TABLE 12.3

INTERSTATE SWITCHED ACCESS MINUTES
(FIGURES SHOWN IN BILLIONS)

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

PRICE INDEXES FOR TELEPHONE SERVICES:

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

1. Long-Term Trends in Price Indexes:

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

2. Comprehensive Price Indexes:

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

3. Price Index for Local Service:

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

4. Price Indexes for Long Distance Service:

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

5. Price Index Limitations:

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

TABLE 13.1

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

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

Source: Bureau of Labor Statistics.

* Series not established until after 1935.

TABLE 13.2

ANNUAL CHANGES IN MAJOR PRICE INDEXES

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

Source: Bureau of Labor Statistics.

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

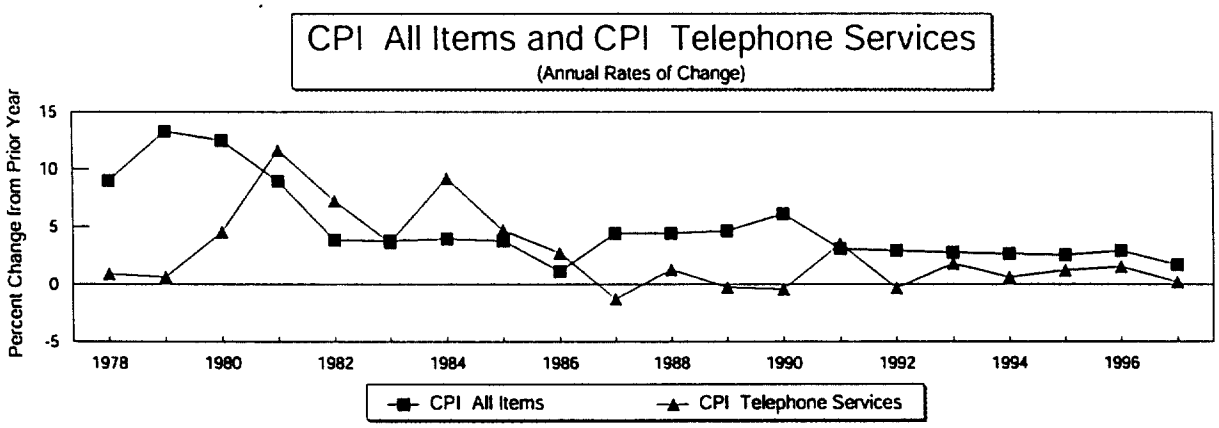


TABLE 13.3

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

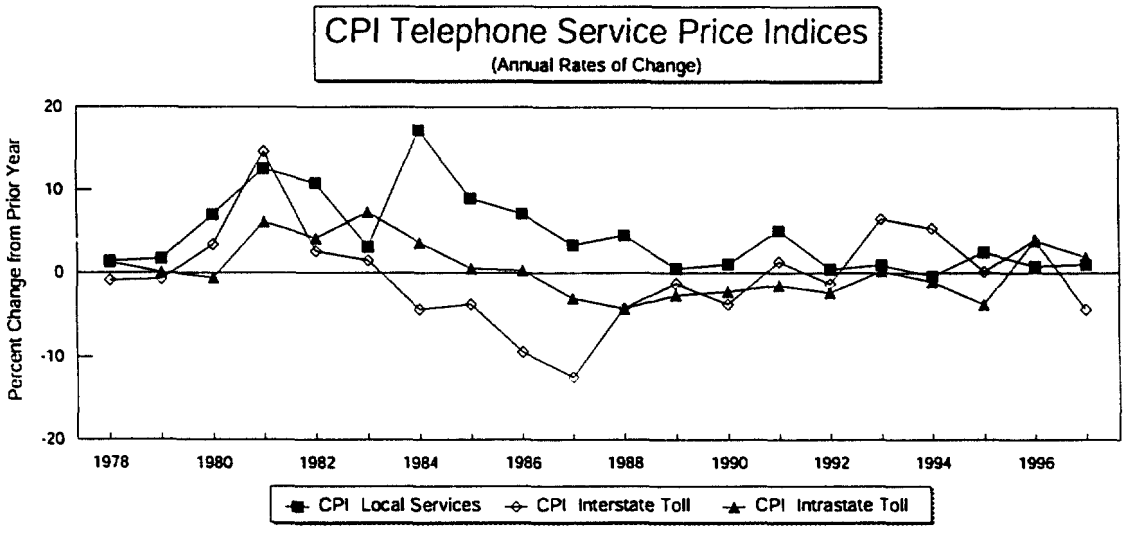
	Local Residential Service		Toll Service *			
	CPI: all local charges	PPI: Monthly Service Charges	Interstate Toll Calls		Intrastate Toll Calls	
			CPI	PPI	CPI	PPI
1978	1.4 %	3.1 %	-0.8 %	0.0 %	1.3 %	0.1 %
1979	1.7	1.6	-0.7	-0.9	0.1	-0.7
1980	7.0	7.1	3.4	5.5	-0.6	2.3
1981	12.6	15.6	14.6	15.9	6.2	8.0
1982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

Source: Bureau of Labor Statistics.

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

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

*** PPI figures are preliminary.



PRICE LEVELS:

1. Local Rate Levels:

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

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

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

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

2. Long Distance Rates:

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

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

TABLE 14.1

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

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
RESIDENTIAL RATES*														
UNLIMITED LOCAL CALLING	$10.50	$12.10	$12.17	$12.58	$12.44	$12.32	$12.30	$12.39	$13.10	$13.12	$13.22	$13.28	$13.62	$13.70
SUBSCRIBER LINE CHARGES	0.00	0.00	1.01	2.04	2.66	2.67	3.53	3.55	3.56	3.55	3.55	3.55	3.54	3.54
TAXES INCLUDING 911 CHARGES	1.08	1.25	1.36	1.51	1.56	1.58	1.70	1.85	2.00	2.03	2.17	2.24	2.34	2.34
TOTAL	$11.58	$13.35	$14.54	$16.13	$16.66	$16.57	$17.53	$17.79	$18.66	$18.70	$18.94	$19.07	$19.49	$19.58
LOWEST GENERALLY AVAILABLE RATE	$5.37	$5.62	$5.75	$5.96	$5.81	$5.67	$5.67	$5.68	$6.18	$6.22	$6.43	$6.47	$6.80	$7.08
SUBSCRIBER LINE CHARGES	0.00	0.00	1.01	2.04	2.66	2.67	3.53	3.55	3.56	3.55	3.55	3.55	3.54	3.54
TAXES INCLUDING 911 CHARGES	0.56	0.58	0.70	0.84	0.94	0.91	1.03	1.15	1.28	1.31	1.45	1.50	1.56	1.62
TOTAL	$5.93	$6.20	$7.46	$8.84	$9.41	$9.25	$10.23	$10.38	$11.02	$11.08	$11.43	$11.52	$11.79	$12.22
MINIMUM CONNECTION CHARGE***	$35.01	$43.71	$44.32	$45.63	$44.04	$42.94	$42.71	$43.06	$42.00	$41.52	$41.38	$41.26	$40.91	$41.08
TAXES	1.75	2.19	2.22	2.28	2.20	2.11	2.24	2.32	2.19	2.18	2.21	2.27	2.42	2.35
TOTAL	$36.76	$45.90	$46.54	$47.91	$46.24	$45.05	$44.95	$45.38	$44.19	$43.70	$43.59	$43.53	$43.33	$43.42
BUSINESS RATES														
REPRESENTATIVE RATE**	$29.16	$32.74	$33.42	$34.26	$33.71	$31.03	$31.06	$30.97	$32.29	$32.45	$32.70	$32.25	$32.46	$32.54
TOUCH-TONE SERVICE	**	**	**	**	**	2.45	2.43	2.35	1.84	1.71	1.67	1.21	0.97	0.89
SUBSCRIBER LINE CHARGES	0.00	0.00	1.01	2.04	2.68	2.69	3.55	3.57	3.57	3.56	3.57	3.57	3.57	3.56
TAXES AND 911 CHARGES	3.35	3.77	3.96	4.17	4.18	3.95	4.21	4.32	4.42	4.57	4.63	4.61	4.77	4.84
TOTAL	$32.51	$36.51	$38.39	$40.47	$40.57	$40.12	$41.25	$41.21	$42.12	$42.29	$42.57	$41.64	$41.77	$41.83
AVERAGE CHARGE FOR 5-MINUTE SAME ZONE DAYTIME BUSINESS CALL	0.085	0.090	0.090	0.092	0.092	0.091	0.093	0.093	0.091	0.093	0.094	0.092	0.091	0.091
MINIMUM CONNECTION CHARGE***	$56.04	$68.84	$70.82	$72.94	$72.15	$70.48	$71.05	$71.36	$72.75	$72.55	$71.41	$69.88	$67.87	$68.45
TOUCH-TONE SERVICE	**	**	**	**	**	2.03	1.70	1.89	1.13	1.19	1.17	0.92	0.27	0.17
TAXES	3.08	3.79	3.90	4.01	3.97	3.92	4.06	4.15	4.32	4.33	4.25	4.13	4.18	4.19
TOTAL	$59.12	$72.63	$74.72	$76.95	$76.12	$76.43	$76.81	$77.40	$78.20	$78.07	$76.83	$74.93	$72.32	$72.81
5-MINUTE PAYPHONE CALL	0.168	0.212	0.222	0.223	0.226	0.228	0.228	0.228	0.228	0.228	0.235	0.238	0.248	0.253

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

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

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

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

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

TABLE 14.2

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

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

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

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

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

TABLE 14.3

AVERAGE REVENUE PER MINUTE

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

* Source: AT&T.

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

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

SUBSCRIBERSHIP:

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

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

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

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

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

To help evaluate the effect of the Commission's lifeline program on telephone penetration, Table 15.4 compares penetration rates for states with and without lifeline programs. As can be seen in the table, penetration increases have been greater on average in states with lifeline programs than in states without lifeline programs, both for all households and for low-income households. Between March 1984 and March 1997, the overall average penetration rate for states with lifeline programs increased by 2.4%, which is statistically significant. The increase for states without programs is 1.0%, which is not statistically significant. For households with incomes under $10,000 (expressed in 1984 dollars), which would be the households primarily affected by the lifeline programs, the average increase was 6.5% for states with programs, again statistically significant, versus 3.3% for states without programs, also statistically significant.

TABLE 15.1

HOUSEHOLD TELEPHONE SUBSCRIBERSHIP IN THE UNITED STATES

	HOUSEHOLDS (MILLIONS)	HOUSEHOLDS WITH TELEPHONES (MILLIONS)	PERCENTAGE WITH TELEPHONES	HOUSEHOLDS WITHOUT TELEPHONES (MILLIONS)	PERCENTAGE WITHOUT TELEPHONES
1983 NOVEMBER	85.8	78.4	91.4 %	7.4	8.6 %
1984 MARCH	86.0	78.9	91.8	7.1	8.2
JULY	86.6	79.3	91.6	7.3	8.4
NOVEMBER	87.4	79.9	91.4	7.5	8.6
1985 MARCH	87.4	80.2	91.8	7.2	8.2
JULY	88.2	81.0	91.8	7.2	8.2
NOVEMBER	88.8	81.6	91.9	7.2	8.1
1986 MARCH	89.0	82.1	92.2	6.9	7.8
JULY	89.5	82.5	92.2	7.0	7.8
NOVEMBER	89.9	83.1	92.4	6.8	7.6
1987 MARCH	90.2	83.4	92.5	6.8	7.5
JULY	90.7	83.7	92.3	7.0	7.7
NOVEMBER	91.3	84.3	92.3	7.0	7.7
1988 MARCH	91.8	85.3	92.9	6.5	7.1
JULY	92.4	85.7	92.8	6.7	7.2
NOVEMBER	92.6	85.7	92.5	6.9	7.5
1989 MARCH	93.6	87.0	93.0	6.6	7.0
JULY	93.8	87.5	93.3	6.3	6.7
NOVEMBER	93.9	87.3	93.0	6.6	7.0
1990 MARCH	94.2	87.9	93.3	6.3	6.7
JULY	94.8	88.4	93.3	6.4	6.7
NOVEMBER	94.7	88.4	93.3	6.3	6.7
1991 MARCH	95.3	89.2	93.6	6.1	6.4
JULY	95.5	89.1	93.3	6.4	6.7
NOVEMBER	95.7	89.4	93.4	6.3	6.6
1992 MARCH	96.6	90.7	93.9	5.9	6.1
JULY	96.6	90.6	93.8	6.0	6.2
NOVEMBER	97.0	91.0	93.8	6.0	6.2
1993 MARCH	97.3	91.6	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

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

TABLE 15.2

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

STATE	1984	1997	CHANGE
ALABAMA	88.4 %	92.3 %	3.9 % *
ALASKA	86.5	94.5	8.0 *
ARIZONA	86.9	91.6	4.7 *

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

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

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

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

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

TABLE 15.3

HISTORICAL TELEPHONE PENETRATION ESTIMATES

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

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

TABLE 15.4

COMPARISON OF PENETRATION RATES FOR STATES WITH AND WITHOUT LIFELINE PROGRAMS

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

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

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

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

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

TECHNOLOGY DEVELOPMENT:

1. Central Office Technology:

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

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

2. Transmission Technology:

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

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

TABLE 16.1

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

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

ACCESS LINES SERVED BY TYPE OF OFFICE (THOUSANDS)

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

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

TABLE 16.2

FEATURES AVAILABLE IN CENTRAL OFFICES (BELL OPERATING COMPANIES)

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

EQUIPPED ACCESS LINES BY TYPE OF OFFICE (THOUSANDS)

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

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

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

TABLE 16.3

LOCAL TRANSMISSION TECHNOLOGY (BELL OPERATING COMPANIES)

MAJOR INTEROFFICE TRANSMISSION LINKS

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

WORKING TELECOMMUNICATIONS CHANNELS

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

SOURCE: ARMIS 43-07 REPORT.

* INCLUDES SOME OTHER CHANNELS.

TELECOMMUNICATIONS INDUSTRY REVENUES:

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

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

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

TABLE 17.1

TELECOMMUNICATIONS REVENUE REPORTED BY TYPE OF SERVICE
(Amounts shown in millions)

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

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

TABLE 17.2

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

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

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

TABLE 17.3

Gross Revenue Reported by Type of Carrier
(Millions)

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

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

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

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

Table 17.4
Industry Telephone Revenue by State for 1995 and 1996

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

SOURCE: TRS FUND WORKSHEETS AND STAFF ESTIMATES.
ESTIMATES FOR 1995 ARE REVISED.
FIGURES MAY NOT ADD UP DUE TO ROUNDING.

TELEPHONE LINES:

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

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

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

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

Table 18.1

Total U.S. Telephone Lines *

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

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

* Year-end data.