Service	3.5	2.0
CPI Electricity	2.1	1.2
CPI Sewer & Water Maintenance	*	4.7
CPI Postage	4.1	3.5

Source: Bureau of Labor Statistics.

\* Series not established until after 1935.

1/ The CPI telephone service index was revised in December of 1997.

2/ Series not established until 1993. Figure reflects annual change between 1993 and 1999.

**Table 13.2**  
**Annual Changes in Major Price Indices**

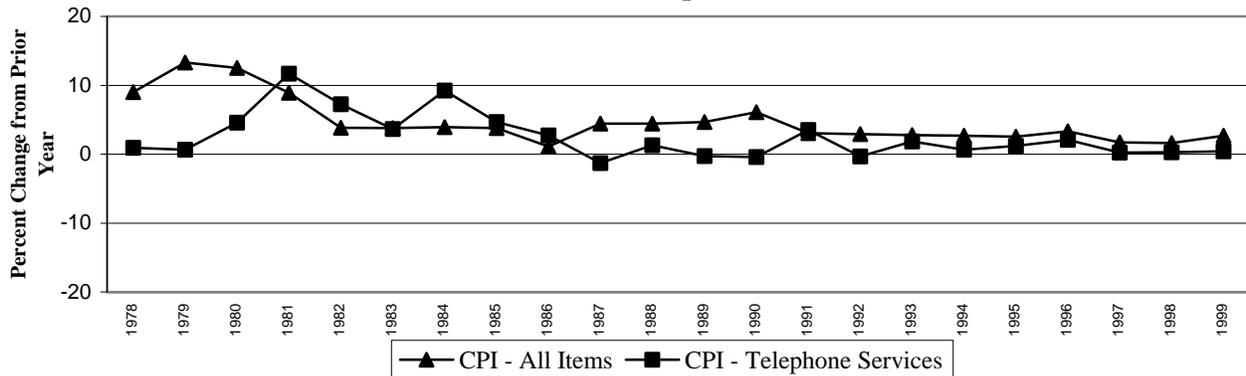
	GDP Chain-Type Price Index	CPI - All Items	CPI - Telephone Services
1978	7.4 %	9.0 %	0.9 %
1979	8.3	13.3	0.7
1980	9.6	12.5	4.6
1981	8.3	8.9	11.7
1982	5.1	3.8	7.2
1983	3.6	3.8	3.6
1984	3.5	3.9	9.2
1985	3.0	3.8	4.7
1986	2.2	1.1	2.7
1987	3.1	4.4	-1.3
1988	3.7	4.4	1.3
1989	3.6	4.6	-0.3
1990	4.1	6.1	-0.4
1991	2.8	3.1	3.5
1992	2.2	2.9	-0.3
1993	2.7	2.7	1.8
1994	2.0	2.7	0.7
1995	2.1	2.5	1.2
1996	1.7	3.3	2.1
1997	1.6	1.7	0.2
1998	1.1	1.6	0.3 1/
1999	1.5	2.7	0.4

Sources: Bureau of Labor Statistics and Bureau of Economic Analysis.

1/ The CPI telephone service index was revised in December of 1997.

**Chart 13.1**

**CPI All Items and Telephone Services**



**Table 13.3**  
**Annual Changes in Price Indices for**  
**Local and Long Distance Telephone Services**

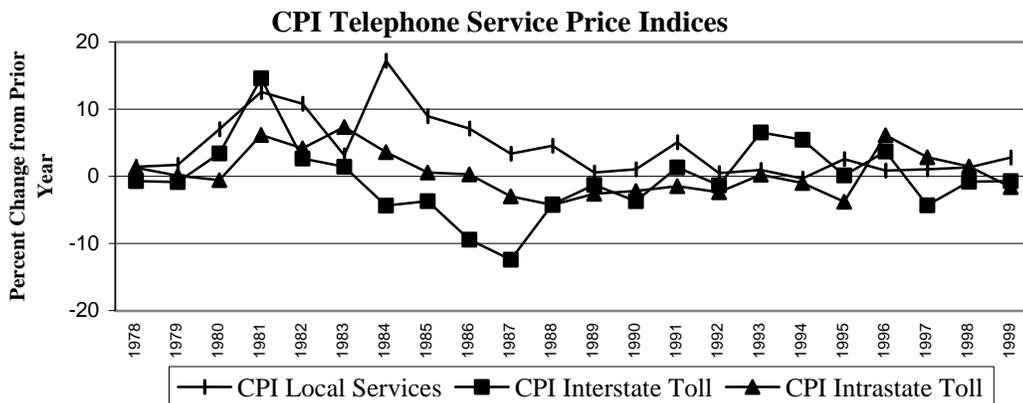
	Local Residential Service		Toll Service 1/			
	CPI	PPI	Interstate		Intrastate	
			CPI	PPI	CPI	PPI
1978	1.4 %	3.1 %	(0.7) %	0.0 %	1.3 %	0.1 %
1979	1.7	1.6	(0.8)	(0.9)	0.1	(0.7)
1980	7.0	7.1	3.4	5.5	(0.6)	2.3
1981	12.6	15.6	14.6	15.9	6.2	8.0
1982	10.8	9.0	2.7	3.9	4.2	1.7
1983	3.1	0.2	1.4	0.0	7.4	3.9
1984	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)	(3.8)
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	0.2	3.7	2.5	6.1	0.5
1997	1.0	0.2	(4.3)	3.6	2.8	(4.0)
1998	1.3	(0.1)	(0.8)	0.0	1.5	(3.3)
1999	2.8	0.2	(0.7)	0.8	(1.6)	(1.6)

Source: Bureau of Labor Statistics.

\* The PPI telephone indices were revised in June of 1995. The series are not comparable. Due to substantial month-to-month variation in the new PPI indices, PPI price levels are determined using a five-month weighted average.

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

**Chart 13.2**



## 14 Price Levels

### 1. Local Rate Levels:

The price indices 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 urban areas. In October 1999, the monthly charge was \$19.87, while the average charge for connecting phone service was \$43.88.

Table 14.2 presents average local rates for a business with a single phone line in an urban area. In October 1999, the representative monthly charge was \$41.00 while the charge for connecting phone service was \$72.48.

The Rural Utilities Service (RUS), formerly the Rural Electrification Administration, is an agency of the U.S. Department of Agriculture. RUS, through its telecommunications lending program, finances the construction of telecommunications infrastructure in rural America. In performing its loan monitoring and servicing functions, it collects information about the telephone companies that are its borrowers. Included in the information collected are the rates RUS borrowers charge business and residential customers. RUS can be found on the Internet at <<http://www.usda.gov/rus/>>. Table 14.3 presents the national average rates of RUS borrowers from 1994 through 1997. These rates do not include subscriber line charges, surcharges, 911 charges, or taxes. In addition, they do not include any charges that may be imposed on customers that are more than a certain distance from the telephone company's central office. These mileage charges can be substantial.

### 2. Long Distance Rates:

In Table 14.4, AT&T's basic schedule prices for directly dialed long distance calls are shown for January 1984 and July 2000. 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 35% for residential callers and 20% for business callers.

Table 14.5 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 14.5 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 14.6 shows revenue per minute for 1930 - 1999. For comparison, the table also shows the per-minute charges restated to 1999 dollars. In 1930, about two-thirds of interstate calls covered less than 200 miles and consumers made almost no international calls. Today, about two-thirds of interstate calls are greater than 200 miles and more than 5% of calls are to

international points.

**Table 14.1**  
**Average Residential Rates for Local Service in Urban Areas**  
**(As of October 15, 1986 - 1999)**

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Representative Monthly Charge 1/ Subscriber Line Charges	\$12.58 2.04	\$12.44 2.66	\$12.32 2.67	\$12.30 3.53	\$12.36 3.55	\$13.03 3.56	\$13.05 3.55	\$13.16 3.55	\$13.19 3.55	\$13.62 3.54	\$13.71 3.54	\$13.67 3.53	\$13.75 3.52	\$13.75 3.58
Additional Monthly Charge for Touch-Tone Service	1.57	1.52	1.54	1.52	1.33	1.06	0.97	0.94	0.77	0.44	0.30	0.25	0.10	0.09
Taxes and Other Charges	1.51	1.56	1.58	1.70	2.00	2.12	2.15	2.29	2.31	2.41	2.40	2.42	2.39	2.45
<b>Total Monthly Charge</b>	<b>17.70</b>	<b>18.18</b>	<b>18.11</b>	<b>19.05</b>	<b>19.24</b>	<b>19.77</b>	<b>19.72</b>	<b>19.95</b>	<b>19.81</b>	<b>20.01</b>	<b>19.95</b>	<b>19.88</b>	<b>19.76</b>	<b>19.87</b>
Basic Connection Charge	45.63	44.04	42.94	43.06	43.06	42.00	41.50	41.38	41.28	40.91	41.11	41.04	41.24	41.24
Additional Connection Charge for Touch-Tone Service	1.34	1.31	1.55	1.76	1.77	1.27	1.22	1.23	0.85	0.23	0.23	0.17	0.12	0.12
Taxes	2.28	2.20	2.11	2.44	2.32	2.30	2.29	2.30	2.33	2.44	2.36	2.46	2.38	2.52
<b>Total Connection Charge</b>	<b>49.25</b>	<b>47.55</b>	<b>46.60</b>	<b>47.26</b>	<b>47.15</b>	<b>45.57</b>	<b>45.01</b>	<b>44.92</b>	<b>44.46</b>	<b>43.58</b>	<b>43.70</b>	<b>43.67</b>	<b>43.74</b>	<b>43.88</b>
Additional Charge if Drop Line and Connection Block Needed	NA	NA	6.04	6.07	6.89	6.89	6.50	7.29	6.74	5.90	5.74	5.65	5.64	5.76
Lowest-Cost Inside Wiring Maintenance Plan	0.58	0.85	0.89	1.07	1.07	1.20	1.25	1.31	1.45	1.52	1.78	1.68	2.22	2.65

NA - Not Available.

1/ Rate is based upon flat-rate service where available, and measured/message service with 100 five-minute, same-zone, business-day calls elsewhere.

**Table 14.2**  
**Average Local Rates for Businesses with a Single Line in Urban Areas**  
**(As of October 15, 1989-1999)**

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Monthly Representative Service Charge 1/	\$31.06	\$30.97	\$32.29	\$32.45	\$32.70	\$32.25	\$32.48	\$32.58	\$32.76	\$32.44	\$32.22
Subscriber Line Charges	3.55	3.57	3.57	3.56	3.57	3.57	3.57	3.54	3.54	3.54	3.52
Extra for Touch-Tone	2.43	2.35	1.84	1.71	1.67	1.21	0.97	0.82	0.38	0.32	0.25
Other Mandatory Payments	4.21	4.32	4.42	4.57	4.63	4.61	4.79	4.87	4.99	4.97	5.01
<b>Total Monthly Charge</b>	<b>41.25</b>	<b>41.21</b>	<b>42.12</b>	<b>42.29</b>	<b>42.57</b>	<b>41.64</b>	<b>41.80</b>	<b>41.81</b>	<b>41.67</b>	<b>41.29</b>	<b>41.00</b>
Monthly Charge for Flat-Rate Service	\$33.04	\$33.29	\$34.12	\$34.06	\$34.85	\$34.39	\$34.45	\$34.42	\$34.68	\$34.39	\$33.84
Subscriber Line Charges	3.65	3.69	3.70	3.70	3.70	3.70	3.69	3.61	3.61	3.56	3.52
Extra for Touch-Tone	2.12	2.11	1.87	1.84	1.76	1.12	1.00	0.89	0.53	0.49	0.47
Other Mandatory Payments	4.90	4.98	5.22	5.34	5.50	5.36	5.58	5.55	5.58	5.63	5.56
<b>Total Monthly Charge for Flat-Rate Service</b>	<b>43.71</b>	<b>44.07</b>	<b>44.91</b>	<b>44.94</b>	<b>45.81</b>	<b>44.57</b>	<b>44.71</b>	<b>44.47</b>	<b>44.39</b>	<b>44.07</b>	<b>43.29</b>
Number of Sample Cities with Flat-Rate Service	59	56	54	54	54	53	53	53	53	54	54
Monthly Charge for Measured/Message Service	\$16.18	\$16.17	\$16.76	\$16.55	\$16.60	\$16.74	\$17.06	\$17.26	\$17.28	\$17.16	\$17.12
200 Five-Minute Business-Day Same-Zone Calls	16.11	16.19	16.70	17.23	17.57	17.38	17.15	17.10	17.18	17.14	17.06
Subscriber Line Charges	3.54	3.55	3.55	3.54	3.55	3.55	3.54	3.51	3.51	3.53	3.52
Extra for Touch-Tone	2.48	2.39	1.87	1.73	1.68	1.22	0.98	0.83	0.39	0.33	0.25
Other Mandatory Payments	4.41	4.53	4.56	4.77	4.86	4.83	5.01	5.13	5.22	5.19	5.27
<b>Total Monthly Charge for Measured/Message Service</b>	<b>42.72</b>	<b>42.83</b>	<b>43.44</b>	<b>43.82</b>	<b>44.26</b>	<b>43.72</b>	<b>43.75</b>	<b>43.84</b>	<b>43.57</b>	<b>43.35</b>	<b>43.22</b>
Number of Sample Cities with Measured/Message Service	83	83	84	84	84	87	87	86	85	85	85
Cost of a Five-Minute Business-Day Same-Zone Call	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09
Basic Connection Charge	\$71.05	\$71.36	\$72.75	\$72.55	\$71.41	\$69.88	\$67.87	\$68.47	\$68.67	\$65.83	\$67.87
Additional Connection Charge for Touch-Tone Service	1.70	1.89	1.13	1.19	1.17	0.92	0.27	0.17	0.17	0.12	0.12
Tax	4.06	4.15	4.32	4.33	4.25	4.13	4.17	4.20	4.45	4.13	4.49
<b>Total Connection Charge</b>	<b>76.81</b>	<b>77.40</b>	<b>78.20</b>	<b>78.07</b>	<b>76.83</b>	<b>74.93</b>	<b>72.31</b>	<b>72.85</b>	<b>73.29</b>	<b>70.09</b>	<b>72.48</b>
Additional Charge if Drop Line and Connection Block Needed	5.92	7.87	6.90	6.83	6.64	6.49	7.28	6.98	6.54	6.54	6.65
Lowest-Cost Inside Wiring Maintenance Plan	\$1.78	\$1.91	\$2.05	\$2.03	\$2.08	\$2.26	\$2.39	\$2.63	\$2.84	\$3.04	\$3.51

1/ Rate is based upon flat-rate service where available, and measured/message service with 200 five-minute, same-zone, business-day calls elsewhere.

**Table 14.3**  
**Average Monthly Local Rates of RUS Borrowers 1/**

Year	Average Business Rate	Average Residential Rate	Percentage of US Access Lines
1994	\$20.88	\$11.05	5.03%
1995	\$20.84	\$10.94	3.79%
1996	\$21.41	\$11.17	3.83%
1997	\$21.72	\$11.51	3.83%

1/ Average rates do not include subscriber line charges, surcharges, 911 charges, or taxes.

**Table 14.4**  
**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 1/			Business 2/			
	January 1984	July 2000	Percentage Change	January 1984	July 2000	Percentage Change	
1 - 10 Day	\$0.96	\$1.48	54.2 %	\$0.96	\$2.30	139.6 %	
	Evening	0.57	1.13	98.2	0.57	2.30	303.5
	Night & Weekend	0.38	0.73	92.1	0.38	2.30	505.3
11 - 22 Day	1.28	\$1.48	15.6	1.28	2.30	79.7	
	Evening	0.76	1.13	48.7	0.76	2.30	202.6
	Night & Weekend	0.51	0.73	43.1	0.51	2.30	351.0
23 - 55 Day	1.60	\$1.48	(7.5)	1.60	2.30	43.8	
	Evening	0.96	1.13	17.7	0.96	2.30	139.6
	Night & Weekend	0.64	0.73	14.1	0.64	2.30	259.4
56 - 124 Day	2.05	\$1.48	(27.8)	2.05	2.30	12.2	
	Evening	1.22	1.13	(7.4)	1.22	2.30	88.5
	Night & Weekend	0.82	0.73	(11.0)	0.82	2.30	180.5
125 - 292 Day	2.14	\$1.48	(30.8)	2.14	2.30	7.5	
	Evening	1.28	1.13	(11.7)	1.28	2.30	79.7
	Night & Weekend	0.85	0.73	(14.1)	0.85	2.30	170.6
293 - 430 Day	2.27	\$1.48	(34.8)	2.27	2.30	1.3	
	Evening	1.36	1.13	(16.9)	1.36	2.30	69.1
	Night & Weekend	0.90	0.73	(18.9)	0.90	2.30	155.6
431 - 925 Day	2.34	\$1.48	(36.8)	2.34	2.30	(1.7)	
	Evening	1.40	1.13	(19.3)	1.40	2.30	64.3
	Night & Weekend	0.93	0.73	(21.5)	0.93	2.30	147.3
926 - 1910 Day	2.40	\$1.48	(38.3)	2.40	2.30	(4.2)	
	Evening	1.44	1.13	(21.5)	1.44	2.30	59.7
	Night & Weekend	0.96	0.73	(24.0)	0.96	2.30	139.6
1911 - 3000 Day	2.70	\$1.48	(45.2)	2.70	2.30	(14.8)	
	Evening	1.62	1.13	(30.2)	1.62	2.30	42.0
	Night & Weekend	1.08	0.73	(32.4)	1.08	2.30	113.0
3001 - 4250 Day	2.80	\$1.48	(47.1)	2.80	2.30	(17.9)	
	Evening	1.68	1.13	(32.7)	1.68	2.30	36.9
	Night & Weekend	1.12	0.73	(34.8)	1.12	2.30	105.4
4251 - 5750 Day	2.91	\$1.48	(49.1)	2.91	2.30	(21.0)	
	Evening	1.74	1.13	(35.1)	1.74	2.30	32.2
	Night & Weekend	1.16	0.73	(37.1)	1.16	2.30	98.3

Source: AT&T tariffs and Industry Analysis Division, *Reference Book of Rates, Price Indices, and Expenditures for Telephone Service*.

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

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

**Table 14.5**  
**Average Revenue per Minute**

	AT&T	All Carriers 2/		
	All Interstate and International Switched Services 1/	All Interstate and International Switched Services	International Switched Services 3/	All Interstate Switched Services
1984	\$0.32			
1985	0.31			
1986	0.28			
1987	0.25			
1988	0.23			
1989	0.22			
1990	0.20			
1991	0.20			
1992	0.19	\$0.19	\$1.04	\$0.15
1993	0.19	0.19	1.03	0.15
1994	0.18	0.18	0.96	0.14
1995	NA	0.17	0.92	0.13
1996	NA	0.16	0.78	0.12
1997	NA	0.15	0.71	0.11
1998	NA	0.14	0.68	0.11
1999	NA	0.14	0.56	0.11

Note: Data for some prior years have been revised.

NA - Not Available

1/ Source: AT&T.

2/ Source: Industry Analysis Division, *Telecommunications Industry Revenues*. September 2000

3/ Billed revenue per minute for international service differs in Table 6.1 and Table 14.5. Data in Table 6.1 are based on revenues billed by underlying carriers. Data for Table 14.5 are based on staff estimates of end-user revenues.

**Table 14.6**  
**Indicators of Long Distance Prices**

	Average Revenue Per Minute for Interstate and International Calls 1/	AT&T Charge Per Minute for a 10-Minute Day Rate 200-Mile Call (Basic Rates)	Consumer Price Index: All Goods and Services (1982-1984 = 100)	Restated in 1999 Dollars	
				Revenue per Minute	Basic Rate 200-Mile Call Charge Per Minute
1930	\$0.27	\$0.35	16.7	\$2.74	\$3.49
1931	0.27	0.35	15.2	2.95	3.84
1932	0.26	0.35	13.7	3.19	4.26
1933	0.28	0.35	13.0	3.53	4.49
1934	0.27	0.35	13.4	3.38	4.35
1935	0.27	0.35	13.7	3.23	4.26
1936	0.25	0.35	13.9	3.01	4.19
1937	0.22	0.35	14.4	2.51	4.05
1938	0.21	0.26	14.1	2.53	3.01
1939	0.22	0.26	13.9	2.59	3.06
1940	0.21	0.26	14.0	2.50	3.03
1941	0.21	0.26	14.7	2.35	2.89
1942	0.22	0.26	16.3	2.21	2.61
1943	0.21	0.22	17.3	2.03	2.12
1944	0.22	0.22	17.6	2.04	2.08
1945	0.21	0.22	18.0	1.96	2.04
1946	0.20	0.22	19.5	1.69	1.88
1947	0.19	0.22	22.3	1.43	1.64
1948	0.19	0.22	24.1	1.29	1.52
1949	0.19	0.22	23.8	1.32	1.54
1950	0.19	0.22	24.1	1.33	1.52
1951	0.20	0.22	26.0	1.29	1.41
1952	0.20	0.22	26.5	1.27	1.38
1953	0.21	0.22	26.7	1.30	1.37
1954	0.22	0.22	26.9	1.38	1.36
1955	0.23	0.22	26.8	1.43	1.37
1956	0.23	0.22	27.2	1.43	1.35
1957	0.24	0.22	28.1	1.41	1.30
1958	0.24	0.22	28.9	1.38	1.27
1959	0.24	0.22	29.1	1.38	1.26
1960	0.24	0.22	29.6	1.36	1.24
1961	0.25	0.22	29.9	1.39	1.23
1962	0.25	0.22	30.2	1.40	1.21
1963	0.25	0.22	30.6	1.35	1.20
1964	0.25	0.22	31.0	1.34	1.18
1965	0.24	0.22	31.5	1.27	1.16
1966	0.24	0.22	32.4	1.25	1.13
1967	0.24	0.22	33.4	1.21	1.10
1968	0.24	0.22	34.8	1.13	1.05
1969	0.24	0.22	36.7	1.09	1.00

1/ Estimates for 1930 through 1981 are based on information in AT&T *Long Lines Statistics*, 1930-1963, 1946-1970, and 1960-1981, and appear to represent data for the conterminous U.S. only. Data prior to 1946 may not be comparable. Data for 1982 and 1983 were estimated using BLS price index changes. Data for 1984 through 1991 were supplied by AT&T. Starting with 1992, data are from Industry Analysis Division, *Telecommunications Industry Revenue*.

**Table 14.6**  
**Indicators of Long Distance Prices - Continued**

	Average Revenue Per Minute for Interstate and International Calls 1/	AT&T Charge Per Minute for a 10-Minute Day Rate 200-Mile Call (Basic Rates)	Consumer Price Index: All Goods and Services (1982-1984 = 100)	Restated in 1999 Dollars	
				Revenue Per Minute	Basic Rate 200-Mile Call Charge Per Minute
1970	\$0.23	\$0.22	38.8	\$0.99	\$0.92
1971	0.25	0.21	40.5	1.01	0.86
1972	0.24	0.23	41.8	0.97	0.93
1973	0.25	0.23	44.4	0.95	0.88
1974	0.26	0.25	49.3	0.87	0.84
1975	0.27	0.25	53.8	0.85	0.77
1976	0.29	0.32	56.9	0.83	0.92
1977	0.28	0.33	60.6	0.78	0.89
1978	0.29	0.33	65.2	0.73	0.85
1979	0.29	0.33	72.6	0.67	0.77
1980	0.30	0.33	82.4	0.61	0.68
1981	0.33	0.35	90.9	0.60	0.65
1982	0.34	0.41	96.5	0.59	0.70
1983	0.35	0.41	99.6	0.58	0.68
1984	0.32	0.41	103.9	0.52	0.66
1985	0.31	0.39	107.6	0.48	0.60
1986	0.28	0.31	109.6	0.43	0.48
1987	0.25	0.27	113.6	0.36	0.39
1988	0.23	0.25	118.3	0.33	0.35
1989	0.22	0.23	124.0	0.29	0.31
1990	0.20	0.22	130.7	0.26	0.27
1991	0.20	0.21	136.2	0.24	0.26
1992	0.19	0.21	140.3	0.23	0.25
1993	0.19	0.22	144.5	0.22	0.25
1994	0.18	0.24	148.2	0.20	0.27
1995	0.17	0.27	152.4	0.19	0.30
1996	0.16	0.28	156.9	0.17	0.30
1997	0.15	0.29	160.5	0.15	0.30
1998	0.14	0.28	163.0	0.15	0.29
1999	0.14	0.26	166.6	0.14	0.26

1/ Estimates for 1930 through 1981 are based on information in AT&T *Long Lines Statistics*, 1930-1963, 1946-1970, and 1960-1981, and appear to represent data for the conterminous U.S. only. Data prior to 1946 may not be comparable. Data for 1982 and 1983 were estimated using BLS price index changes. Data for 1984 through 1991 were supplied by AT&T. Starting with 1992, data are from Industry Analysis Division, *Telecommunications Industry Revenue*.

## 15 Residential Telephone Usage

Bill harvesting data collected by TNS Telecoms (TNS) provide information on phone usage in the long distance residential market, as opposed to the overall market for toll service. TNS, an economic research and consulting firm located in Jenkinstown, Pennsylvania, conducts nationwide surveys of residential telephone usage and household expenditures on telephone service. These surveys, in which households are asked to mail copies of their phone bills for one month to TNS, are called bill harvesting studies. The company has donated databases containing information on residential phone usage to the Commission.

The bill harvesting data reflect calls itemized on residential telephone bills. Thus, 800 calls made from the residence are not included, nor are collect calls made from the residence. In contrast, 800 calls received, and shown on the household monthly bill, are included, as are collect calls received.

Table 15.1 shows the percentage of residential long distance telephone usage that is intrastate, interstate and international. In 1999, 38% of residential toll phone calls were interstate as opposed to 50% of minutes. Table 15.2 shows the average number of minutes on household telephone bills and the percentage of households that make long distance telephone calls in a given month

Table 15.3 shows the distribution of residential long distance calls by call duration. The average residential call lasts eight minutes, although about one-third of toll calls last one minute or less. Table 15.4 shows the duration of residential long distance calls. The average distance of an interstate call is 702 miles, as opposed to 54 miles for an intrastate call. Table 15.5 shows that the average duration of both interstate and intrastate calls increases with the distance of the call.

Table 15.6 shows the percentage of residential long distance minutes by day of week. In the 1999 survey, 33% of residential minutes were on weekdays between 7:00 a.m. and 7:00 p.m., and 37% of residential minutes were on weekends.



**Table 15.1**  
**Distribution of Residential Toll Calls and Minutes**

<b>Type</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
<b>Calls</b>					
IntraLATA-Intrastat	41 %	40 %	38 %	38 %	39 %
InterLATA-Intrastat	19	18	19	19	18
IntraLATA-Interstat	1	1	1	1	1
InterLATA-Interstat	37	35	37	36	37
International	1	1	1	1	1
Others 1/	2	5	5	4	4
Total Calls in Sample	197,787	165,465	483,685	578,850	474,408
<b>Minutes</b>					
IntraLATA-Intrastat	28 %	29 %	27 %	27 %	28 %
InterLATA-Intrastat	18	18	18	18	17
IntraLATA-Interstat	1	1	1	1	1
InterLATA-Interstat	50	47	49	49	49
International	2	1	1	1	2
Others 1/	1	4	4	3	3
Total Minutes in Sample	1,493,674	1,210,675	3,673,315	4,330,888	3,544,905

Source: Calculated by IAD staff with data provided by TNS Telecoms (formerly PNR and Associates), *Telecoms Market Monitor*TM.

Note: Figures may not add due to rounding.

1/ Toll-free calls billed to residential customers, 900 calls and calls that cannot be classified.

**Table 15.2**  
**Average Residential Monthly Toll Calling: 1999**

<b>Type</b>	<b>Average Minutes</b>
IntraLATA-Intrastate	36
InterLATA-Intrastate	23
IntraLATA-Interstate	1
InterLATA-Interstate	65
International	2
Others 1/	4
All Types	131

Source: Calculated by IAD staff with data provided by TNS Telecoms (formerly PNR and Associates), *Telecoms Market Monitor*TM.

Sample Size: 26,999 households.

Note: Figures may not add due to rounding.

1/ Toll-free calls billed to residential customers, 900 calls and calls that cannot be classified.

**Table 15.3**  
**Duration of Residential Long Distance Calls 1/**

<b>Duration of Call (In Minutes)</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
1	32.0 %	32.6 %	33.3 %	34.0 %	36.1 %
2	11.2	11.3	11.3	11.6	11.9
3	6.7	7.3	7.4	7.6	8.2
4	4.8	4.8	4.9	4.8	4.8
5	4.0	4.0	4.0	3.9	3.8
6	3.3	3.3	3.2	3.2	3.1
7	2.9	2.9	2.8	2.8	2.7
8	2.7	2.6	2.5	2.5	2.3
9	2.3	2.4	2.3	2.2	2.1
10	2.3	2.2	2.1	2.0	2.0
11-15	8.2	8.1	8.0	7.7	7.3
16-20	5.8	5.6	5.4	5.1	4.7
21-25	4.0	3.7	3.7	3.5	3.2
26-30	2.8	2.5	2.6	2.5	2.2
31-45	4.1	4.0	3.9	3.8	3.3
46-60	1.6	1.5	1.5	1.5	1.3
Greater Than 60	1.3	1.1	1.2	1.2	1.1
Average Duration	9.4	8.9	8.9	8.7	8.0
Median Duration	4.0	3.0	3.0	3.0	3.0

Source: Calculated by IAD staff with data provided by TNS Telecoms (formerly PNR and Associates), *Telecoms Market M*  
Sample Size: 110,734 calls for 1995, 94,830 calls for 1996, 295,498 calls for 1997, 364,942 calls in 1998, and 376,850 call  
1/ Direct-dial calls carried by long distance carriers. Includes intrastate, interstate and international calls. Excludes intrastate calls carried by local exchange carriers.

**Table 15.4**  
**Length of Haul of Residential Long Distance Calls in 1999 1/**

<b>Distance of Call (In Miles)</b>	<b>Interstate Calls</b>	<b>Intrastate Calls</b>	<b>All Calls</b>
1 - 10	1.5 %	7.7 %	5.1 %
11 - 22	3.9	30.2	19.5
23 - 55	7.1	34.3	23.2
56 - 124	8.3	17.4	13.7
125 - 292	15.8	8.8	11.6
293 - 430	9.1	1.3	4.5
431 - 925	24.3	0.4	10.1
926 - 1,910	22.4	0.0	9.1
Greater Than 1,910	7.7	0.0	3.1
Average Distance	702	54	317
Median Distance	507	29	62

Source: Calculated by IAD staff with data provided by TNS Telecoms (formerly PNR and Associates), *Telecoms Market MonitorTM*.

Sample Size: 419,511 calls.

1/ Direct-dial calls carried by long distance carriers and local exchange carriers. Includes only domestic calls.

**Table 15.5**  
**Duration of Residential Long Distance Calls by Length of Haul in 1999 1/**

<b>Distance of Call (In Miles)</b>	<b>Average Duration Interstate Calls (Minutes)</b>	<b>Average Duration Intrastate Calls (Minutes)</b>	<b>Average Duration All Calls (Minutes)</b>
1 - 10	4.5	4.5	4.5
11 - 22	5.1	4.8	4.9
23 - 55	6.1	5.7	5.8
56 - 124	8.2	7.4	7.6
125 - 292	9.8	8.7	9.3
293 - 430	10.7	9.7	10.5
431 - 925	11.4	10.1	11.3
926 - 1,910	11.3	NA	11.3
Greater Than 1,910	11.2	NA	11.2
Average Minutes	10.0	6.0	7.6
Median Minutes	3.9	2.0	2.1

Source: Calculated by IAD staff with data provided by TNS Telecoms (formerly PNR and Associates), *Telecoms Market MonitorTM*.

Sample Size: 419,511 calls.

NA - Not Applicable.

1/ Direct-dial calls carried by long distance carriers and local exchange carriers. Includes only domestic calls.

**Table 15.6**  
**Distribution of Residential Long Distance Minutes by Day of Week in 1999 1/**

<b>Day</b>	<b>7:00 AM-6:59 PM</b>	<b>7:00 PM-6:59 AM</b>	<b>Total</b>
Monday	6.9 %	6.3 %	13.2 %
Tuesday	6.5	6.2	12.6
Wednesday	6.4	6.4	12.8
Thursday	6.5	6.2	12.7
Friday	6.7	4.9	11.6
Saturday	10.1	4.6	14.8
Sunday	14.2	8.1	22.4
<b>Total</b>	<b>57.3</b>	<b>42.7</b>	<b>100.0</b>

Source: Calculated by IAD staff with data provided by TNS Telecoms (formerly PNR and Associates), *Telecoms Market Monitor*.  
Sample Size: 245,480 calls.

1/ Direct-dial calls carried by long distance carriers and local exchange carriers. Includes only interLATA calls.

## 16 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. Starting in 1997, larger carriers were required to file universal service fund (USF) worksheets, which contain similar information but with breakouts for revenues from service provided for resale and for service provided to end users. For year ended 1999, the TRS and USF filing information were both combined on the Form 499-A, Telecommunications Reporting Worksheet. Also, reported on the Form 499-A are data pertaining to North American Numbering Planning Administration and local number portability programs.

Table 16.1 shows the major components of telecommunications revenues for 1999: carrier's carrier revenues and end-user revenues for local, wireless, and toll service. Table 16.2 shows how local, wireless, and toll revenues have changed over time. The table highlights how some significant changes in the revenue levels from 1996 to 1997 are due to major reporting changes. The number of carriers filing the Form 499-A for 1999 and for 1992 - 1998 those paying into the TRS fund by principal type of business are shown in Table 16.3. Table 16.4 contains revenues for 1992 - 1999 by type of carrier. Additional revenue detail can be found in the latest *Monitoring and Telecommunications Industry Revenues* reports.

The publication *Carrier Locator: Interstate Service Providers* lists 4,822 carriers that filed a Form 499-A worksheet in 2000. It also contains an address and contact telephone number for each carrier. (The 2000 worksheets contained data for 1999.)

Table 16.5 provides estimates of industry telephone revenues by state for 1995-1998. Table 16.5 also provides estimates for end-user and carrier's carrier revenues for 1998. Nationwide telephone revenues from *Telecommunications Industry Revenue: 1998* is allocated to each state using data from the *Statistics of Communications Common Carriers* and from the *Statistical Abstract of the United States*.



**Table 16.1**  
**Telecommunications Industry Revenues: 1999 1/**  
**(Dollar Amounts Shown in Millions)**

	Carrier's Carrier Revenues 2/	End-User Revenues 2/	Total
Local Service	\$33,156	\$78,608	\$111,764
Wireless Service	4,652	43,843	48,495
Toll Service	14,934	93,311	108,246
Total	52,742	215,763	268,505
Service Reported as:			
Intrastate	22,293	134,919	157,212
Interstate and International 3/	30,449	80,844	111,293
Total	\$52,742	\$215,763	\$268,505

Source: Industry Analysis Division, *Telecommunications Industry Revenues*.

Note: Detail may not add to totals due to rounding.

- 1/ Data include revenues for *de minimis* filers as well as for other carriers who are exempt from universal service contribution requirements.
- 2/ Carrier's carrier revenues are reported on the Form 499-A as sales to other universal service contributors for resale. This includes, for example, access services that local exchange carriers provide to toll carriers. Sales to *de minimis* carriers, customers, governments, non-profits and any other non-contributors are treated as end-user revenues. Filers contribute to the universal service funding mechanisms based on their end-user revenues.
- 3/ Revenues from calls that both originate and terminate in foreign points are reported as end-user revenues, but are not included in the universal service contribution base.

**Table 16.2**  
**Telecommunications Revenues Reported by Type of Service**  
(Dollar Amounts Shown in Millions)

	TRS Data					Universal Service & TRS Data		Form 499-A Data
	1992	1993	1994	1995	1996	1997	1998	1999
Local Exchange	\$39,235	\$40,176	\$42,245	\$45,194	\$48,717	\$53,771	\$59,245	\$62,840
Pay Telephone 1/						2,182	2,536	2,218
Local Private Line 2/	1,049	1,088	1,138	1,226	1,616	8,282	10,403	12,914
Other Local 3/	7,687	8,002	8,302	10,428	10,543	2,847	2,179	4,601
Subscriber Line Charges 2/						8,327	11,052	10,826
Access 2/	29,353	30,832	32,759	33,911	35,641	21,423	18,449	18,105
Universal Service Surcharges on Local Service Bills 4/							103	260
Additional Revenues from TRS Worksheets						595	595	
<b>Total Local Service</b>	<b>77,324</b>	<b>80,098</b>	<b>84,443</b>	<b>90,759</b>	<b>96,516</b>	<b>97,426</b>	<b>104,563</b>	<b>111,764</b>
Wireless Service	7,285	10,237	14,293	18,759	26,049	32,760	36,240	48,117
Universal Service Surcharges on Wireless Service Bills 4/							345	379
Additional Revenues from TRS Worksheets						189	189	
<b>Total Wireless Service</b>	<b>7,285</b>	<b>10,237</b>	<b>14,293</b>	<b>18,759</b>	<b>26,049</b>	<b>32,950</b>	<b>36,775</b>	<b>48,495</b>
Operator 1/	9,465	10,772	10,539	11,170	10,975	12,002	12,205	10,049
Non-Operator Switched Toll	54,448	60,591	61,468	65,217	73,751	72,059	74,168	78,389
Long Distance Private Line	7,783	8,067	9,043	9,719	10,665	10,504	11,952	13,169
Other Long Distance	4,048	3,095	3,428	3,523	4,299	4,695	3,386	3,656
Universal Service Surcharges on Toll Service Bills 4/							1,810	2,983
Additional Revenues from TRS Worksheets						1,532	1,532	
<b>Total Toll Service</b>	<b>75,744</b>	<b>82,525</b>	<b>84,478</b>	<b>89,629</b>	<b>99,691</b>	<b>100,793</b>	<b>105,055</b>	<b>108,246</b>
Non-Telecommunications Formerly Reported as Other Local and Wireless 3/	(6,944)	(7,518)	(8,324)	(9,071)	(10,474)			
<b>Total Telecommunications 3/</b>	<b>153,409</b>	<b>165,342</b>	<b>174,890</b>	<b>190,076</b>	<b>211,782</b>	<b>231,168</b>	<b>246,392</b>	<b>268,505</b>
Non-Telecommunications 3/	6,944	7,518	8,324	9,071	10,474	25,633	27,944	33,144
<b>Total Reported Revenues</b>	<b>160,353</b>	<b>172,860</b>	<b>183,214</b>	<b>199,147</b>	<b>222,256</b>	<b>256,801</b>	<b>272,019</b>	<b>301,648</b>
Service Reported as:								
Intrastate 3/	82,379	89,409	94,278	103,852	117,375	133,654	142,108	157,212
Interstate and International	71,030	75,933	80,611	86,224	94,407	97,514	104,284	111,293
<b>Total Telecommunications 3/</b>	<b>\$153,409</b>	<b>\$165,342</b>	<b>\$174,890</b>	<b>\$190,076</b>	<b>\$211,782</b>	<b>\$231,168</b>	<b>\$246,392</b>	<b>\$268,505</b>

Source: Data for 1992 through 1996 summarized from FCC Form 431 TRS worksheets. Data for 1997 and 1998 primarily based on FCC Form 457, Universal Service worksheets, with data from 1997 TRS worksheets used for service providers not required to file a Universal Service Worksheet. Data for 1999 summarized from FCC Form 499-A Telecommunications Reporting worksheets, which replaced both the Form 431 and the Form 457.

Note: Some data for prior years have been revised. Detail may not add to totals due to rounding.

- 1/ TRS filers generally reported pay telephone revenues as local service revenues, access revenues or operator toll revenues. The Universal Service and Form 499-A worksheets contain a separate category for payphone coin revenues. Starting in 1997, payphone revenues includes payphone compensation received from toll carriers.
- 2/ TRS Worksheet filers generally reported special access revenues as access revenues. Reporting changes implemented with the Universal Service Worksheet explain the increase in local private line revenues and the fall in access revenues shown for 1997. TRS Worksheet filers included subscriber line charges with other access charges. Universal Service Worksheet filers report subscriber line charges in a separate category. The increase from 1997 to 1998 represents PICC charges levied by ILECs as well as \$1.2 billion of PICC pass-through charges levied by toll carriers.
- 3/ Significant amounts of enhanced service, billing and collection, CPE and other non-telecommunications revenues were reported in the TRS mobile and other local service categories through 1996. Universal Service Worksheet filers report these revenues in the non-telecommunications category. For prior years, the amounts of non-telecommunications revenues reported as mobile and other local revenues were estimated as 70% of the amounts that Tier 1 ILECs reported in ARMIS as miscellaneous and nonregulated revenues (currently account 5200 + account 5280) and 10% of amounts reported as mobile service revenues.
- 4/ Charges on end-user bills identified as recovering state or federal universal service contributions are reported separately from local, wireless and toll revenues. Reported amounts are apportioned between local, wireless and toll service based on the proportions of local, wireless and toll intrastate and interstate revenues by type of carrier.

**Table 16.3**  
**Number of Interstate Telecommunications Providers**  
**By Principal Type of Business**

<b>Service Provider Category 1/</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
Incumbent Local Exchange Carriers 2/		1,281	1,347	1,347	1,376	1,410	1,348	1,335
Competitive Access Providers (CAPs) and Competitive Local Exchange Carriers (CLECs)		20	30	57	94	129	212	349
Local Resellers					8	11	54	87
Other Local Exchange Carriers					17	7	10	60
Competitors of ILECs		20	30	57	119	147	276	496
Fixed Local Service Providers		1,301	1,377	1,404	1,495	1,557	1,624	1,831
Payphone Providers		163	197	271	533	509	615	758
Wireless Telephony Including Cellular, Personal Communications Service (PCS) and SMR Telephony Carriers		798	790	792	853	732	808	806
Paging & Messaging Service		126	117	138	200	137	303	427
Specialized Mobile Radio (SMR) Dispatch					163	99	119	212
Wireless Data Service Providers					1	1	5	6
Other Mobile Service Providers							23	44
Wireless Service Providers		924	907	930	1,217	969	1,235	1,495
Interexchange Carriers (IXCs)		83	97	130	149	151	171	204
Operator Service Providers (OSPs)		35	29	25	27	32	24	21
Pre-paid Calling Card Providers				8	16	18	20	21
Satellite Service Carriers					22	13	13	21
Toll Resellers		171	206	260	345	340	388	454
Other Toll Carriers		32	34	30	28	15	31	17
Toll Service Providers		321	366	453	587	569	647	738
All Filers	2,558	2,709	2,847	3,058	3,832	3,604	4,121	4,822

Source: Industry Analysis Division, *Carrier Locator*.

1/ Starting in 1993, filers have been asked to select for themselves a service provider category that best describes their operations. The choices have changed over the years; for example, most satellite service providers identified themselves as other toll carriers in their 1997 TRS worksheets because there was no separate category for satellite service providers.

2/ Fewer incumbent local exchange carriers filed in 1998 than in 1997 because of the consolidation of study areas.

**Table 16.4**  
**Gross Revenues Reported by Type of Carrier**  
**(Dollars Shown in Millions)**

Service Provider Category 1/	TRS Worksheet Data					Universal Service & TRS Data		Form 499-A Data
	1992	1993	1994	1995	1996	1997	1998	1999
Incumbent Local Exchange Carriers 2/	\$91,584	\$95,228	\$98,431	\$102,820	\$107,905	\$105,154	\$108,234	\$112,216
Competitive Access Providers (CAPs) and Competitive Local Exchange Carriers (CLECs)	69	191	281	623	1,011	1,919	3,348	5,652
Local Resellers						206	410	511
Other Local Exchange Carriers						157	36	171
Private Carriers						112	147	87
Shared-Tenant Service Providers						87	93	87
Competitors of ILECs	69	191	281	623	1,011	2,481	4,034	6,508
Fixed Local Service Providers	91,835	95,595	99,011	103,792	109,273	107,634	112,268	118,725
Payphone Providers	183	175	300	349	357	933	1,101	1,213
Wireless Telephony Including Cellular, Personal Communications Service (PCS) and SMR Telephony Carriers 2/	6,718	9,215	13,259	17,208	23,778	29,944	33,139	46,513
Paging & Messaging Service 2/						2,861	3,161	3,232
Specialized Mobile Radio (SMR) Dispatch								186
Wireless Data Service Providers								63
Other Mobile Service Providers	670	964	938	1,419	2,121	225	731	159
Wireless Service Providers	7,387	10,179	14,197	18,627	25,900	33,030	37,032	50,152
Interexchange Carriers (IXCs)	57,341	61,118	66,381	70,938	79,057	79,080	83,443	87,570
Operator Service Providers (OSPs)	558	695	536	500	461	603	590	337
Pre-paid Calling Card Providers				16	238	519	888	866
Satellite Service Carriers						1,011	475	280
Toll Resellers	1,293	1,869	2,840	4,220	6,564	8,010	9,885	9,211
Other Toll Carriers	2,186	711	709	773	577	348	710	150
Toll Service Providers	61,378	64,393	70,466	76,447	86,896	89,570	95,992	98,414
Non-Telecommunications Revenues in Prior Year Data 2/	(6,944)	(7,518)	(8,324)	(9,071)	(10,474)			
Other Adjustments 3/	(248)	2,693	(461)	280	187	0	0	0
<b>Total Telecommunications Revenues</b>	<b>\$153,409</b>	<b>\$165,342</b>	<b>\$174,890</b>	<b>\$190,076</b>	<b>\$211,782</b>	<b>\$231,168</b>	<b>\$246,392</b>	<b>\$268,505</b>

Source: Industry Analysis Division, *Telecommunications Industry Revenues*

- 1/ Filers are asked to select for themselves a service provider category that best describes their operations. The choices have changed over the years. For example, most satellite service providers identified themselves as other toll carriers in their 1997 TRS worksheets because there was no separate category for satellite service providers.
- 2/ Significant amounts of enhanced services, billing and collection, CPE and other non-telecommunications revenues were reported on TRS worksheets by incumbent local exchange carriers (ILECs) and wireless carriers through 1996. Universal Service Worksheet filers report these revenues in the non-telecommunications category. For prior years, the amounts of non-telecommunications revenues reported as mobile and other local revenues were estimated as 70% of the amounts that Tier 1 ILECs reported in ARMIS as miscellaneous and nonregulated revenues (currently account 5200 + account 5280) and 10% of amounts reported as mobile service revenues.
- 3/ Other adjustments include some amounts withheld to preserve confidentiality and revisions made after the initial publication of the data.

**Table 16.5**  
**Telephone Revenues by State**  
**(Revenue in Millions of Dollars)**

State Name	1995	1996	1997	1998			Percent of Total	Percent Change 1995-1998
	Total	Total	Total	Carrier's Carrier	User	Total		
Alabama	\$2,668	\$2,946	\$3,205	\$593	\$2,801	\$3,394	1.38 %	27.2 %
Alaska	464	518	561	115	475	590	0.24	27.3
Arizona	2,842	3,249	3,667	764	3,194	3,958	1.61	39.3
Arkansas	1,534	1,719	1,885	373	1,632	2,005	0.81	30.8
California	22,379	25,100	27,236	5,271	23,422	28,692	11.64	28.2
Colorado	3,128	3,526	4,006	810	3,449	4,260	1.73	36.2
Connecticut	2,765	2,943	3,266	578	2,595	3,173	1.29	14.8
Delaware	492	567	627	108	576	685	0.28	39.2
District of Columbia	886	955	1,049	210	875	1,085	0.44	22.4
Florida	11,582	12,972	14,161	2,974	12,068	15,042	6.10	29.9
Georgia	5,335	6,004	6,849	1,393	6,076	7,469	3.03	40.0
Guam	NA	85	97	20	83	103	0.04	NA
Hawaii	775	841	930	193	777	969	0.39	25.1
Idaho	791	908	967	218	792	1,010	0.41	27.6
Illinois	7,916	8,920	10,069	1,878	9,069	10,948	4.44	38.3
Indiana	3,804	4,192	4,536	962	3,848	4,810	1.95	26.4
Iowa	1,888	2,039	2,163	491	1,776	2,268	0.92	20.1
Kansas	1,829	2,017	2,165	424	1,879	2,304	0.93	25.9
Kentucky	2,353	2,629	2,861	621	2,440	3,060	1.24	30.1
Louisiana	2,703	2,946	3,192	589	2,843	3,432	1.39	26.9
Maine	869	976	996	226	879	1,105	0.45	27.2
Maryland	3,767	4,234	4,625	817	4,095	4,911	1.99	30.4
Massachusetts	4,988	5,455	6,010	1,131	5,207	6,338	2.57	27.1
Michigan	6,444	7,246	7,983	1,486	7,036	8,523	3.46	32.3
Minnesota	3,064	3,461	3,864	828	3,287	4,115	1.67	34.3
Mississippi	1,584	1,734	1,877	340	1,677	2,017	0.82	27.3
Missouri	3,623	4,017	4,389	961	3,652	4,613	1.87	27.3
Montana	640	709	756	155	626	780	0.32	21.9
Nebraska	1,296	1,428	1,540	328	1,260	1,587	0.64	22.5
Nevada	1,099	1,324	1,489	282	1,310	1,592	0.65	44.9
New Hampshire	989	1,118	1,208	249	997	1,246	0.51	25.9
New Jersey	7,091	7,927	8,707	1,706	7,660	9,366	3.80	32.1
New Mexico	1,121	1,262	1,370	298	1,135	1,433	0.58	27.9
New York	14,983	16,026	17,120	3,328	14,606	17,935	7.28	19.7
North Carolina	5,394	6,104	6,613	1,520	5,777	7,297	2.96	35.3
North Dakota	481	587	596	125	474	599	0.24	24.4
Northern Mariana Islands	15	18	21	6	24	30	0.01	102.3
Ohio	7,457	8,219	8,823	1,775	7,622	9,396	3.81	26.0
Oklahoma	1,996	2,179	2,410	442	2,110	2,552	1.04	27.8
Oregon	2,238	2,502	2,720	597	2,308	2,905	1.18	29.8
Pennsylvania	7,961	8,867	9,588	1,961	8,348	10,309	4.18	29.5
Puerto Rico	1,244	1,405	1,606	305	1,162	1,467	0.60	17.9
Rhode Island	686	761	839	157	702	859	0.35	25.3
South Carolina	2,653	2,849	3,053	643	2,749	3,393	1.38	27.9
South Dakota	488	584	602	131	504	635	0.26	30.1
Tennessee	3,467	3,880	4,302	818	3,735	4,553	1.85	31.3
Texas	12,871	14,563	15,943	3,899	13,677	17,576	7.13	36.6
Utah	1,112	1,284	1,443	295	1,262	1,557	0.63	40.0
Vermont	424	547	575	123	479	602	0.24	41.8
Virgin Islands	74	93	101	23	87	109	0.04	48.3
Virginia	5,061	5,646	6,179	1,279	5,296	6,576	2.67	29.9
Washington	3,995	4,438	4,613	1,037	4,043	5,080	2.06	27.1
West Virginia	1,143	1,240	1,337	265	1,118	1,383	0.56	21.0
Wisconsin	3,258	3,621	3,927	760	3,474	4,234	1.72	30.0
Wyoming	366	402	449	93	369	462	0.19	26.3
Grand Total	\$190,076	\$211,782	\$231,168	\$46,973	\$199,419	\$246,392	100.00 %	29.6 %

Source: Industry Analysis Division, *State-by-State Telephone Revenue and Universal Service Data*.

NA - Not Available.

Note: Figures may not add to totals due to rounding.

## 17 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.

More than twenty 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 17.1. Consequently, the state-by-state data shown in Table 17.2 are based on annual average penetration rates. Additional information can be found in the *Telephone Penetration* and *Telephone Subscribership* reports available on the **FCC-State Link** web page.

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 17.3 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 17.1 and 17.3.

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 17.3.

The Bureau of the Census also includes questions on computers and Internet use as part of its Current Population Survey. Using this information, the National Telecommunications and Information Administration (NTIA) has released its third report examining which American households have access to telephones, computers, and the Internet, and which do not. Chart 17.1 shows the percent of households with a telephone, computer, and Internet use for 1994, 1997, 1998 and August 2000. The percent of households may differ from Table 17.1 since a different monthly survey was used. The NTIA report, *Falling Through the Net: Toward Digital Inclusion*, finds that the number of Americans connected to the nation's information infrastructure is soaring. According to the latest report by NTIA, the rapid swing to new technologies is happening with most groups of Americans, "regardless of income, education, race or ethnicity location, age or gender." Their conclusion is that "digital inclusion is a reasonable goal." NTIA's web site can be accessed at <<http://www.ntia.doc.gov>>.

**Table 17.1**  
**Household Telephone Subscribership in the United States**

	<b>Households (Millions)</b>	<b>Households with Telephones (Millions)</b>	<b>Percentage with Telephones</b>	<b>Households without Telephones (Millions)</b>	<b>Percentage without Telephones</b>
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	91.6	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
1998 March	103.4	97.4	94.1	6.1	5.9
July	103.4	97.3	94.1	6.1	5.9
November	104.1	98.0	94.2	6.1	5.8
1999 March	104.8	98.5	94.0	6.3	6.0
July	105.1	99.2	94.4	5.9	5.6
November	105.4	99.1	94.1	6.3	5.9
2000 March	105.3	99.6	94.6	5.7	5.4
July	105.8	99.8	94.4	5.9	5.6

Source: Industry Analysis Division, *Telephone Subscribership in the United States*.

**Table 17.2**  
**Telephone Penetration by State**  
**(Annual Average Percentage of Households with Telephone Service)**

State	1984	1999	Change
Alabama	88.4 %	91.5 %	3.0 % *
Alaska	86.5	94.6	8.1 *
Arizona	86.9	93.2	6.3 *
Arkansas	86.6	88.9	2.3
California	92.5	95.7	3.3 *
Colorado	93.2	96.7	3.5 *
Connecticut	95.5	96.5	1.0
Delaware	94.3	95.7	1.5
District of Columbia	94.9	92.4	(2.5) **
Florida	88.7	92.6	3.9 *
Georgia	86.2	92.1	5.9 *
Hawaii	93.5	96.3	2.8 *
Idaho	90.7	93.8	3.1 *
Illinois	94.2	91.8	(2.4) **
Indiana	91.6	93.8	2.3 *
Iowa	96.2	95.8	(0.4)
Kansas	94.3	93.8	(0.5)
Kentucky	88.1	92.8	4.6 *
Louisiana	89.7	91.5	1.9
Maine	93.4	97.2	3.8 *
Maryland	95.7	95.3	(0.4)
Massachusetts	95.9	95.4	(0.5)
Michigan	92.8	94.2	1.3
Minnesota	95.8	96.9	1.1
Mississippi	82.4	88.0	5.6 *
Missouri	91.5	95.6	4.1 *
Montana	91.0	95.3	4.3 *
Nebraska	95.7	95.9	0.2
Nevada	90.4	93.1	2.8
New Hampshire	94.3	97.0	2.7 *
New Jersey	94.8	93.9	(0.8)
New Mexico	82.0	89.8	7.8 *
New York	91.8	95.3	3.5 *
North Carolina	88.3	93.9	5.6 *
North Dakota	94.6	97.3	2.6 *
Ohio	92.4	94.7	2.3 *
Oklahoma	90.3	91.2	0.9
Oregon	90.6	95.2	4.6 *
Pennsylvania	94.9	97.1	2.3 *
Rhode Island	93.6	94.3	0.6
South Carolina	83.7	92.9	9.3 *
South Dakota	93.2	92.7	(0.5)
Tennessee	88.5	94.5	6.0 *
Texas	88.4	92.4	4.0 *
Utah	92.5	95.6	3.1 *
Vermont	92.3	95.3	3.1
Virginia	93.1	93.2	0.1
Washington	93.0	95.9	2.9 *
West Virginia	87.7	92.7	5.0 *
Wisconsin	95.2	95.7	0.5
Wyoming	89.9	95.0	5.2 *
Total United States	91.6	94.2	2.6 *

Source: Industry Analysis Division, *Telephone Subscribership in the United States*.

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

\* Increase is statistically significant at the 95% confidence level.

\*\* Decrease is statistically significant at the 95% confidence level.

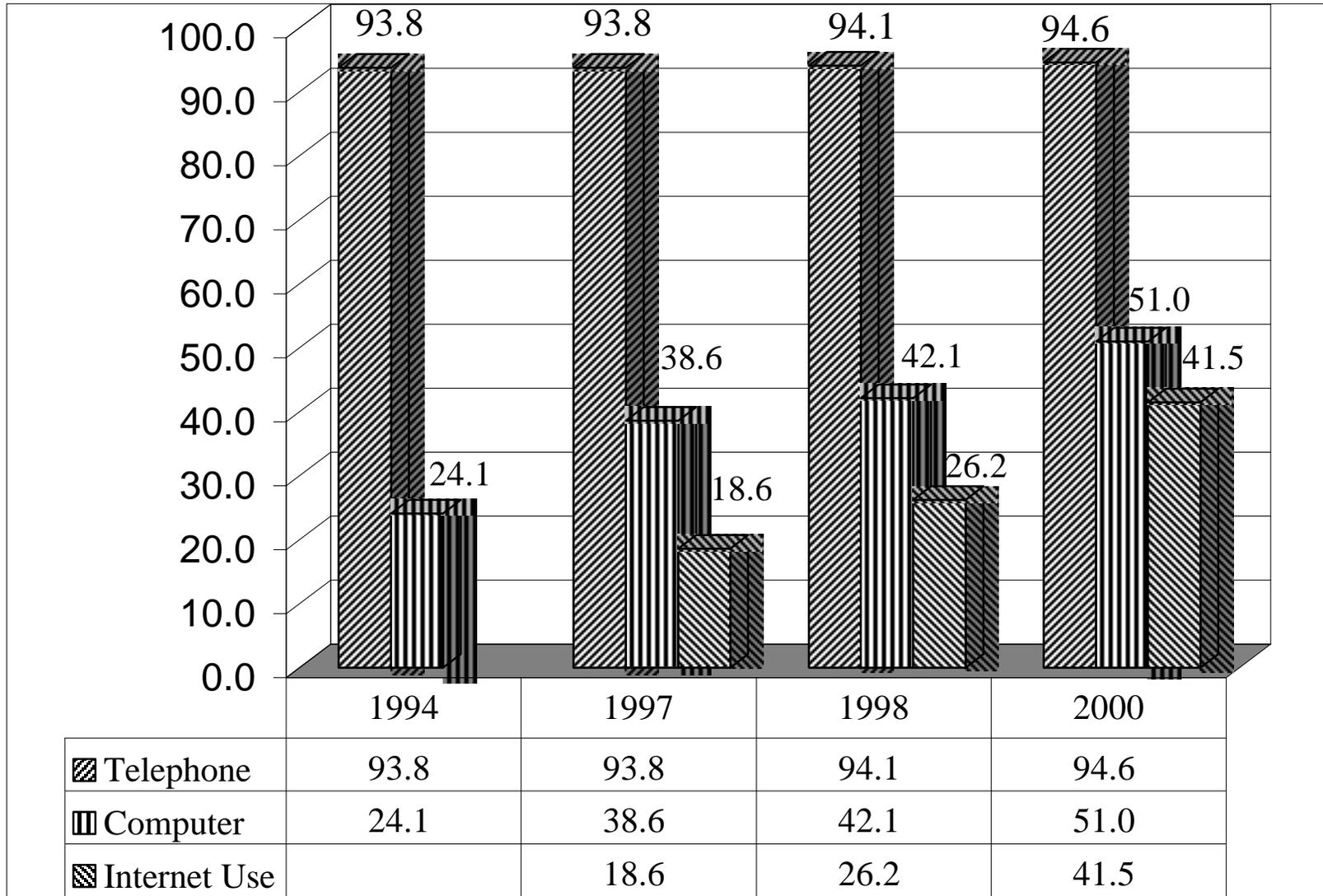
**Table 17.3**  
**Historical Telephone Penetration Estimates**

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.

**Chart 17.1**

**Percent of U.S. Households with a Telephone, Computer, and Internet Use**



## 18 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 18.1.

Newer signaling systems have been developed which 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. This was followed by 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 BOCs switching offices and the lines served by offices with these features are shown in Table 18.2. Of course, not all of the lines served by ISDN-compatible switching offices are actually receiving ISDN service.

The newest service available, xDSL (digital subscriber loop) service, offers broadband digital capability using special terminal equipment that enhances the capability of existing copper access lines. Increased use of ISDN services for Internet access along with the availability of xDSL services should tend to drive down the cost of ISDN services further.

### 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.) The data contained in Tables 18.1 - 18.3 are from the BOC's ARMIS 43-07 reports. The individual carrier's data can be obtained from the ARMIS web page at <<http://www.fcc.gov/ccb/ARMIS/db/>>. Selected holding company statistics from the ARMIS 43-07 can be found in our *Infrastructure* report on the **FCC-State Link** web page. Each telephone company has a network of transmission paths or carrier links tying together their switching offices. As indicated in Table 18.3, fiber optic cables have rapidly replaced copper to provide these links. From 1990 to 1999, the proportion of fiber has grown from 60% to 97%.

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 1999 copper wire still linked about 80% of customers to the first point of switching.

## 2. Equal Access:

Equal access refers to a class of service whereby all long distance service providers receive equivalent connections to the local exchange carrier's network. Where a local exchange carrier serves customers using equal-access switches, those customers can utilize their preferred long distance provider by dialing "1" plus the ten-digit telephone number they want to reach.

For equal access to take place, the local exchange carrier had to convert its lines to equal access. The conversion of lines by local exchange carriers to equal access started in 1984. By the end of 1996, over 99% of the nation's lines had been converted to equal access. A table tracing this process through time can be found in the equal-access section in the *Trends* report released in July 1998.

Despite the fact that more than 99% of the nation's customers are now provided with equal access, there still are many central offices where equal access is not yet available. Because the non-equal-access offices tend to be smaller offices, the percentage of converted offices is significantly smaller than the percentage of converted lines. Table 18.4 shows the number of central office wire centers in each state that had been converted to equal access as of February 1, 2000. 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.

## 3. Rural Network Capabilities:

The National Exchange Carrier Association conducts a biennial Access Market Survey of some 1,100 small, mostly rural telephone companies. The survey focuses on the efforts of small companies to bring advanced services to their customers. Table 18.5 shows selected network capabilities of survey respondents by state. In addition to the number of central offices and access lines, the table also gives the percentage of companies with such broadband technologies as ISDN, SONET, frame relay, ATM, xDSL and Internet.

## 4. Telecommunications Patents:

Another measure of developing technology is the number of U.S. patents. The U.S. Patent and Trademark Office maintains a file of over 6 million distinct U.S. patents granted. These patents are categorized by technology. Chart 18.1 shows the number of patents granted for telecommunications from 1990 to 1999. The information presented profiles U.S. patent activity in the general field of telecommunications. It includes all U.S. patent documents, excepting reissued patents, granted between January 1990 and December 31, 1999, which have been classified as follows:

Class 370, *Multiplex Communications*, is the generic class for multiplexing or duplexing systems, methods, or apparatus.

Class 375, *Pulse or Digital Communications*, is the generic class for pulse or digital communication systems using electrical or electromagnetic signals. Such communication includes transmitting an intelligence-bearing signal from one point to another in the form

of discrete variations in some parameter of the electrical or electromagnetic signal.

Class 379, *Telephonic Communications*, includes systems, processes and instruments for the two-way electrical transmission of intelligible audio information having arbitrary content over a link including an electrical conductor, between spaced apart locations, so as to enable conversation therebetween, and intended for the private use of a listener or a group of listeners. Also included are switching, signaling or signal transmission systems, processes and instruments peculiar to, or specified as for a telephone or a telephone system.

Class 455, *Telecommunications*, is the generic class for modulated carrier wave communications.

Data for prior years differ from the March 2000 *Trends* report. Revisions to prior-year data reflect annual reclassification of patent categories. For example, if a patent type was reclassified in 1998, the data for prior years have been recalculated based on this reclassification.



**Table 18.1**  
**Central Offices and Access Lines by Technology**  
**(Bell Operating Companies)**

Year-End	Total Offices	Electromechanical Offices		Analog Stored Program Controlled Offices		Digital Stored Program Controlled 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	9,951	1,148	11.5	2,167	21.8	6,636	66.7
1992	10,069	615	6.1	1,924	19.1	7,530	74.8
1993	10,089	296	2.9	1,554	15.4	8,239	81.7
1994	10,023	95	0.9	1,133	11.3	8,795	87.7
1995	10,051	60	0.6	976	9.7	9,015	89.7
1996	9,966	1	0.0	718	7.2	9,247	92.8
1997	9,965	0	0.0	548	5.5	9,417	94.5
1998	9,791	0	0.0	431	4.4	9,360	95.6
1999	9,825	0	0.0	314	3.2	9,511	96.8
<b>Access Lines Served by Type of Office</b> <b>(Thousands)</b>							
Year-End	All Offices	Electromechanical Offices		Analog Stored Program Controlled Offices		Digital Stored Program Controlled 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
1988	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	107,389	1,876	1.7	53,450	49.8	52,062	48.5
1992	109,995	717	0.7	48,959	44.5	60,324	54.8
1993	113,368	264	0.2	41,912	37.0	71,192	62.8
1994	117,345	115	0.1	33,191	28.3	84,040	71.6
1995	122,266	63	0.1	29,031	23.7	93,172	76.2
1996	125,846	1	0.0	24,561	19.5	101,283	80.5
1997	131,722	0	0.0	21,219	16.1	110,503	83.9
1998	136,426	0	0.0	16,688	12.2	119,738	87.8
1999	139,349	0	0.0	11,713	8.4	127,636	91.6

Sources: 1980-89 reported in CC Docket 89-624.

1990-99 reported in ARMIS 43-07.

Note: Because of different sources, the data for 1989 and earlier years may not be consistent with the data for 1990 and later years.

**Table 18.2**  
**Features Available in Central Offices**  
**(Bell Operating Companies)**

Year-End	Total Offices	Equal Access Offices		Signaling System 7 Offices 1/		ISDN Offices 2/	
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	9,951	8,601	86.4	3,670	36.9	920	9.2
1992	10,069	9,281	92.2	5,392	53.6	1,219	12.1
1993	10,089	9,697	96.1	6,688	66.3	1,874	18.6
1994	10,023	9,933	99.1	8,334	83.1	2,400	23.9
1995	10,051	9,978	99.3	8,977	89.3	2,868	28.5
1996	9,966	9,845	98.8	9,286	93.2	3,329	33.4
1997	9,965	9,936	99.7	9,688	97.2	3,902	39.2
1998	9,791	9,768	99.8	9,646	98.5	4,146	42.3
1999	9,825	9,784	99.6	9,701	98.7	4,352	44.3
<b>Equipped Access Lines by Type of Office</b> <b>(Thousands)</b>							
Year-End	All Offices	Equal Access Offices		Signaling System 7 Offices 1/		ISDN Offices 2/	
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	107,389	105,415	98.2	57,322	53.4	20,565	19.2
1992	109,995	109,007	99.1	76,486	69.5	28,376	25.8
1993	113,368	112,993	99.7	92,493	81.6	39,875	35.2
1994	117,345	117,266	99.9	109,465	93.3	56,546	48.2
1995	122,266	122,210	100.0	116,568	95.3	71,274	58.3
1996	125,846	125,845	100.0	122,344	97.2	85,435	67.9
1997	131,722	131,722	100.0	130,778	99.3	95,956	72.8
1998	136,426	136,426	100.0	135,981	99.7	106,834	78.3
1999	139,349	139,349	100.0	139,271	99.9	112,103	80.4

Sources: 1980-89 reported in CC Docket 89-624.

1990-99 reported in ARMIS 43-07.

Note: Because of different sources, the data for 1989 and earlier years may not be entirely consistent with the data for 1990 and later years.

1/ Signaling System 7 Switch (SS7-317).

2/ ISDN basic access line capacity reported for 1990-1999.

**Table 18.3**  
**Local Transmission Technology**  
**(Bell Operating Companies)**

**Digital Transmission Links**

Year-End	Total	Copper		Fiber		Radio	
1990 1/	2,895,117	1,092,041	37.7 %	1,737,984	60.0 %	65,092	2.2 %
1991	3,271,023	1,039,316	31.8	2,154,043	65.9	77,664	2.4
1992	3,564,847	864,931	24.3	2,610,185	73.2	89,731	2.5
1993	4,159,574	805,290	19.4	3,264,106	78.5	90,175	2.2
1994	4,495,728	568,197	12.6	3,846,394	85.6	81,137	1.8
1995	5,828,645	485,909	8.3	5,274,173	90.5	68,563	1.2
1996	7,955,574	433,758	5.5	7,477,395	94.0	44,421	0.6
1997	10,067,498	413,204	4.1	9,610,601	95.5	43,693	0.4
1998	13,558,832	420,488	3.1	13,099,829	96.6	38,515	0.3
1999	16,673,670	465,312	2.8	16,169,561	97.0	38,797	0.2

1/ 1990 contains some analog links.

**Working Telecommunications Channels**  
**(Thousands)**

Year-End	Total	Copper		Fiber		Radio	
1990	122,564 1/	106,373	86.8 %	3,546	2.9 %	0	0.0 %
1991	118,654	114,047	96.1	4,605	3.9	2	0.0
1992	120,848	114,609	94.8	6,238	5.2	1	0.0
1993	124,191	115,496	93.0	8,694	7.0	1	0.0
1994	130,192	118,437	91.0	11,754	9.0	0	0.0
1995	136,231	122,975	90.3	13,255	9.7	0	0.0
1996	142,824	125,595	87.9	17,228	12.1	1	0.0
1997	149,429	128,436	86.0	20,992	14.0	0	0.0
1998	160,621	131,867	82.1	28,753	17.9	0	0.0
1999	168,463	133,325	79.1	35,137	20.9	0	0.0

Source: ARMIS 43-07 report.

1/ Includes some other channels.

**Table 18.4**  
**Central Offices Converted to Equal Access 1/**  
**As of August 1, 2000**

	Bell Company Central Offices			Other ILEC Central Offices			CLEC Central Offices			All Central Offices	
	Equal Access	Non-Equal Access	% Equal Access	Equal Access	Non-Equal Access	% Equal Access	Equal Access	Non-Equal Access	% Equal Access	Total Offices	% Equal Access
Alabama	147	0	100.0 %	211	5	97.7 %	9	6	60.0 %	378	97.1 %
Alaska	0	0	NA	40	215	15.7	0	0	NA	255	15.7
Arizona	140	0	100.0	97	9	91.5	14	4	77.8	264	95.1
Arkansas	135	0	100.0	270	2	99.3	21	2	91.3	430	99.1
California	616	1	99.8	375	11	97.2	303	28	91.5	1,334	97.0
Colorado	166	1	99.4	111	8	93.3	19	4	82.6	309	95.8
Connecticut	1	0	100.0	128	0	100.0	14	2	87.5	145	98.6
Delaware	33	0	100.0	0	0	NA	2	2	50.0	37	94.6
District of Columbia	19	0	100.0	0	0	NA	20	2	90.9	41	95.1
Florida	198	0	100.0	276	2	99.3	204	18	91.9	698	97.1
Georgia	180	0	100.0	236	10	95.9	84	11	88.4	521	96.0
Guam	0	0	NA	18	0	100.0	0	0	NA	18	100.0
Hawaii	0	0	NA	91	0	100.0	1	0	100.0	92	100.0
Idaho	69	0	100.0	102	15	87.2	5	1	83.3	192	91.7
Illinois	277	10	96.5	727	15	98.0	75	13	85.2	1,117	96.6
Indiana	167	0	100.0	407	2	99.5	16	9	64.0	601	98.2
Iowa	135	0	100.0	670	5	99.3	17	7	70.8	834	98.6
Kansas	171	0	100.0	389	8	98.0	5	5	50.0	578	97.8
Kentucky	178	0	100.0	197	18	91.6	5	7	41.7	405	93.8
Louisiana	228	0	100.0	100	2	98.0	20	4	83.3	354	98.3
Maine	143	1	99.3	106	9	92.2	1	0	100.0	260	96.2
Maryland	212	0	100.0	1	0	100.0	24	5	82.8	242	97.9
Massachusetts	274	2	99.3	3	0	100.0	46	4	92.0	329	98.2
Michigan	336	1	99.7	359	14	96.2	21	7	75.0	738	97.0
Minnesota	159	0	100.0	548	5	99.1	63	9	87.5	784	98.2
Mississippi	206	0	100.0	54	8	87.1	5	3	62.5	276	96.0
Missouri	214	1	99.5	436	45	90.6	46	6	88.5	748	93.0
Montana	75	0	100.0	198	2	99.0	10	4	71.4	289	97.9
Nebraska	69	0	100.0	391	4	99.0	6	4	60.0	474	98.3
Nevada	45	0	100.0	58	15	79.5	23	1	95.8	142	88.7
New Hampshire	125	1	99.2	27	1	96.4	6	1	85.7	161	98.1
New Jersey	206	0	100.0	28	0	100.0	37	7	84.1	278	97.5
New Mexico	65	0	100.0	83	39	68.0	2	1	66.7	190	78.9
New York	526	1	99.8	298	15	95.2	74	15	83.1	929	96.7
North Carolina	140	0	100.0	356	12	96.7	41	10	80.4	559	96.1
North Dakota	36	0	100.0	235	19	92.5	7	2	77.8	299	93.0
Ohio	237	15	94.0	583	24	96.0	53	8	86.9	920	94.9
Oklahoma	209	0	100.0	289	27	91.5	14	2	87.5	541	94.6
Oregon	78	0	100.0	204	5	97.6	14	4	77.8	305	97.0
Pennsylvania	387	0	100.0	419	33	92.7	76	13	85.4	928	95.0
Puerto Rico	0	0	NA	86	0	100.0	1	0	100.0	87	100.0
Rhode Island	30	0	100.0	0	0	NA	4	1	80.0	35	97.1
South Carolina	117	0	100.0	159	2	98.8	6	4	60.0	288	97.9
South Dakota	43	0	100.0	200	9	95.7	3	2	60.0	257	95.7
Tennessee	195	0	100.0	160	9	94.7	23	4	85.2	391	96.7
Texas	528	0	100.0	956	15	98.5	543	25	95.6	2,067	98.1
Utah	75	0	100.0	72	18	80.0	5	4	55.6	174	87.4
Vermont	90	2	97.8	42	0	100.0	0	0	NA	134	98.5
Virgin Islands	0	0	NA	5	0	100.0	0	0	NA	5	100.0
Virginia	218	0	100.0	243	7	97.2	31	10	75.6	509	96.7
Washington	112	0	100.0	247	8	96.9	31	5	86.1	403	96.8
West Virginia	145	0	100.0	80	9	89.9	0	2	0.0	236	95.3
Wisconsin	108	3	97.3	528	0	100.0	23	6	79.3	668	98.7
Wyoming	26	0	100.0	36	22	62.1	0	2	0.0	86	72.1
<b>Total United States</b>	<b>8,289</b>	<b>39</b>	<b>99.5 %</b>	<b>11,935</b>	<b>703</b>	<b>94.4 %</b>	<b>2,073</b>	<b>296</b>	<b>87.5 %</b>	<b>23,335</b>	<b>95.6 %</b>

Source: NECA FCC Tariff No. 4 database.

NA - Not Applicable.

1/ 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.

Table 18.5

Status of Selected Network Capabilities of Survey Respondents  
(As of Second Quarter 1999)

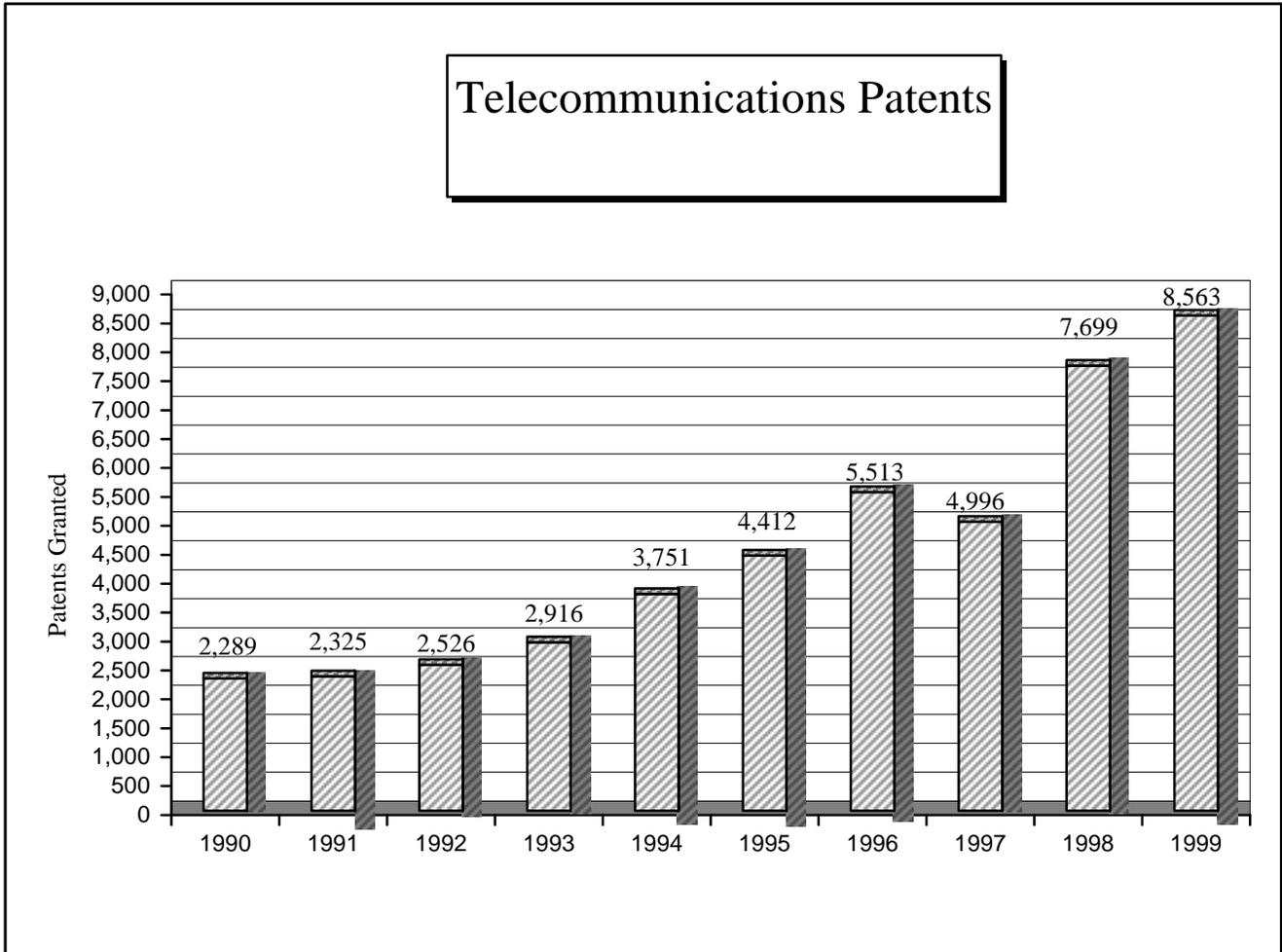
State	Companies	Offices	Access Lines	% Central Offices		Percentage of Companies with Broadband Technologies 1/					
				Eq. Acc. 2/	SS7	ISDN	SONET	Frame Relay	ATM	xDSL	Internet 3/
Alabama	22	98	168,684	97%	80%	41%	45%	9%	0%	5%	73%
Alaska	23	105	233,436	24%	9%	26%	26%	17%	9%	30%	65%
Arizona	10	44	26,000	98%	44%	20%	20%	10%	0%	0%	60%
Arkansas	21	105	114,116	98%	53%	38%	38%	5%	5%	5%	76%
California	12	48	67,710	83%	56%	33%	33%	0%	0%	8%	75%
Colorado	24	60	41,468	93%	58%	17%	17%	0%	0%	4%	50%
Connecticut	1	3	21,522	100%	100%	100%	100%	0%	0%	100%	100%
Florida	3	6	26,442	100%	100%	100%	67%	0%	0%	0%	100%
Georgia	28	108	299,913	94%	77%	54%	54%	7%	0%	4%	75%
Guam	1	17	74,876	100%	18%	100%	100%	0%	0%	0%	0%
Hawaii	1	3	179	100%	67%	0%	0%	0%	0%	0%	0%
Idaho	16	67	44,631	91%	32%	19%	25%	0%	0%	19%	63%
Illinois	21	91	117,552	97%	96%	29%	29%	19%	10%	19%	62%
Indiana	32	80	113,851	100%	90%	53%	56%	28%	6%	22%	84%
Iowa	137	311	198,160	99%	84%	26%	34%	5%	4%	14%	87%
Kansas	29	225	104,005	97%	87%	38%	59%	10%	3%	17%	86%
Kentucky	14	108	159,386	94%	94%	29%	64%	14%	0%	14%	86%
Louisiana	17	97	129,264	95%	97%	18%	35%	0%	0%	0%	88%
Maine	19	122	139,148	99%	64%	32%	63%	0%	5%	16%	53%
Maryland	1	1	7,294	100%	100%	0%	100%	0%	0%	0%	0%
Massachusetts	1	1	1,208	100%	100%	0%	0%	0%	0%	0%	100%
Michigan	32	99	108,540	95%	67%	19%	22%	13%	9%	16%	72%
Minnesota	76	290	296,568	95%	86%	33%	32%	28%	8%	14%	67%
Mississippi	14	45	56,954	89%	71%	21%	14%	14%	7%	0%	86%
Missouri	32	150	88,071	94%	89%	41%	41%	0%	9%	16%	69%
Montana	14	189	92,634	98%	87%	36%	79%	7%	21%	43%	100%
Nebraska	36	144	75,387	100%	81%	17%	28%	8%	0%	3%	81%
Nevada	7	29	29,050	86%	76%	14%	57%	14%	14%	57%	29%
New Hampshire	7	22	36,451	95%	86%	71%	57%	0%	0%	14%	71%
New Mexico	11	77	40,990	97%	78%	36%	55%	27%	0%	18%	82%
New York	29	71	134,336	96%	85%	45%	59%	10%	14%	14%	72%
North Carolina	15	63	268,715	94%	97%	53%	60%	33%	27%	13%	80%
North Dakota	22	228	142,484	97%	76%	32%	23%	36%	18%	36%	91%
Ohio	31	72	197,851	100%	92%	23%	45%	10%	10%	19%	81%
Oklahoma	33	270	192,008	99%	86%	42%	21%	9%	9%	12%	67%
Oregon	26	58	74,833	92%	63%	23%	38%	12%	0%	27%	77%
Pennsylvania	20	131	524,254	100%	98%	60%	60%	15%	10%	30%	65%
South Carolina	15	54	121,293	98%	89%	60%	87%	13%	27%	7%	100%
South Dakota	25	174	98,934	98%	91%	52%	44%	40%	16%	20%	84%
Tennessee	20	118	314,308	96%	99%	55%	80%	0%	0%	5%	80%
Texas	44	330	246,381	98%	86%	34%	41%	5%	5%	7%	75%
Utah	7	37	23,908	97%	89%	14%	29%	0%	0%	14%	86%
Vermont	9	45	63,300	100%	80%	67%	56%	22%	11%	11%	78%
Virginia	15	49	75,930	98%	94%	40%	40%	0%	7%	7%	87%
Washington	16	43	69,605	88%	81%	38%	31%	6%	0%	13%	44%
West Virginia	6	13	15,684	100%	92%	17%	33%	0%	0%	0%	33%
Wisconsin	76	257	416,984	99%	90%	34%	33%	12%	7%	8%	84%
Wyoming	5	30	23,755	90%	90%	0%	80%	0%	0%	40%	60%
Totals	1,076	4,988	5,918,053	93%	79%	34%	40%	11%	6%	14%	76%

Source: National Exchange Carrier Association, *Keeping America Connected: The Broadband Challenge*, survey of nearly 1,100 small, mostly rural telephone companies.

Note: Because some companies did not return surveys and the default of digital was "no", the total number of switches used to compute digital were those companies that completed the survey and those companies that had indicated they were digital in past surveys.

- 1/ Services shown as "Percent of Companies" indicates that the service is available at those companies, not that all customers at each of those companies subscribe to that service.
- 2/ Equal access gives customers a choice of long distance carrier. Although not a new service, NECA continues to track progress toward the goal of 100% equal access capability.
- 3/ Internet service provider (ISP) functions shown are provided on a non-regulated basis.

**Chart 18.1**



Source: U.S. Patent and Trademark Office, *Technology Profile Report - Telecommunications*, Classes 370, 375, 379 and 455.

Note: 1996 total reflects one-time change in law affecting patents.

## 19 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, fourteen new area codes were assigned -- the largest single-year expansion of area codes in decades. Twenty new area codes were added in 1996, forty-three in 1997, twenty in 1998, and twenty-four codes in 1999. At this time, thirteen codes are scheduled to be added in 2000. The above counts of area code activation are for the contiguous United States, offshore points, Canada, and the Caribbean. The changes in area codes from 1984 to 2001 are shown in Table 19.1. Area codes are assigned by the North American Numbering Plan Administration (NANPA), which is part of Neustar, Inc.

On May 1, 1993, procedures for routing toll-free (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 toll-free market. The growth of toll-free telephone numbers is shown in Table 19.2. In March 1996, a second toll-free calling code - 888 -- was placed in service; the third toll-free calling code -- 877 -- went into effect April 4, 1998; and the fourth toll-free calling code -- 866 went into effect July 29, 2000. The next toll-free code scheduled for service is 855, which was scheduled for November 18, 2000, but has been delayed for about 3 months. Database Service Management, Inc., a subsidiary of Telcordia Technologies, Inc., maintains the database on toll-free numbers.

Dialing patterns differ from state to state. For instance, in some states, callers making local calls between nearby area codes are only required to dial the 7-digit phone number. In other states, callers making local calls must dial the ten-digit phone number (area code plus the phone number). Finally, in some states, local callers must dial a "1" before dialing the area code plus the phone number. Each state's public utilities commission (or public service commission) determines the calling pattern in that state unless federal rules require certain other uniform calling patterns.

For both local and domestic toll calls, there are two basic types of calls: those within an area code and those between area codes. Table 19.3 shows the dialing patterns for all four types of calls. The last column of Table 19.3 indicates whether all toll calls in that state require callers to dial a "1" before the telephone number.



**Table 19.1**  
**Area Code Assignments**  
**(1984-2001)**

<b>Location</b>	<b>Date</b>	<b>Previous Code</b>	<b>Added Code</b>
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
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
Virginia	7/96	804	757

**Table 19.1**  
**Area Code Assignments -- Continued**  
**(1984-2001)**

Location	Date	Previous Code	Added Code
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 State	4/97	206	253
Washington State	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	6/97	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
Florida	6/97	904	850
Guam	7/97	NA	671
Commonwealth of the Northern Mariana Islands	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	8/97	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 Code Assignments -- Continued**  
**(1984-2001)**

<b>Location</b>	<b>Date</b>	<b>Previous Code</b>	<b>Added Code</b>
Missouri	10/97	816	660
Yukon & Northwest Territories	10/97	403	867
Yukon & Northwest Territories	10/97	819	867
Grenada	10/97	809	473
California	11/97	916	530
Oklahoma	11/97	405	580
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
Florida	3/98	305	786
California	3/98	510	925
South Carolina	3/98	803	843
North Carolina	3/98	704	828
North Carolina	3/98	919	252
Alabama	3/98	205	256
California	4/98	714	949
Colorado	2/98	303	720
St. Vincent & the Grenadines	6/98	809	784
California (Los Angeles)	6/98	213	323
Quebec	6/98	514	450
Florida	7/98	813	727
California	7/98	408	831
Minnesota	7/98	612	651
Louisiana	8/98	504	225
California	11/98	209	559
Pennsylvania	12/98	717	570
Nevada	12/98	702	775
Texas (Houston)	1/99	281	832
Texas (Houston)	1/99	713	832
Alberta	1/99	403	780
California	2/99	805	661
Texas	2/99	512	361
Arizona	3/99	602	480
Arizona	3/99	602	623
Kentucky	4/99	502	270
Mississippi	4/99	601	662
Missouri	5/99	314	636
Michigan	6/99	616	231
Pennsylvania	6/99	215	267
Pennsylvania	6/99	610	484
California	6/99	619	858
New Jersey	6/99	609	856
New York (Manhattan)	7/99	212	646
Texas (Dallas)	7/99	214	469

**Table 19.1**  
**Area Code Assignments -- Continued**  
**(1984-2001)**

Location	Date	Previous Code	Added Code
Texas (Dallas)	7/99	972	469
Florida	9/99	941	863
Wisconsin	9/99	414	262
Louisiana	10/99	318	337
Florida	11/99	407	321
New York	11/99	516	631
Tennessee	11/99	423	865
Texas	2/00	409	936
Texas	2/00	409	979
Minnesota	2/00	612	763
Minnesota	2/00	612	952
Virginia	3/00	703	571
Kentucky	4/00	606	859
New York	6/00	914	845
California	7/00	515	641
Georgia	8/00	912	478
Georgia	8/00	912	229
Oregon	10/00	503	971
Texas	10/00	817	682
Ohio	10/00	234	330

Source: North American Numbering Plan Administration (NANPA).

**Table - 19.2**  
**Telephone Numbers Assigned for Toll-Free Service**  
**800 Toll-Free Service**

<b>Year</b>	<b>Month</b>	<b>Working 800 Numbers</b>	<b>Miscellaneous 800 Numbers 1/</b>	<b>Total 800 Numbers Assigned</b>	<b>Spare 800 Numbers Still Available</b>	
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		3,659,129	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	699,803	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	5,980,848	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	6,907,098	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	7,119,167	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	7,272,819	343,905	7,616,724	93,276	

**Table - 19.2**  
**Telephone Numbers Assigned for Toll-Free Service -- Continued**  
**800 Toll-Free Service**

<b>Year</b>	<b>Month</b>	<b>Working 800 Numbers</b>	<b>Miscellaneous 800 Numbers 1/</b>	<b>Total 800 Numbers Assigned</b>	<b>Spare 800 Numbers Still Available</b>
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	607
	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
1998	January	7,431,789	264,143	7,695,932	14,068
	February	7,445,338	257,493	7,702,831	7,169
	March	7,455,240	249,964	7,705,204	4,796
	April	7,464,692	232,462	7,697,154	12,846
	May	7,476,270	228,409	7,704,679	5,321
	June	7,480,468	227,041	7,707,509	2,491
	July	7,485,866	221,078	7,706,944	3,056
	August	7,483,417	224,242	7,707,659	2,341
	September	7,489,271	219,080	7,708,351	1,649
	October	7,479,005	229,889	7,708,894	1,106
	November	7,478,913	228,892	7,707,805	2,195
	December	7,487,529	215,267	7,702,796	7,204
1999	January	7,498,435	194,520	7,692,955	17,045
	February	7,504,256	192,068	7,696,324	13,676
	March	7,498,527	204,515	7,703,042	6,958
	April	7,506,452	202,241	7,708,693	1,307
	May	7,504,523	204,751	7,709,274	726
	June	7,502,118	207,061	7,709,179	821
	July	7,512,928	196,345	7,709,273	727
	August	7,514,686	194,434	7,709,120	880
	September	7,523,302	185,363	7,708,665	1,335
	October	7,493,898	215,756	7,709,654	346
	November	7,499,343	210,266	7,709,609	391
	December	7,505,737	202,416	7,708,153	1,847
2000	January	7,486,650	223,367	7,710,017	N.A.
	February	7,490,980	198,506	7,689,486	20,514
	March	7,516,391	193,246	7,709,637	363
	April	7,531,395	177,779	7,709,174	826
	May	7,547,157	158,776	7,705,933	4,067
	June	7,570,082	139,444	7,709,526	474
	July	7,576,696	132,065	7,708,761	1,239
	August	7,558,277	151,720	7,709,997	3
	September	7,752,091	(42,295)	7,709,796	204
	October	7,578,617	131,366	7,709,983	17
	November	7,562,913	136,614	7,699,527	10,473

**Table - 19.2**  
**Telephone Numbers Assigned for Toll-Free Service -- Continued**  
**888 Toll-Free Service**

<b>Year</b>	<b>Month</b>	<b>Working 888 Numbers</b>	<b>Miscellaneous 888 Numbers 1/</b>	<b>Total 888 Numbers Assigned</b>	<b>Spare 888 Numbers Still Available</b>
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
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
1998	January	5,760,023	719,289	6,479,312	1,500,688
	February	5,968,391	723,679	6,692,070	1,287,930
	March	6,167,479	728,415	6,895,894	1,084,106
	April	6,373,603	690,041	7,063,644	916,356
	May	6,493,156	672,776	7,165,932	814,068
	June	6,591,764	665,496	7,257,260	722,740
	July	6,705,902	661,085	7,366,987	613,013
	August	6,790,315	669,486	7,459,801	520,199
	September	6,898,718	612,254	7,510,972	469,028
	October	7,012,860	573,695	7,586,555	393,445
	November	7,054,472	572,759	7,627,231	352,769
	December	7,146,159	515,009	7,661,168	318,832

**Table - 19.2**  
**Telephone Numbers Assigned for Toll-Free Service -- Continued**  
**888 Toll-Free Service**

<b>Year</b>	<b>Month</b>	<b>Working 888 Numbers</b>	<b>Miscellaneous 888 Numbers 1/</b>	<b>Total 888 Numbers Assigned</b>	<b>Spare 888 Numbers Still Available</b>
1999	January	7,196,336	510,057	7,706,393	273,607
	February	7,249,001	493,132	7,742,133	237,867
	March	7,278,531	495,904	7,774,435	205,565
	April	7,324,847	234,588	7,559,435	420,565
	May	7,385,748	216,196	7,601,944	378,056
	June	7,428,424	231,697	7,660,121	319,879
	July	7,487,759	231,884	7,719,643	260,357
	August	7,546,299	233,286	7,779,585	200,415
	September	7,601,867	211,318	7,813,185	166,815
	October	7,542,131	341,720	7,883,851	96,149
	November	7,592,293	342,918	7,935,211	44,789
	December	7,643,158	324,405	7,967,563	12,437
2000	January	7,615,927	363,960	7,979,887	113
	February	7,627,138	247,788	7,874,926	105,074
	March	7,685,423	230,035	7,915,458	64,542
	April	7,717,002	229,345	7,946,347	33,653
	May	7,758,684	157,984	7,916,668	63,332
	June	7,789,986	140,658	7,930,644	49,356
	July	7,820,147	141,713	7,961,860	18,140
	August	7,806,064	167,935	7,973,999	6,001
	September	7,806,252	173,588	7,979,840	160
	October	7,804,668	175,332	7,980,000	0
	November	7,800,173	175,148	7,975,321	4,679

**Table - 19.2**  
**Telephone Numbers Assigned for Toll-Free Service -- Continued**  
**877 Toll-Free Service**

<b>Year</b>	<b>Month</b>	<b>Working 877 Numbers</b>	<b>Miscellaneous 877 Numbers 1/</b>	<b>Total 877 Numbers Assigned</b>	<b>Spare 877 Numbers Still Available</b>	
1998	April	168,300	276,169	444,469	7,535,531	
	May	354,303	256,712	611,015	7,368,985	
	June	552,037	209,967	762,004	7,217,996	
	July	759,971	179,830	939,801	7,040,199	
	August	918,956	201,087	1,120,043	6,859,957	
	September	1,072,046	206,714	1,278,760	6,701,240	
	October	1,259,620	277,038	1,536,658	6,443,342	
	November	1,386,726	292,264	1,678,990	6,301,010	
	December	1,567,195	235,190	1,802,385	6,177,615	
	1999	January	1,712,675	233,863	1,946,538	6,033,462
		February	1,920,715	299,430	2,220,145	5,759,855
		March	2,141,228	329,044	2,470,272	5,509,728
April		2,410,517	403,711	2,814,228	5,165,772	
May		2,678,075	407,450	3,085,525	4,894,475	
June		2,899,466	410,026	3,309,492	4,670,508	
July		3,140,981	491,644	3,632,625	4,347,375	
August		3,472,534	456,372	3,928,906	4,051,094	
September		3,755,361	436,433	4,191,794	3,788,206	
October		4,008,681	486,968	4,495,649	3,484,351	
November		4,304,159	505,179	4,809,338	3,170,662	
December		4,528,106	575,143	5,103,249	2,876,751	
2000	January	4,882,111	573,482	5,455,593	2,524,407	
	February	5,118,387	659,479	5,777,866	2,202,134	
	March	5,436,297	598,702	6,034,999	1,945,001	
	April	5,764,078	520,951	6,285,029	1,694,971	
	May	6,098,025	469,486	6,567,511	1,412,489	
	June	6,317,507	402,858	6,720,365	1,259,635	
	July	6,608,186	391,545	6,999,731	980,269	
	August	6,636,282	385,065	7,021,347	958,653	
	September	6,539,180	496,015	7,035,195	944,805	
	October	6,475,202	622,384	7,097,586	882,414	
	November	6,509,307	606,381	7,115,688	864,312	

**Table - 19.2**  
**Telephone Numbers Assigned for Toll-Free Service -- Continued**  
**866 Toll-Free Service**

Year	Month	Working 866 Numbers	Miscellaneous 866 Numbers 1/	Total 866 Numbers Assigned	Spare 866 Numbers Still Available
2000	July	8,714	135,238	143,952	7,836,048
	August	384,164	213,442	597,606	7,382,394
	September	672,250	155,646	827,896	7,152,104
	October	931,620	161,091	1,092,711	6,887,289
	November	1,155,895	122,102	1,277,997	6,702,003

1/ Miscellaneous numbers include those in the 800, 888, 877 and 866 service management systems maintained by Database Service Management, Inc., and categorized as reserved, assigned but not yet activated, recently disconnected, or suspended.

**Table 19.3**

**Dialing Patterns of the United States**  
**(Number of Digits Necessary to Dial Local and Toll Calls)**

<b>State</b>	<b>Local Calls Within Same Area Code</b>	<b>Local Calls Between Area Codes</b>	<b>Toll Calls Within Same Area Code</b>	<b>Toll Calls Between Area Codes</b>	<b>Toll Calls Which Require Dialing 1 +</b>
Alabama	7	7	1 + 10	1 + 10	Yes
Alaska	7	1 + 10	1 + 10	1 + 10	Yes
Arizona	7	10 <sup>1</sup>	1 + 10	1 + 10	Yes
Arkansas	7	7	1 + 10	1 + 10	Yes
California	7	1 + 10	1 + 10	1 + 10	Yes
Colorado	10 <sup>2</sup>	10 <sup>3</sup>	1 + 10	1 + 10	Yes
Connecticut	7	10	1 + 10	1 + 10	Yes
Delaware	7	10	1 + 10	1 + 10	Yes
District of Columbia	7	10	NA	1 + 10	Yes
Florida	10 <sup>4</sup>	10	1 + 10	1 + 10	Yes
Georgia	7 <sup>5</sup>	10	1 + 10	1 + 10	Yes
Hawaii	7	NA	1 + 10	1 + 10	Yes
Idaho	7	7	1 + 10	1 + 10	Yes
Illinois	7 <sup>6</sup>	1 + 10	1 + 10	1 + 10	Yes
Indiana	7	7	1 + 10	1 + 10	Yes
Iowa	7	7 <sup>7</sup>	1 + 10	1 + 10	Yes
Kansas	7	7	1 + 10	1 + 10	Yes
Kentucky	7	7	1 + 10	1 + 10	Yes
Louisiana	7	1 + 10	1 + 10	1 + 10	Yes
Maine	7	1 + 10	1 + 10	1 + 10	Yes
Maryland	10	10	1 + 10	1 + 10	Yes
Massachusetts	7	10	1 + 10	1 + 10	Yes
Michigan	7 <sup>8</sup>	1 + 10	1 + 10	1 + 10	Yes
Minnesota	7	10 <sup>9</sup>	1 + 10	1 + 10	Yes
Mississippi	7	7	1 + 10	1 + 10	Yes
Missouri	7	10	1 + 10	1 + 10	Yes
Montana	7	7	1 + 10	1 + 10	Yes
Nebraska	7	7	1 + 10	1 + 10	Yes
Nevada	7	1 + 10	1 + 10	1 + 10	Yes
New Hampshire	7	1 + 10	7	1 + 10	No
New Jersey	7	1 + 10	7	1 + 10	No
New Mexico	7	7	1 + 10	1 + 10	Yes
New York	7	1 + 10	7	1 + 10	No
North Carolina	7 <sup>10</sup>	1 + 10 <sup>10</sup>	1 + 10	1 + 10	Yes
North Dakota	7	7	1 + 10	1 + 10	Yes

**Table 19.3**

**Dialing Patterns of the United States - Continued**  
**(Number of Digits Necessary to Dial Local and Toll Calls)**

<b>State</b>	<b>Local Calls Within Same Area Code</b>	<b>Local Calls Between Area Codes</b>	<b>Toll Calls Within Same Area Code</b>	<b>Toll Calls Between Area Codes</b>	<b>Toll Calls Which Require Dialing 1 +</b>
Ohio	7	1 + 10	1 + 10	1 + 10	Yes
Oklahoma	7	7	1 + 10	1 + 10	Yes
Oregon	7	7 <sup>11</sup>	1 + 10	1 + 10	Yes
Pennsylvania	7 <sup>12</sup>	10	7 <sup>12</sup>	1 + 10	No
Rhode Island	7	1 + 10	7	1 + 10	No
South Carolina	7	1 + 10	1 + 10	1 + 10	Yes
South Dakota	7	7	1 + 10	1 + 10	Yes
Tennessee	7	7	1 + 10	1 + 10	Yes
Texas	7 <sup>13</sup>	10	1 + 10	1 + 10	Yes
Utah	7	10 <sup>14</sup>	1 + 10	1 + 10	Yes
Vermont	7	1 + 10	1 + 10	1 + 10	Yes
Virginia	7 <sup>15</sup>	10	1 + 10	1 + 10	Yes
Washington	7 <sup>16</sup>	10 <sup>17</sup>	1 + 10	1 + 10	Yes
West Virginia	7	1 + 10	1 + 10	1 + 10	Yes
Wisconsin	7	1 + 10	1 + 10	1 + 10	Yes
Wyoming	7	7	1 + 10	1 + 10	Yes

Source: USTA.

NA - Not Applicable.

Notes:

- <sup>1</sup> In area code 520, 7-digit dialing is used.
- <sup>2</sup> In area codes 719 and 970, 10-digit dialing is used.
- <sup>3</sup> In area code 970, 7-digit dialing is used.
- <sup>4</sup> In area codes 352, 561, 727 and in the Brevard area of 321, 7-digit dialing is used.
- <sup>5</sup> In area codes 404, 678 and 770, 7-digit dialing is used.
- <sup>6</sup> In area codes 224, 331 and 464, 10-digit dialing is used.
- <sup>7</sup> In area code 515, 10-digit dialing is used.
- <sup>8</sup> In area codes 278, 679 and 947, 1 + 10-digit dialing is used.
- <sup>9</sup> In area codes 218, 320 and 507, 7-digit dialing is used.
- <sup>10</sup> In area codes 704 and 980, 10-digit dialing is used.
- <sup>11</sup> In overlay areas of codes 503 and 971, 10-digit dialing is used
- <sup>12</sup> In area codes 215, 267, 484 and 610, 10-digit dialing is used.
- <sup>13</sup> In area codes 214, 281, 713, 832 and 972, 10-digit dialing is used.
- <sup>14</sup> In area code 435, 7-digit dialing is used.
- <sup>15</sup> In area codes 540 and 703, 10-digit dialing is used.
- <sup>16</sup> In area code 360, 10-digit dialing is used.
- <sup>17</sup> In area code 509, 7-digit dialing is used.

## 20 Universal Service

The high-cost support mechanisms enable areas with very high costs to recover some of these costs from the support mechanisms, leaving a smaller remainder of the costs to be recovered through end-user rates. In this manner, the high-cost support mechanisms are intended to hold down rates and thereby further one of the most important goals of federal and state regulation -- the preservation and advancement of universal telephone service.

There currently are five high-cost support mechanisms. These include three existing mechanisms for embedded high-cost loop (HCL) support<sup>1</sup>, long-term support (LTS), and local switching support (LSS). Two new mechanisms have been added since our last report. These are the forward-looking high-cost model support and the interstate access universal service support.

The universal service fund (USF) high-cost loop support provides assistance to companies with above average non-traffic-sensitive local loop costs -- a term that refers to the costs of providing the loop connection between the customers and the central office. The second high-cost support mechanism, LTS, is also related to non-traffic-sensitive costs. LTS provides support to members of the NECA common line pool, to allow them to charge a below-cost carrier common line rate that is uniform for all companies in the pool. The third high-cost support mechanism, LSS, is related to traffic-sensitive local switching costs. LSS provides support to LECs with study areas of 50,000 or fewer access lines to help defray the higher switching cost of small LECs.

In October 1999, the Commission adopted the fourth mechanism, a new high-cost support mechanism for non-rural carriers. The new mechanism is based on the forward-looking costs of providing supported services as determined by the Commission's cost model. For each state, the cost model calculates the wire center average forward-looking cost per line incurred by non-rural carriers to provide supported services. These wire center average costs are then averaged at the statewide level to determine the statewide average forward-looking cost per line. The forward-looking support mechanism provides support to non-rural carriers in those states that have a statewide average forward-looking cost per line greater than the national benchmark, which is set at 135 percent of the national average forward-looking cost per line.

On May 31, 2000, the Commission established the fifth mechanism, an explicit interstate access universal service support mechanism for price-cap carriers to replace the implicit support previously collected through interstate access charges. Like LTS, the purpose of this new mechanism is to provide explicit support to ensure reasonably affordable interstate rates. This is in contrast to the Commission's other high-cost support mechanisms, which provide support to enable states to ensure reasonably affordable and comparable intrastate rates.

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<sup>1</sup> This was formerly referred to as the Universal Service Fund, and still bears that name in the Commission rules. It is now referred to as High-Cost Loop support to avoid confusion with the new, more comprehensive universal service support mechanisms that the Commission developed to implement the 1996 Act. See 47 CFR § 36.601.

Table 20.1 shows USF, LTS, LSS, forward-looking high-cost model support, and interstate access universal service support payments from 1986 to 2000. Table 20.2 shows projected payments by state for 2000. It should be noted that these projections do not include subsequent quarterly true-ups.

Eligible schools and libraries receive telecommunications services, Internet access, and internal connections at discounts that range from 20 percent to 90 percent. The level of the discount is based on eligibility for the national school lunch program, location in a rural area, and the total amount of money requested by all schools and libraries. These schools and libraries are eligible to receive support for services that qualify as telecommunications services, Internet access, or internal connections.

The portion of universal service support designated for health care providers is designed to allow rural health care providers to purchase telecommunications services at the same rates that health care providers located in urban areas pay for these services. The Commission's universal service rules permit eligible health care providers to receive support for any telecommunications service and for distance charges for the distance between the rural health care provider and the nearest large city. The Commission defined "nearest large city" as the closest city in the state with a population of at least 50,000. In addition, any health care provider that cannot obtain toll-free Internet access is entitled to receive the lesser of \$180 of toll charges per month, or the toll charges incurred for 30 hours per month, for telecommunications access to an Internet service provider.

Table 20.3 shows, on a state-by-state basis, funding commitments to schools and libraries for the July 1, 1999 - June 30, 2000 funding year. The commitments are broken down by type of service that was funded. Table 20.4 shows, on a state-by-state basis, funding commitments and funding authorizations to rural health care providers for the same period. Funding authorizations represent the penultimate step before actual disbursement of funds, and reflect actual disbursements to providers in those states.

Carriers contribute to universal service based on their end-user revenue. Table 20.5 shows interstate and intrastate contribution rates since the first quarter of 1998.

**Table 20.1**

**Universal Service Fund Payment History**  
(In Millions of Dollars)

<b>Year</b>	<b>High-Cost Loop Support</b>	<b>Long-Term Support</b>	<b>Switching Support</b>	<b>New High-Cost Model Support</b>	<b>Interstate Access Support</b>	<b>Total Support</b>	<b>Cumulative Payments</b>
1986	\$56	\$0	NA	\$0	\$0	\$56	\$56
1987	126	0	NA	0	0	126	181
1988	183	0	NA	0	0	183	365
1989	265	236	NA	0	0	500	865
1990	339	263	NA	0	0	602	1,467
1991	485	272	NA	0	0	757	2,223
1992	609	306	NA	0	0	915	3,138
1993	705	323	\$311	0	0	1,339	4,477
1994	725	347	304	0	0	1,376	5,853
1995	750	382	325	0	0	1,457	7,310
1996	763	426	348	0	0	1,536	8,846
1997	794	470	351	0	0	1,614	10,460
1998	827	473	413	0	0	1,712	12,173
1999	864	473	383	0	0	1,720	13,893
2000	872	479	391	219	276	2,237	16,130

Source: Industry Analysis Division, *Monitoring Report* and USAC filings.

NA - Not Available.

TABLE 20.2

**Projected High-Cost Support Payments by State: 2000**  
(In Thousands of Dollars)

	High-Cost Loop Support	Long-Term Loop Support	Local Switching Support	New High-Cost Model Support	Interstate Access Support	Total Support
Alabama	\$13,188	\$7,335	\$6,554	\$51,744	\$8,830	\$87,650
Alaska	38,841	16,954	15,444	0	0	71,240
American Samoa	0	258	333	0	0	591
Arizona	19,902	3,111	10,327	0	2,075	35,414
Arkansas	46,309	15,394	7,767	0	3,417	72,887
California	28,553	13,271	7,454	0	16,413	65,692
Colorado	28,096	12,112	4,031	0	8,130	52,369
Connecticut	0	163	723	0	0	886
Delaware	0	0	0	0	195	195
District of Columbia	0	0	0	0	0	0
Florida	10,582	5,321	3,756	0	30,807	50,466
Georgia	42,691	17,863	12,907	0	6,066	79,527
Guam	1,319	1,946	0	0	0	3,266
Hawaii	379	159	786	0	732	2,055
Idaho	18,866	3,459	6,609	0	6,916	35,850
Illinois	6,704	6,212	11,884	0	6,593	31,393
Indiana	4,921	5,134	9,040	0	11,637	30,731
Iowa	4,381	7,237	15,023	0	3,790	30,431
Kansas	38,856	11,452	13,599	0	3,336	67,243
Kentucky	9,496	4,899	4,965	1,212	9,033	29,606
Louisiana	43,967	16,729	6,710	0	5,441	72,848
Maine	6,038	6,009	7,474	10,776	417	30,713
Maryland	0	91	461	0	1,842	2,394
Massachusetts	21	102	470	0	675	1,269
Michigan	21,791	9,821	7,869	0	90	39,571
Minnesota	16,598	12,154	17,305	0	2,037	48,094
Mississippi	14,507	5,076	3,802	103,707	5,959	133,052
Missouri	39,819	10,660	8,185	0	7,715	66,380
Montana	25,241	10,009	9,332	1,542	267	46,391
Nebraska	8,071	3,861	11,089	0	599	23,621
Nevada	4,420	916	6,354	0	2,990	14,680
New Hampshire	1,147	1,512	4,893	0	992	8,544
New Jersey	0	0	970	0	2,534	3,504
New Mexico	18,576	6,160	9,122	0	3,843	37,701
New York	14,992	6,806	18,518	0	12,706	53,021
North Carolina	10,577	12,053	5,935	0	5,739	34,304
North Dakota	7,991	5,982	10,478	0	517	24,969
Northern Mariana Islands	2,457	0	727	0	126	3,310
Ohio	5,822	5,213	4,654	0	3,897	19,587
Oklahoma	32,957	16,412	13,178	0	3,395	65,942
Oregon	22,444	9,254	7,366	0	7,824	46,888
Pennsylvania	1,095	14,137	7,010	0	6,570	28,812
Puerto Rico	51,970	91,622	0	0	0	143,591
Rhode Island	0	0	0	0	25	25
South Carolina	20,182	11,098	10,728	0	8,334	50,342
South Dakota	5,946	5,040	9,934	0	33	20,953
Tennessee	11,913	10,393	7,550	0	4,496	34,352
Texas	69,832	29,651	18,153	0	18,810	136,446
Utah	3,908	1,488	5,367	0	1,584	12,347
Vermont	3,397	2,389	4,836	15,104	188	25,913
Virgin Islands	16,947	7,206	0	0	0	24,153
Virginia	4,369	3,342	4,096	0	25,319	37,126
Washington	23,499	13,268	5,845	0	8,646	51,259
West Virginia	17,540	1,061	3,534	31,235	9,691	63,061
Wisconsin	17,633	12,832	22,103	0	1,292	53,860
Wyoming	13,730	4,501	5,584	3,612	2,959	30,386
Total	872,481	479,134	390,833	218,931	275,523	2,236,901

Source: Industry Analysis Division, *Monitoring Report* and USAC filings.

**Table 20.3**  
**Schools and Libraries Funding Commitments by State and by Type of Service**  
**(Funding Period: July 1, 1999 Through June 30, 2000, with**  
**Funds Committed Through August 8, 2000)<sup>1</sup>**

State/Territory	Internal Connections		Internet Access		Telecom. & Dedicated		Totals	
	Funds Committed	Funding Commitments	Funds Committed	Funding Commitments	Funds Committed	Funding Commitments	Funds Committed	Funding Commitments
Alabama	\$16,731,065	185	\$3,307,547	164	\$6,613,773	374	\$26,652,385	723
Alaska	3,615,055	67	624,718	48	7,949,339	120	12,189,112	235
American Samoa	1,179,617	1	1,046,886	1	477,318	1	2,703,821	3
Arizona	31,239,892	220	1,339,035	122	6,138,065	251	38,716,993	593
Arkansas	3,351,205	155	2,589,054	28	4,556,981	328	10,497,240	511
California	196,957,608	1,357	9,268,979	372	50,448,904	1,114	256,675,491	2,843
Colorado	3,885,537	129	651,469	133	7,241,791	274	11,778,797	536
Connecticut	24,243,142	161	1,591,135	119	6,299,208	247	32,133,485	527
Delaware	33,192	8	42,826	8	1,317,671	81	1,393,689	97
District of Columbia	4,950,853	21	454,669	17	3,943,269	52	9,348,790	90
Florida	39,780,130	435	5,474,055	105	27,768,686	363	73,022,871	903
Georgia	67,215,207	297	4,654,351	114	19,696,057	274	91,565,615	685
Hawaii	3,549,428	212	206,035	9	1,545,721	360	5,301,184	581
Idaho	2,896,997	72	369,884	74	1,857,219	138	5,124,100	284
Illinois	133,937,332	607	3,569,256	361	25,098,995	999	162,605,584	1,967
Indiana	9,436,242	201	1,928,658	127	11,511,119	606	22,876,019	934
Iowa	3,835,578	235	919,636	327	3,385,458	666	8,140,673	1,228
Kansas	7,575,128	162	1,502,808	276	5,912,182	426	14,990,119	864
Kentucky	43,014,149	292	1,423,937	102	13,161,285	355	57,599,372	749
Louisiana	22,952,980	291	5,014,558	174	9,757,874	408	37,725,412	873
Maine	1,450,788	141	249,179	22	1,949,500	252	3,649,468	415
Maryland	10,489,885	118	827,593	66	10,745,052	191	22,062,531	375
Massachusetts	20,149,908	204	1,580,591	235	12,106,442	492	33,836,941	931
Michigan	51,286,844	694	5,327,393	373	22,387,196	1,026	79,001,433	2,093
Minnesota	14,370,951	195	1,374,290	130	13,540,544	422	29,285,785	747
Mississippi	16,182,832	267	2,029,223	129	12,028,124	355	30,240,179	751
Missouri	9,109,607	265	9,254,585	101	10,412,358	482	28,776,549	848
Montana	1,404,084	109	580,809	201	1,791,438	279	3,776,330	589
Nebraska	927,382	64	522,755	150	5,361,711	492	6,811,849	706
Nevada	122,812	4	92,298	13	2,932,816	43	3,147,926	60
New Hampshire	185,336	30	204,434	64	879,334	158	1,269,104	252
New Jersey	24,884,601	279	2,032,588	301	16,023,117	654	42,940,307	1,234
New Mexico	22,937,210	94	717,464	65	5,514,233	95	29,168,907	254
New York	109,798,375	862	15,888,012	626	69,349,626	1,810	195,036,013	3,298
North Carolina	19,244,767	210	3,832,094	168	14,695,082	311	37,771,943	689
North Dakota	653,040	72	234,400	65	1,324,872	181	2,212,311	318
Northern Marianas Islands	0	0	9,757	1	85,643	2	95,401	3
Ohio	21,009,529	296	5,045,451	131	16,560,159	829	42,615,139	1,256
Oklahoma	20,545,380	455	3,602,175	329	9,967,442	687	34,114,997	1,471
Oregon	4,397,092	184	592,760	78	6,112,092	312	11,101,944	574
Pennsylvania	34,461,458	346	3,554,908	445	18,617,073	1,267	56,633,439	2,058
Puerto Rico	42,683,867	149	8,306,875	112	16,851,991	150	67,842,733	411
Rhode Island	4,007,839	43	401,588	34	3,421,683	110	7,831,110	187
South Carolina	20,302,614	264	229,899	11	11,836,229	173	32,368,742	448
South Dakota	615,057	80	530,722	123	1,004,962	157	2,150,741	360
Tennessee	31,281,593	143	19,553,173	164	10,793,503	326	61,628,268	633
Texas	89,376,474	656	5,393,973	514	41,143,495	1,012	135,913,941	2,182
Utah	486,263	15	2,000,767	43	2,943,835	102	5,430,865	160
Vermont	203,569	57	292,606	84	1,108,575	217	1,604,750	358
Virgin Islands	2,044,407	5	220,321	4	82,789	5	2,347,516	14
Virginia	10,141,991	161	1,817,077	125	13,325,873	337	25,284,942	623
Washington	20,253,338	367	628,020	87	10,460,398	383	31,341,756	837
West Virginia	4,545,091	148	2,301,487	179	2,534,744	462	9,381,323	789
Wisconsin	10,114,970	214	2,995,902	328	13,023,476	567	26,134,348	1,109
Wyoming	2,941,437	44	180,353	32	1,862,104	107	4,983,894	183
<b>Grand Total</b>	<b>\$1,242,990,726</b>	<b>12,343</b>	<b>\$148,385,021</b>	<b>8,214</b>	<b>\$597,458,428</b>	<b>21,885</b>	<b>\$1,988,834,175</b>	<b>42,442</b>

Source: Universal Service Administrative Company data.

<sup>1</sup> Because of the appeals process, funding commitments have been made after the program year ended on June 30, 2000.

**Table 20.4**

**Rural Health Care Funding Commitments and Authorizations for Payment by State  
(Funding Period: July 1, 1999 Through June 30, 2000;  
Activity Through June 30, 2000)<sup>1</sup>**

<b>State</b>	<b>Total Funds Committed</b>	<b>Providers Receiving Commitments</b>	<b>Total Funds Authorized for Payment</b>	<b>Providers Receiving Authorizations</b>
Alabama	\$0	0	\$0	0
Alaska	4,301,048	99	174,032	12
Arizona	28,663	6	13,113	4
Arkansas	22,531	6	2,167	1
California	85,711	50	25,967	11
Colorado	11,823	1	0	0
Connecticut	0	0	0	0
Delaware	0	0	0	0
District of Columbia	0	0	0	0
Florida	0	0	0	0
Georgia	0	0	0	0
Hawaii	86,491	10	0	0
Idaho	17,027	3	7,220	1
Illinois	0	0	0	0
Indiana	0	0	0	0
Iowa	1,739	3	0	0
Kansas	87,301	60	10,406	7
Kentucky	0	0	0	0
Louisiana	0	0	0	0
Maine	0	0	0	0
Maryland	0	0	0	0
Massachusetts	0	0	0	0
Michigan	49,986	6	0	0
Minnesota	109,603	25	6,735	1
Mississippi	7,007	3	0	0
Missouri	16,371	4	10,097	1
Montana	81,398	18	18,697	5
Nebraska	236,215	14	762	1
Nevada	0	0	0	0
New Hampshire	18,463	5	0	0
New Jersey	0	0	0	0
New Mexico	31,330	7	0	0
New York	0	0	0	0
North Carolina	68,577	10	827	1
North Dakota	35,782	9	0	0
Ohio	27,527	7	11,138	2
Oklahoma	9,931	3	2,456	2
Oregon	4,993	3	0	0
Pennsylvania	0	0	0	0
Rhode Island	0	0	0	0
South Carolina	4,636	1	0	0
South Dakota	6,333	5	0	0
Tennessee	0	0	0	0
Texas	35,068	11	5,684	7
Utah	0	0	0	0
Vermont	0	0	0	0
Virginia	0	0	0	0
Washington	9,764	5	322	1
West Virginia	804	2	0	0
Wisconsin	69	1	0	0
Wyoming	0	0	0	0
<b>Totals</b>	<b>\$5,396,191</b>	<b>377</b>	<b>\$289,623</b>	<b>57</b>

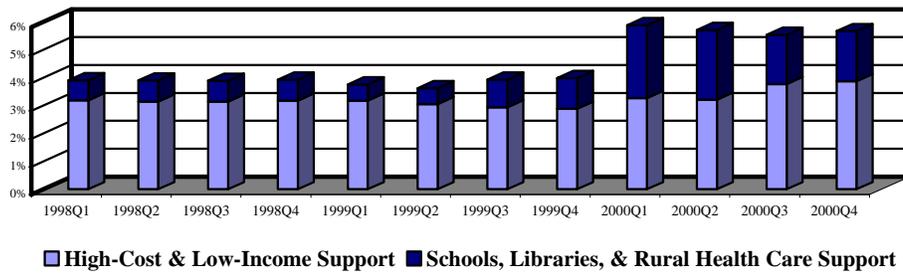
Source: Universal Service Administrative Company data.

<sup>1</sup> Funding commitments and disbursements to rural health care providers will continue beyond June 30, 2000. Each rural health care provider receives no more than one funding commitment.

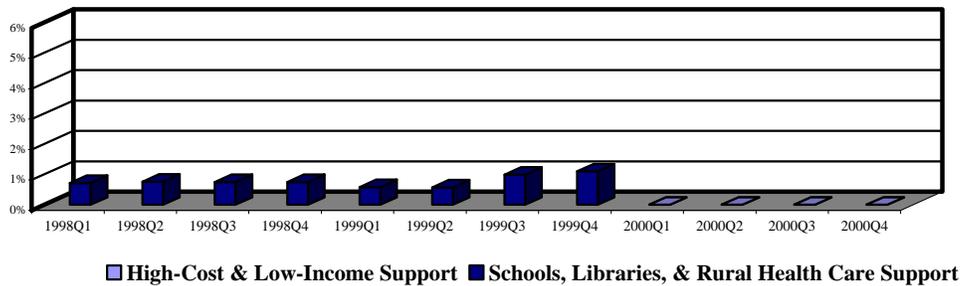
**Table 20.5  
Universal Service Fund Factors**

Year Period	Factor for Interstate End-User Revenues			Factor for Intrastate End-User Revenues		
	High-Cost & Low-Income Support	Schools, Libraries, & Rural Health Care Support	All Support	High-Cost & Low-Income Support	Schools, Libraries, & Rural Health Care Support	All Support
1998 First Quarter	3.19%	0.72%	3.91%	0.00%	0.72%	0.72%
Second Quarter	3.14	0.76	3.90	0.00	0.76	0.76
Third Quarter	3.14	0.75	3.89	0.00	0.75	0.75
Fourth Quarter	3.18	0.75	3.93	0.00	0.75	0.75
1999 First Quarter	3.18	0.58	3.76	0.00	0.58	0.58
Second Quarter	3.05	0.57	3.62	0.00	0.57	0.57
Third Quarter	2.94	0.99	3.93	0.00	0.99	0.99
Fourth Quarter	2.89	1.10	3.99	0.00	1.10	1.10
2000 First Quarter	3.27	2.61	5.88	0.00	0.00	0.00
Second Quarter	3.21	2.50	5.71	0.00	0.00	0.00
Third Quarter	3.77	1.77	5.54	0.00	0.00	0.00
Fourth Quarter	3.88	1.79	5.67	0.00	0.00	0.00

**Chart 20.1  
Interstate Universal Service Fund Factors**



**Chart 20.2  
Intrastate Universal Service Fund Factors**



## 21 Appendix A – Sources of Telecommunications Information

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>.

Printed copies of various statistical reports are available for reference in the FCC's Reference Information Center, Courtyard Level, 445 12th Street, S.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*. The 60th Anniversary edition (1999/2000) can be purchased from the U.S. Government Printing Office (202-512-1800) and can be found on the **FCC-State Link**.

Filings with the Securities and Exchange Commission, such as the annual reports on Form 10-K, can be downloaded from the Edgar Internet site at <http://www.sec.gov>.

The names, addresses and telephone numbers for companies in the telephone industry are published in the Industry Analysis Division's *Carrier Locator*, which can also be downloaded from the **FCC-State Link**.

The information on consumer expenditures (Table 3.1), employment (Tables 5.1 and 5.2), and price indices (Tables 13.1 - 13.3) comes from the Bureau of Labor Statistics and can be found on the Internet at <http://stats.bls.gov/blshome.htm>.

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. Tables 6.1 - 6.5 contain summary information on international telephone service. More detailed international data are available from *International Telecommunications Data and Trends in the International Telecommunications Industry*, both of which are published by the Industry Analysis Division and can also be found on the **FCC-State Link**.

Table 10.5, on carrier identification codes, and Table 19.1, on area codes, come from the North American Numbering Plan Administration (NANPA), which is part of Neustar, Inc. Additional information on NANPA can be found on the Internet at <http://www.nanpa.com>.

The information on wireless telephone service shown in Tables 12.2 and 12.3 was prepared from data received from the Cellular Telecommunications & Internet Association (CTIA), 1133 21st Street N.W., Washington, D.C. 20036, 202-785-0081. CTIA can be found on the Internet at <http://www.wow-com.com>.

Table 14.3 shows average monthly local rates of RUS Borrowers. Further information on rural telephone companies can be obtained from the Rural Utilities Service, U.S. Department of Agriculture.

This agency can be found on the Internet at <<http://www.usda.gov/rus>>.

TNS Telecoms (TNS) has donated databases containing information on residential phone usage to the Commission. TNS has granted the Commission permission to use these databases for research purposes and to publish the results. The 1995 survey is known as *Bill Harvesting II* and the 1996 survey, *Bill Harvesting III*. The expanded 1997 survey, which contains over twice as many observations, was conducted by both TNS Telecoms and by Market Facts, Inc. and is known as *TLC MarketShare Monitor*. Tables 10.9, 10.10, and 15.1 - 15.6 come from these databases. For additional information, TNS Telecoms can be contacted by phone at (215) 886-9200, and by e-mail at [info@pnr.com](mailto:info@pnr.com). Their address is 101 Greenwood Avenue, Suite 502, Jenkinstown, PA 19046.

Copies of NTIA's report *Falling Through the Net: Toward Digital Inclusion* can be obtained through NTIA's web site at <<http://www.ntia.doc.gov>> or by contacting NTIA's Office of Public Affairs at (202) 482-7002.

Tables 18.1-18.3 contain information from the ARMIS 43-07 reports for the BOCs. Individual carrier information can be obtained from the ARMIS web page at <<http://www.fcc.gov/ccb/ARMIS/db>>.

Chart 18.1 shows the number of patents granted for telecommunications. Additional information on U.S. patents can be found on the Internet at <<http://www.uspto.gov>>.

The United States Telecom Association (USTA) (1401 H Street N.W., Washington, D.C. 20005, 202-326-7300) represents most local telephone companies. 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*. USTA can be found on the Internet at <<http://www.usta.org>>.

Additional information on broadband capabilities of the small local telephone companies can be found in the publication, *Keeping America Connected: The Broadband Challenge*, published by the National Exchange Carrier Association (NECA). NECA (80 South Jefferson Road, Whippany NJ 07981-1009, 800-228-8597) can be found on the Internet at <<http://www.neca.org>>.

## 22 Appendix B – Contacting the Report Authors

*Trends in Telephone Service* was prepared by the Industry Analysis Division, Common Carrier Bureau, Federal Communications Commission. Principal authors of the report can be contacted at their electronic mail addresses or by calling the Industry Analysis Division at 202-418-0940. Users of TTY equipment should call 202-418-0484.

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Employment .....	Katie Rangos
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