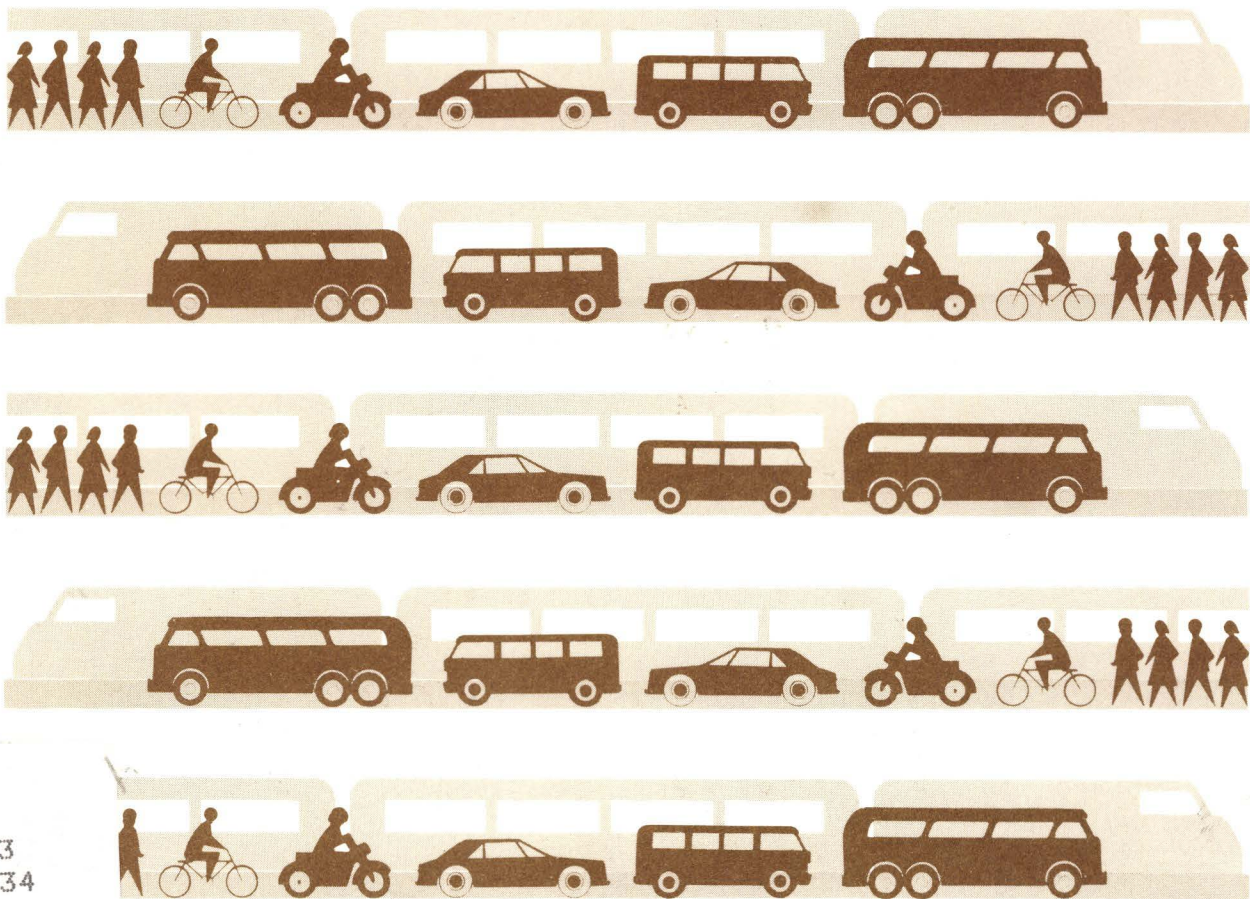


CURRENT POPULATION REPORTS

Special Studies

Series P-23, No. 122

The Journey to Work in the UNITED STATES: 1979



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Series P-23, No. 122
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The Journey to Work in the UNITED STATES: 1979



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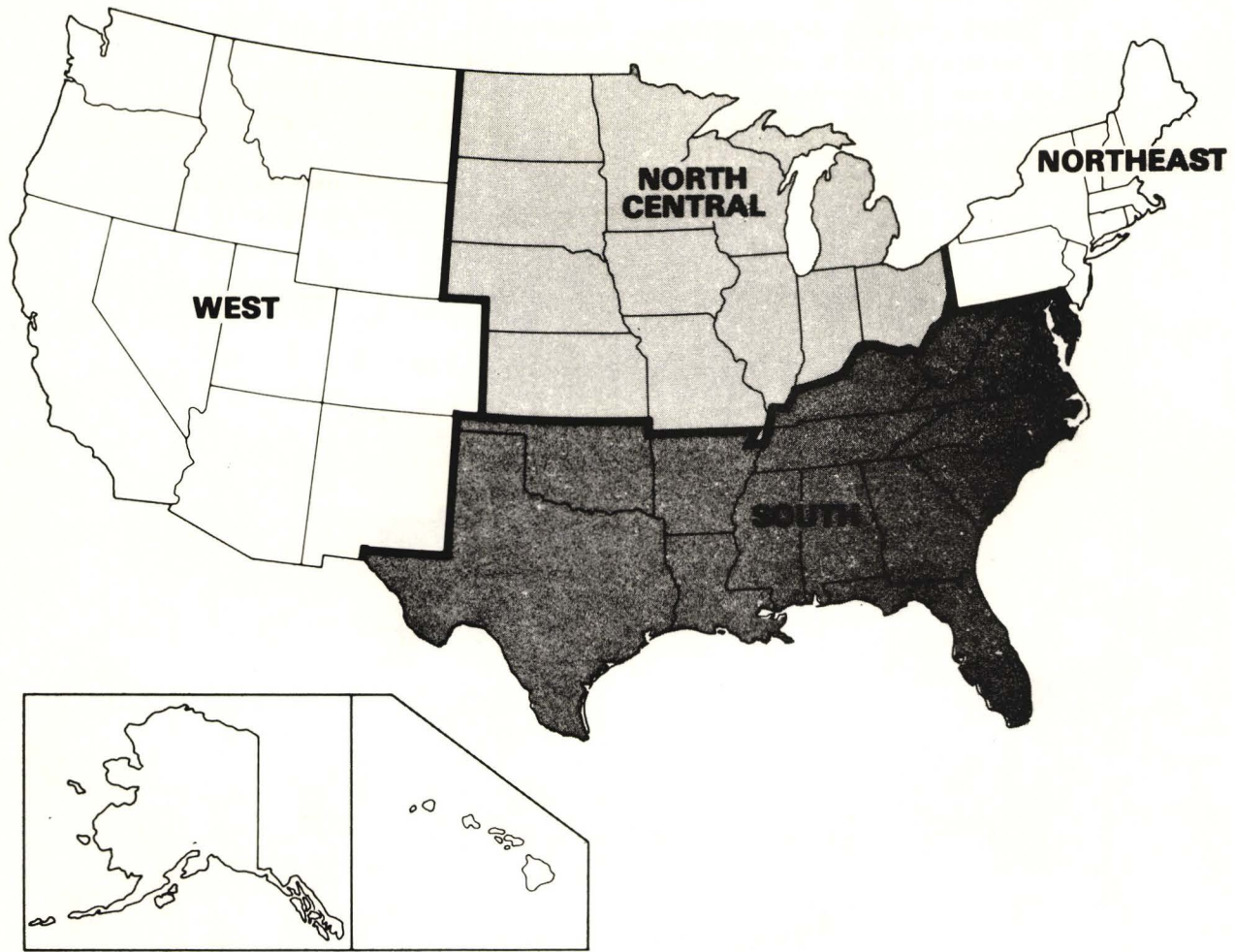
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 SYMBOLS USED IN TABLES

- Represents zero or rounds to zero.
 - X Not applicable.
 - B Base is less than 10,000.
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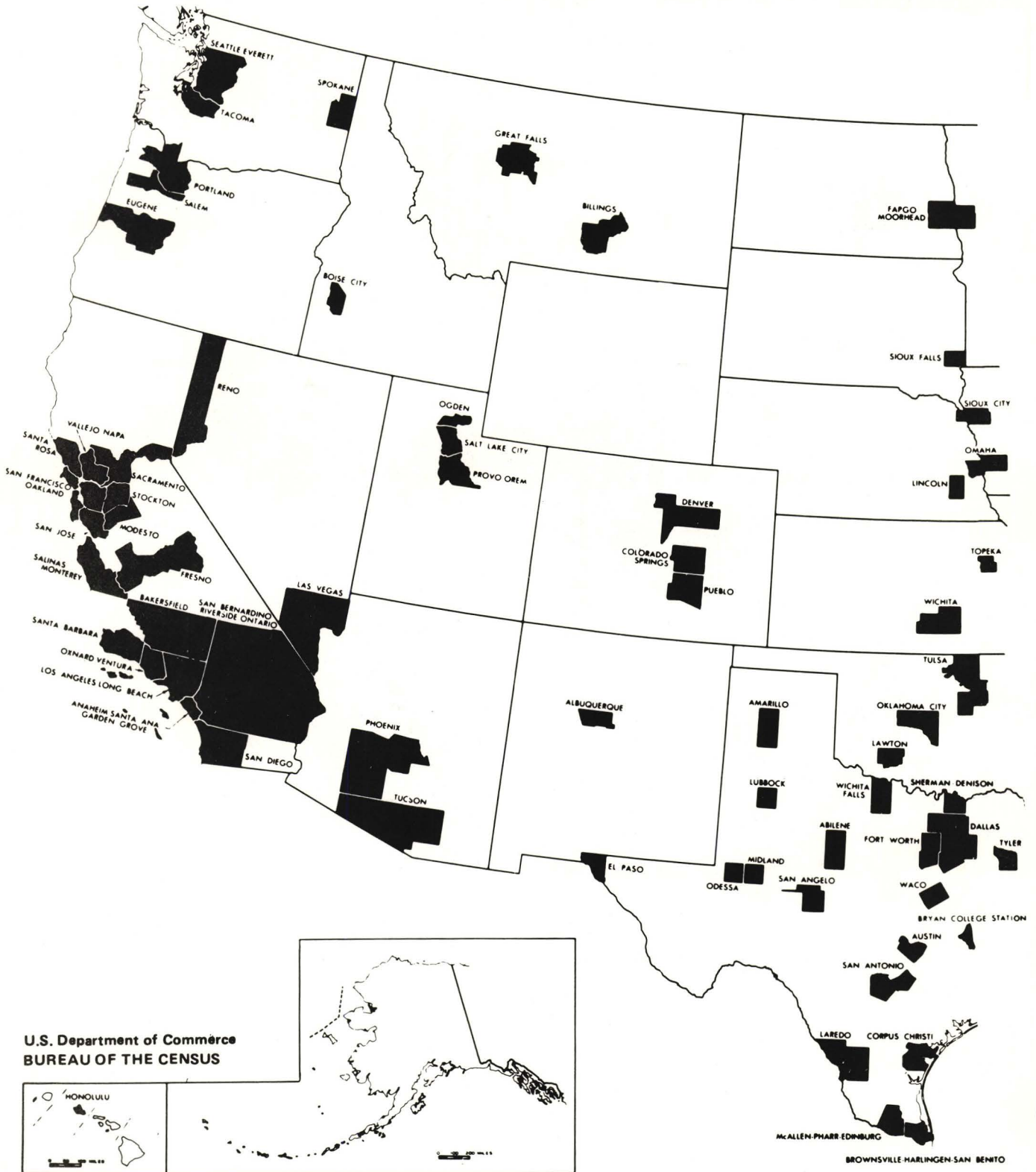
Regions of the United States

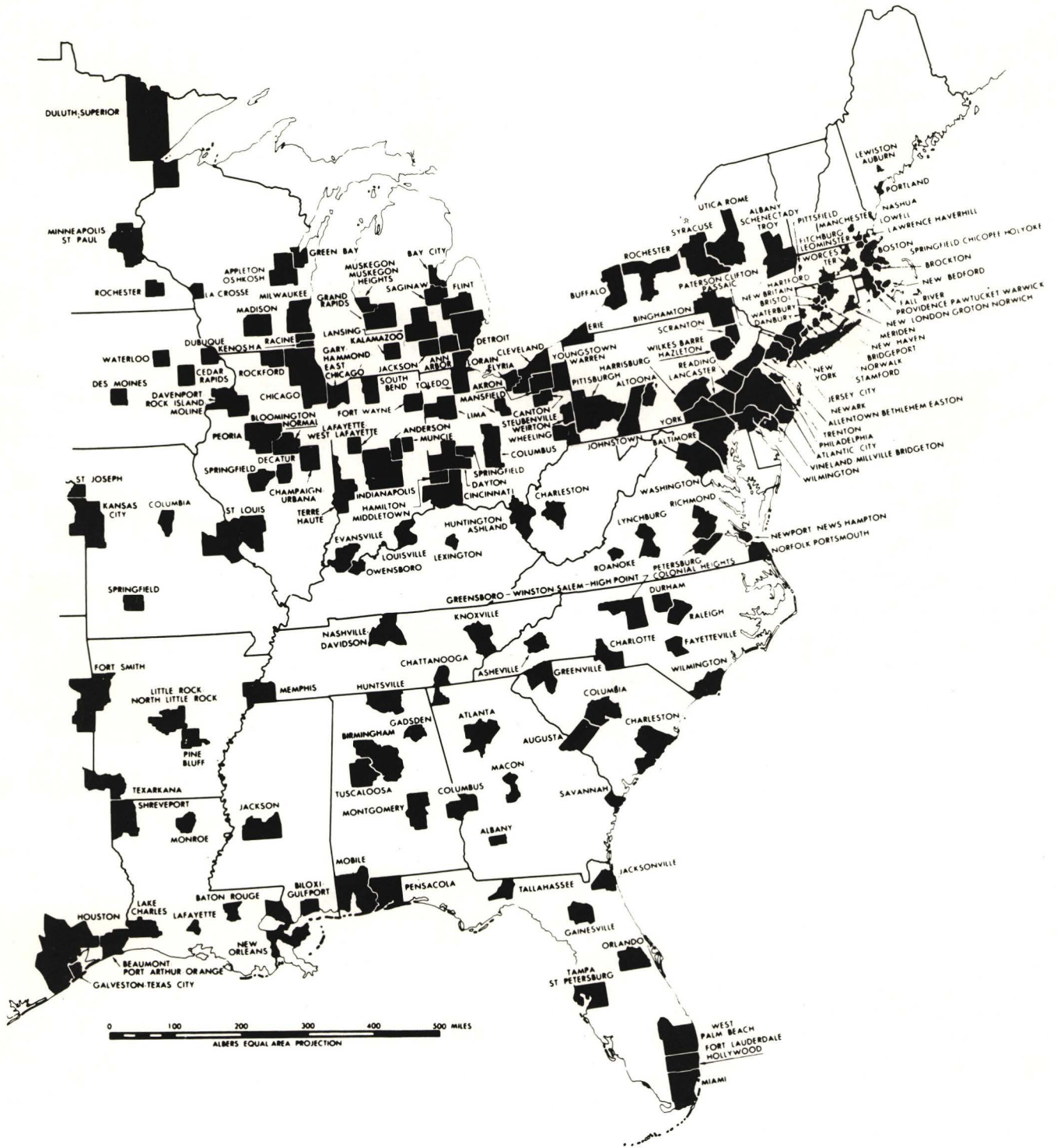


Source: Bureau of the Census

Standard Metropolitan Statistical Areas, 1970

(Areas defined by the Office of Management and Budget as of February 1971)





The Journey to Work in the United States: 1979

INTRODUCTION

Data on journey to work include a variety of topics: means of transportation; travel time; travel distance; time of departure for work; private vehicle occupancy; availability of autos, trucks, and vans; and geographic location of the workplace. Journey-to-work data are used in formulating transportation-related energy policies, in determining national energy use patterns, and in predicting future energy needs. In addition, journey-to-work data are used to reappraise transportation plans, to monitor transportation system efficiency, to measure the environmental impact of transportation mode choice, and to delineate labor markets or other special-purpose areas.

Data on means of transportation, auto availability, and place of work were collected in the 1970 census, and information on these and other topics is available from intercensal surveys conducted during the ensuing decade. One of the primary surveys providing journey-to-work data is the Annual Housing Survey, which has contained supplemental questions on journey to work on several occasions, in both national surveys and surveys of specific metropolitan areas.

This report presents results from the Journey-to-Work Supplement to the 1979 Annual Housing Survey national sample. The Annual Housing Survey (AHS) is conducted by the Bureau of the Census for the U.S. Department of Housing and Urban Development; the 1979 Journey-to-Work Supplement was sponsored by the U.S. Department of Transportation. These data are based on the responses of householders who had a job during the week prior to interview. The interviews were completed during the period of September-December 1979. For further information concerning the Journey-to-Work Supplement to the 1979 national Annual Housing Survey, consult the section of this report entitled "Background and Structure of the Survey."

HIGHLIGHTS

- Of all the householders in the United States, 69 percent drove to work alone in 1979, while 17 percent rode to work in carpools, and 6 percent used public transportation.
- Of all the householders in the United States who used some form of public transportation to get to work in 1979, 50 percent lived in the Northeast Region of the country.

- Of the householders whose principal means of transportation to work was the subway or elevated train, 90 percent lived in central cities of metropolitan areas.
- The rates of driving to work alone and of using public transportation were essentially the same in 1979 as they were in 1974. However, the proportion of householders who carpooled rose from 14 percent in 1974 to 17 percent in 1979.
- Average (mean) distance to work was about 11 miles among householders in the United States in 1979, while the average travel time was approximately 23 minutes.
- The distance of the typical trip to work increased slightly between 1975 and 1979. However, there was no corresponding increase in average travel time.
- Median family income for householders who used an automobile or truck to get to work was about \$19,400 in 1979, compared with \$14,000 for those who used public transportation.
- Male householders were more likely to drive to work alone or with a carpool than female householders; women were more likely to use public transportation to get to work in 1979 than men.

MEANS OF TRANSPORTATION TO WORK

Principal means of transportation. Of the 54 million householders in the United States who had a job in 1979, approximately 69 percent drove to work alone (table A). Thus, despite the escalating cost of owning and operating a vehicle, more than 2 out of every 3 householders drove to work as the sole occupant of an automobile or truck. Following driving alone, the most widely-used method of getting to work was in a carpool; the rate of carpooling among householders was approximately 17 percent. When the figures for driving alone and carpooling are combined, 86 percent of all householders relied on an automobile or truck to get to work in 1979.

In comparison to the proportion driving alone or carpooling, the percentage of the householders who used public transportation to get to work was much smaller, about 6 percent in 1979. Most of the public transportation users rode a bus or streetcar to work, the most commonly available forms of public transit in the United States.

Table A. Principal Means of Transportation to Work, by Metropolitan-Nonmetropolitan Residence

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands)

Means of transportation	Number				Percent			
	Total	In SMSA central cities	In SMSA's, outside central cities	Outside SMSA's	Total	In SMSA central cities	In SMSA's, outside central cities	Outside SMSA's
Total.....	54,104	15,420	22,255	16,428	100.0	100.0	100.0	100.0
Automobile or truck.....	46,368	11,936	20,033	14,400	85.7	77.4	90.0	87.7
Drive alone.....	37,129	9,656	16,225	11,248	68.6	62.6	72.9	68.5
Automobile.....	29,382	8,481	13,521	7,380	54.3	55.0	60.8	44.9
Truck.....	7,747	1,175	2,704	3,868	14.3	7.6	12.1	23.5
Carpool.....	9,240	2,280	3,808	3,151	17.1	14.8	17.1	19.2
Automobile.....	7,644	2,067	3,246	2,330	14.1	13.4	14.6	14.2
Truck.....	1,596	213	562	821	2.9	1.4	2.5	5.0
Public transportation.....	3,219	2,230	886	102	5.9	14.5	4.0	0.6
Bus or streetcar.....	1,922	1,311	533	78	3.6	8.5	2.4	0.5
Subway or elevated.....	901	809	91	-	1.7	5.2	0.4	-
Railroad.....	323	59	256	8	0.6	0.4	1.2	-
Taxicab.....	73	51	6	16	0.1	0.3	-	0.1
Bicycle.....	309	104	113	91	0.6	0.7	0.5	0.6
Motorcycle.....	375	94	158	123	0.7	0.6	0.7	0.7
Walk only.....	2,117	792	556	769	3.9	5.1	2.5	4.7
Other means.....	256	62	101	93	0.5	0.4	0.5	0.6
Work at home.....	1,261	139	329	792	2.3	0.9	1.5	4.8
Not reported.....	200	62	79	59	0.4	0.4	0.4	0.4

- Represents zero.

Householders who walked to work accounted for about 4 percent of the total, while about 2 percent worked at home. Bicycles, motorcycles, and other means of transportation (e.g., ferryboats, trucks larger than 1 ton, and privately chartered buses) were each used by about 1 percent of the householders.

Means of transportation to work by metropolitan and nonmetropolitan residence. In addition to data for the United States as a whole, table A presents the distribution of means of transportation to work by metropolitan and nonmetropolitan residence. The most striking difference by type of residence is in the use of public transportation. In central cities of standard metropolitan statistical areas (SMSA's), almost 15 percent of the householders rode public transportation to work, compared with 4 percent for those in the suburbs and only 1 percent for those residing in nonmetropolitan territory. These differences are, for the most part, a reflection of the greater availability of public transportation within the largest cities as compared with the suburbs or nonmetropolitan areas. The extent to which public transportation is concentrated in central cities may be demonstrated by the facts that about 68 percent of the 1.9 million householders who rode the bus or streetcar, 90 percent of the 901,000 subway or elevated train riders, and 70 percent of the 73,000 taxicab users lived in central cities. An exception to this general rule is found among commuters who rode railroad trains to work. Only 18 percent of the 323,000 householders who used the railroad to get to work

lived in central cities, the majority (79 percent) resided in the suburbs.

Other important differences among the residents of the three geographic sectors are also reflected in the means of transportation distributions. The rate of driving to work alone was highest in the suburbs (73 percent) where incomes and private vehicle ownership are highest. Driving alone was the lowest in central cities (63 percent) where vehicle ownership is lowest and alternative means of transportation are most readily available. The lowest carpooling rate also occurred among householders who lived in central cities (about 15 percent), while nonmetropolitan householders carpoled the most (19 percent). An earlier study in this series found that the highest rates of carpooling occurred among residents of nonmetropolitan areas who commuted into the central cities or suburbs of metropolitan areas.¹

Means of transportation to work by region of residence. Just as public transit availability and use is concentrated in SMSA central cities, table B shows that it is also most prevalent in the older, more densely settled Northeast Region. The rate of public transportation use among householders in the Northeast was 14 percent in 1979, compared with about 4 percent in the other regions of the country.

The degree to which public transportation is concentrated in the Northeast is further emphasized by its share of the

¹ U.S. Bureau of the Census, Current Population Reports, Series P-23, No. 99, *The Journey to Work in the United States: 1975*, U.S. Government Printing Office, Washington, D.C., 1979, p. 4.

Table B. Principal Means of Transportation to Work, by Region of Residence

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands)

Means of transportation	Number					Percent				
	Total	North-east	North Central	South	West	Total	North-east	North Central	South	West
Total.....	54,104	11,424	14,435	17,464	10,781	100.0	100.0	100.0	100.0	100.0
Automobile or truck.....	46,368	8,791	12,450	15,788	9,340	85.7	76.9	86.2	90.4	86.6
Drive alone.....	37,129	7,050	10,150	12,351	7,577	68.6	61.7	70.3	70.7	70.3
Automobile.....	29,382	6,214	8,084	9,041	6,043	54.3	54.4	56.0	51.8	56.1
Truck.....	7,747	836	2,066	3,310	1,534	14.3	7.3	14.3	19.0	14.2
Carpool.....	9,240	1,740	2,300	3,437	1,762	17.1	15.2	15.9	19.7	16.3
Automobile.....	7,644	1,579	1,933	2,662	1,470	14.1	13.8	13.4	15.2	13.6
Truck.....	1,596	161	367	774	293	2.9	1.4	2.5	4.4	2.7
Public transportation....	3,219	1,595	645	531	447	5.9	14.0	4.5	3.0	4.1
Bus or streetcar.....	1,922	570	472	466	414	3.6	5.0	3.3	2.7	3.8
Subway or elevated....	901	791	59	38	14	1.7	6.9	0.4	0.2	0.1
Railroad.....	323	209	101	5	8	0.6	1.8	0.7	-	0.1
Taxicab.....	73	26	12	23	12	0.1	0.2	0.1	0.1	0.1
Bicycle.....	309	45	71	51	142	0.6	0.4	0.5	0.3	1.3
Motorcycle.....	375	38	90	90	156	0.7	0.3	0.6	0.5	1.4
Walk only.....	2,117	648	548	526	396	3.9	5.7	3.8	3.0	3.7
Other means.....	256	62	44	82	67	0.5	0.5	0.3	0.5	0.6
Work at home.....	1,261	200	526	342	193	2.3	1.7	3.6	2.0	1.8
Not reported.....	200	45	61	54	40	0.4	0.4	0.4	0.3	0.4

-Represents zero.

national total. If transit use were evenly distributed across the country, each of the four regions would be expected to have about 25 percent of all transit riders. However, the Northeast accounted for about 50 percent of the 3.2 million householders whose principal mode of travel to work was public transportation in 1979: 30 percent of the 1.9 million bus or streetcar riders, 88 percent of the 901,000 subway or elevated train users, and 65 percent of the 323,000 railroad commuters.

The relatively heavy use of public transportation in the Northeast understandably results in smaller proportions using the non-public modes. The data in table B indicate that compared with the other regions, the use of public transportation in the Northeast was in lieu of travel by private automobile or truck. About 77 percent of the householders in the Northeast used an automobile or truck to get to work in 1979, compared with about 86 percent in the North Central and West Regions, and 90 percent in the South. Furthermore, it appears that the difference in the rate of auto or truck use is primarily a function of a lower rate of driving alone in the Northeast (62 percent as compared with about 70 percent in the other regions), rather than to any abnormally low rate of carpooling.

Carpools were most prevalent among householders in the South (about 20 percent), while about 16 percent of the total in each of the other regions carpoled. The South was also characterized by the highest rate of truck use, as 23 percent of the householders in the South used a truck to get to work in 1979 (19 percent drove alone and 4 percent carpoled). Trucks were used by about 17 percent of the householders in the North Central and West Regions while the comparable figure for the Northeast was 9 percent.

Trends in means of transportation to work from 1974 to 1979. The AHS first obtained information on the means of transportation to work of householders in 1974, and comparable data have been collected in each subsequent annual survey and are available through 1979.

A comparison of the percentage distributions for each of the six survey years shown in table C indicates only small changes from year to year across any modal category. However, some changes that occurred between the initial survey and the most recent enumeration are worthy of note. First, the use of private automobiles and trucks to get to work among householders increased from 83 percent in 1974 to 86 percent in 1979, while public transportation use stayed about the same at 6 percent for both points in time. Secondly, the increase in auto and truck use was attributable to the relative increase in carpooling. The proportion of householders who drove alone was about 69 percent in both 1974 and 1979, but the percentage who carpoled rose from 14 percent in 1974 to 17 percent in 1979. This increase appears to be the result of a corresponding decrease in working at home and in the use of other miscellaneous means of travel.

TRAVEL DISTANCE AND TRAVEL TIME TO WORK

Means of transportation by distance to work. The average (mean) distance from home to work for the 54 million employed householders in the United States in 1979 was about 11 miles (table D). Distance to work varied with the method of transportation that was used: the longest trips, in

Table C. Principal Means of Transportation to Work: 1974-79

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands)

Means of transportation	1974	1975	1976	1977	1978	1979
Total.....	50,639	49,251	50,347	51,699	53,357	54,104
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0
Automobile or truck.....	83.2	85.6	86.4	87.0	86.6	85.7
Drive alone.....	69.0	68.6	70.9	70.8	71.7	68.6
Carpool.....	14.1	17.0	15.5	16.2	15.0	17.1
Public transportation.....	6.1	5.6	5.6	5.5	5.9	5.9
Bicycle and motorcycle.....	1.1	0.8	0.8	0.5	0.6	1.3
Walk only.....	4.0	3.9	3.9	3.7	3.7	3.9
Other means.....	1.9	0.4	0.6	0.4	0.4	0.5
Work at home.....	3.0	3.2	2.6	2.6	2.5	2.3
Not reported.....	0.8	0.5	0.2	0.3	0.3	0.4

general, were taken by railroad commuters (34 miles), followed by persons in carpools (16 miles), other means (14 miles), and subways (12 miles). (Mean distance by "other means" is not significantly different from that for carpools or the subway.) Householders who drove alone traveled an average distance of around 10 miles to get to work, as did bus or streetcar and motorcycle patrons. The shortest trips, as expected, were found among householders who walked the entire distance from home to work (0.7 miles).

Distance to work by metropolitan and nonmetropolitan residence. Table D also presents average distance to work by means of transportation for the three major residence categories: central cities, suburbs, and nonmetropolitan areas. In general, the longest trips were made by suburban

residents (around 13 miles), while the average for persons who lived in nonmetropolitan areas was about 11 miles. Central-city residents tended to have the shortest work trips, averaging approximately 9 miles between home and work.

As was the case for the United States total, the longest trips within central cities and suburbs were taken by householders who rode the railroad to work, while the shortest trips were found among those who walked. In nonmetropolitan areas, there were too few railroad trips to yield reliable average distance figures for that mode, but the shortest trips were once again found among householders who walked from home to work (0.6 miles).

Distance to work from 1975 to 1979. Data on distance to work have been collected in the national AHS since 1974.

Table D. Average (Mean) Distance to Work, by Means of Transportation and Metropolitan-Nonmetropolitan Residence

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Averages in miles)

Means of transportation	Total	In SMSA		Outside SMSA's
		central cities	outside central cities	
Total.....	11.1	8.8	12.6	11.3
Automobile or truck.....	11.6	9.4	12.7	11.9
Drive alone.....	10.4	8.8	11.8	9.9
Carpool.....	16.0	11.7	16.4	18.7
Public transportation.....	12.6	9.0	20.0	25.2
Bus or streetcar.....	9.6	6.8	14.0	26.8
Subway or elevated.....	12.2	11.9	15.0	(B)
Railroad.....	34.2	27.9	35.0	(B)
Taxicab.....	3.4	3.6	(B)	2.4
Bicycle.....	2.8	3.5	3.1	1.7
Motorcycle.....	9.4	7.6	10.9	9.3
Walk only.....	0.7	0.8	0.8	0.6
Other means.....	13.5	9.9	13.2	16.0
Work at home.....	(X)	(X)	(X)	(X)
Not reported.....	8.9	5.4	13.3	5.5

X Not applicable.

B Base is less than 10,000.

However, because of differences in the data collection techniques, the 1974 data on distance to work are not comparable with the later figures. There has been a fair amount of interest in the question of whether or not distance to work in the United States has declined in the 1970's in response to energy concerns and the increased cost of gasoline. AHS data, which are restricted to working householders, provide no evidence that distance to work declined during the 1975-79 period (table E). In fact, the average

distance to work was greater in 1979 (12 miles)² than it was in 1975 (11 miles).

Means of transportation by travel time to work. The average (mean) travel time to work among householders in the

² The average distance to work figures for 1979 in tables D and E do not agree because the means were calculated from grouped data, and the intervals used in table E to insure time-series consistency are different than those employed in table D.

Table E. Distance to Work: 1975-79

(For the United States: 1979. Reference persons with a job the week prior to interview. Numbers in thousands)

Distance to work	1975	1976	1977	1978	1979
Total.....	49,251	50,347	51,699	53,357	54,104
Work at home.....	1,597	1,324	1,343	1,315	1,261
No fixed place of work.....	5,099	5,634	5,998	6,098	6,316
Distance not reported.....	541	782	589	1,024	1,042
Reporting distance to work.....	42,014	42,607	43,769	44,922	45,485
Percent.....	100.0	100.0	100.0	100.0	100.0
Less than 1 mile.....	10.7	9.7	9.9	9.9	9.6
1-4 miles.....	31.6	31.2	31.5	26.6	26.9
5-9 miles.....	20.6	20.5	20.1	23.1	23.1
10-29 miles.....	30.9	32.1	32.0	33.7	33.6
30-49 miles.....	4.7	4.9	4.9	5.2	5.3
50 miles or more.....	1.5	1.6	1.6	1.6	1.5
Mean.....	11.1	12.3	11.4	11.9	*11.9

*Differs from table D because a different set of distance-to-work categories were used here, to maintain comparability with the 1975-78 data.

Table F. Average (Mean) Travel Time to Work, by Means of Transportation and Metropolitan-Nonmetropolitan Residence

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Averages in minutes)

Means of transportation	In SMSA's, outside central cities			
	Total	In SMSA central cities	In SMSA's, outside central cities	Outside SMSA's
Total.....	22.5	23.1	24.2	19.7
Automobile or truck.....	21.7	20.5	23.4	20.3
Drive alone.....	20.1	19.5	22.0	17.8
Carpool.....	27.9	24.7	29.0	28.9
Public transportation.....	42.3	39.9	48.7	41.0
Bus or streetcar.....	38.3	36.2	42.5	43.9
Subway or elevated.....	46.8	46.2	52.2	(B)
Railroad.....	60.1	51.8	61.5	(B)
Taxicab.....	15.0	17.3	(B)	7.9
Bicycle.....	17.3	19.2	18.4	13.4
Motorcycle.....	19.5	20.4	21.2	16.4
Walk only.....	10.8	12.5	11.1	8.7
Other means.....	28.5	31.5	30.3	25.6
Work at home.....	(X)	(X)	(X)	(X)
Not reported.....	25.2	28.7	26.9	13.4

X Not applicable.

B Base is less than 10,000.

United States was 23 minutes in 1979 (table F). Travel time varied significantly, depending on the means of transportation that was used. For persons who walked from home to work, the average travel time was about 11 minutes, while persons riding in taxicabs and bicyclists had the next shortest trips. Householders who drove alone traveled about 20 minutes on the average to get to work, as did persons using motorcycles. (Average travel time for motorcycles, however, was not significantly different than that for bicycles.) Riders in carpools and householders using other means had an average travel time of approximately 28 minutes, followed by the public transportation modes whose riders had the most time-consuming trips. Trips by bus averaged 38 minutes, subway trips took 47 minutes, and the typical railroad trip took 1 hour.

Travel time to work by metropolitan and nonmetropolitan residence. As was the case with distance to work, average travel time also varied by type of residence (table F). Trips taken by suburban householders (24 minutes) were about the

same as those by residents of central cities (23 minutes), while the shortest trips were found among householders in nonmetropolitan areas (20 minutes). Drive-alone trips were shortest when they originated outside SMSA's (18 minutes), while the shortest trips in carpools, buses, subways, and railroads were generally taken by central-city residents. Averages for the other forms of transportation show mixed results, although in general, nonmetropolitan residents spent the least amount of time getting to work.

Travel time to work from 1975 to 1979. The most striking fact in average travel time to work over the 1975-79 period is the stability of the means (table G). For the 5 years that data were collected, the range of mean travel time is from 23.8 minutes to 24.2 minutes. The stability of travel time responses is particularly interesting given the slight rise noted earlier in average distance to work. While the 1979 figure for average distance is about 1 mile greater than the 1975 figure, the difference between average travel time in 1975 and in 1979 is not significant.

Table G. Travel Time to Work: 1975-79

(For the United States. Data refer to householders with a job the week prior to interview. Numbers in thousands)

Travel time to work	1975	1976	1977	1978	1979
Total.....	49,251	50,347	51,699	53,357	54,104
Work at home.....	1,597	1,324	1,343	1,315	1,261
No fixed place of work.....	5,099	5,634	5,998	6,098	6,316
Travel time not reported.....	388	611	366	469	487
Reporting travel time.....	42,167	42,778	43,992	45,477	46,040
Percent.....	100.0	100.0	100.0	100.0	100.0
Less than 15 minutes.....	36.7	36.8	37.0	35.9	36.3
15-29 minutes.....	35.1	36.2	36.3	36.8	36.5
30-44 minutes.....	16.8	16.2	15.8	16.1	16.0
45-59 minutes.....	6.0	5.7	5.7	5.7	5.7
60 minutes or more.....	5.4	5.2	5.2	5.5	5.4
Mean.....	24.2	23.9	23.8	24.2	*24.1

*Differs from table F because a different set of travel time categories were used here, to maintain comparability with the 1975-78 data.

SELECTED CHARACTERISTICS OF HOUSEHOLDERS BY TRAVEL-TO-WORK CHARACTERISTICS

Means of transportation for Black and Spanish-origin householders. Table H compares the means of transportation distribution for all householders, Black householders, and householders of Spanish origin.

Compared to all householders, those who are Black or of Spanish origin were more likely to take a bus, subway, or carpool to work (table H), and less likely to drive alone or work at home. (There is only some evidence that householders of Spanish origin carpooled more frequently than all householders.) There is also some evidence that Black and Spanish-origin householders rode commuter trains to work less frequently than other householders. Spanish-origin

householders did not significantly differ from all householders in the use of most other types of transportation, although several differences between Black householders and the total may be noted. Blacks used bicycles and motorcycles to get to work less frequently than all householders, and took taxis to work more often than the total. (There is also some evidence that the rate of walking to work is greater among Black householders.)

When Black and Spanish-origin householders are compared, the latter drove to work alone more frequently (62 percent) than did Blacks (57 percent), but the apparent difference between the carpooling rates of the two groups is not statistically significant (table H). Trucks were more widely used to get to work by householders of Spanish origin (16 percent versus 9 percent for Blacks), while the rate of bus use was greater among Blacks (12 percent versus 6 percent for the Spanish-origin householders).

Table H. Principal Means of Transportation to Work, by Race and Spanish Origin

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands)

Means of transportation	Number			Percent		
	Total	Black	Spanish origin	Total	Black	Spanish origin
Total.....	54,104	5,075	2,879	100.0	100.0	100.0
Automobile or truck.....	46,368	3,879	2,335	85.7	76.4	81.1
Drive alone.....	37,129	2,868	1,785	68.6	56.5	62.0
Automobile.....	29,382	2,525	1,421	54.3	49.8	49.3
Truck.....	7,747	343	364	14.3	6.8	12.6
Carpool.....	9,240	1,010	551	17.1	19.9	19.1
Automobile.....	7,644	889	447	14.1	17.5	15.5
Truck.....	1,596	122	104	2.9	2.4	3.6
Public transportation.....	3,219	858	333	5.9	16.9	11.6
Bus or streetcar.....	1,922	600	181	3.6	11.8	6.3
Subway or elevated.....	901	210	142	1.7	4.1	4.9
Railroad.....	323	21	7	0.6	0.4	0.3
Taxicab.....	73	27	2	0.1	0.5	0.1
Bicycle.....	309	5	16	0.6	0.1	0.6
Motorcycle.....	375	6	12	0.7	0.1	0.4
Walk only.....	2,117	234	139	3.9	4.6	4.8
Other means.....	256	24	11	0.5	0.5	0.4
Work at home.....	1,261	36	27	2.3	0.7	0.9
Not reported.....	200	33	7	0.4	0.7	0.2

Means of transportation and family income. Table I presents the means of transportation to work percentage distribution for several categories of family income. In addition, the median family income is provided for each means of transportation to work category. The data indicate that the median family income in 1979 for working householders was around \$18,700. Persons who used a private automobile or truck were slightly above this figure, with median family incomes of about \$19,400, while householders who used public transportation were below the median, with family incomes of about \$14,000.

There was, however, a great deal of variation in family income among householders who used public transportation to get to work, ranging from \$9,100 for taxicab passengers to \$27,300 for railroad commuters. These figures represent the low and high median income points among all modes of transportation, although there is only some evidence that median income among taxi riders was lower than among walkers. For householders who rode the bus to work, the median family income in 1979 was \$12,500, while for subway patrons the corresponding figure was \$14,700, both considerably less than median family income for all householders.

Sex of householder and means of transportation. Male householders were significantly more likely to use an automobile or truck to get to work in 1979 than female householders (88 percent versus 77 percent). (See table J.) Men also had higher rates of driving alone and carpooling to

work than women. However, private vehicle use among males included both autos (67 percent) and trucks (21 percent), while women rode almost exclusively in automobiles. As a result, the rate of automobile use alone is actually higher among female householders (76 percent) than among males (67 percent). Women also had much higher rates of public transportation use than men primarily because of higher rates of bus ridership. Other differences between the sexes in means of transportation to work were generally small, although female householders did walk to work more frequently (7 percent) than male householders (3 percent).

Average travel time and distance to work by family income.

Table K presents data on the average travel time and distance to work of householders in 1979 cross-tabulated by family income. For incomes below \$75,000, the relationships between time and income and distance and income are generally positive, that is, average travel time and distance increase as family income increases. At the \$75,000 mark and beyond, however, this relationship seems less clear, as there is some evidence that mean distance among householders in the higher income bracket is shorter than that found in the \$50,000-\$74,999 range. The apparent difference in average travel time between the two top income categories is not statistically significant.

The positive relationship of travel time and distance with family income is consistent with the conventional explanation that the more desirable residential locations and their associated amenities are located farther away from workplace

concentrations than less desirable housing. As people move up the income scale they are therefore more able to afford housing farther out and are also more able to pay the correspondingly higher commuting costs. The fact that

average distance is slightly lower for incomes of \$75,000 or more may suggest that there is a maximum average of around 13 miles beyond which commuting is inconvenient, regardless of income.

Table I. Percentage Distribution of Means of Transportation to Work, by Family Income

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands)

Means of transportation	Total	Family income				
		Less than \$3,000	\$3,000 to \$6,999	\$7,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$19,999
Total.....	54,104	1,200	3,712	4,956	10,576	8,885
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0
Automobile or truck.....	85.7	66.1	69.3	78.4	85.0	88.0
Drive alone.....	68.6	51.6	52.5	62.5	68.6	71.1
Automobile.....	54.3	42.3	45.1	53.1	54.2	53.4
Truck.....	14.3	9.4	7.4	9.3	14.4	17.7
Carpool.....	17.1	14.4	16.8	15.9	16.4	16.9
Automobile.....	14.1	11.9	14.2	13.3	13.4	13.6
Truck.....	2.9	2.5	2.6	2.7	3.0	3.3
Public transportation.....	5.9	11.0	12.1	9.2	6.8	4.7
Bus or streetcar.....	3.6	9.0	9.4	6.0	3.9	2.5
Subway or elevated.....	1.7	1.1	2.1	2.5	2.3	1.8
Railroad.....	0.6	0.3	0.2	0.2	0.4	0.4
Taxicab.....	0.1	0.6	0.4	0.4	0.1	0.1
Bicycle.....	0.6	0.5	1.5	0.8	0.6	0.6
Motorcycle.....	0.7	0.7	0.5	0.6	0.6	0.9
Walk only.....	3.9	11.5	10.3	7.2	4.1	3.6
Other means.....	0.5	0.9	0.5	0.5	0.4	0.3
Work at home.....	2.3	7.9	5.2	2.8	2.1	1.6
Not reported.....	0.4	1.3	0.6	0.4	0.3	0.3
		Family income--Continued				
Means of transportation	\$20,000 to \$24,999	\$25,000 to \$34,999	\$35,000 to \$49,999	\$50,000 to \$74,999	\$75,000 or more	Median
Total.....	8,414	9,189	4,718	1,697	758	\$18,700
Percent.....	100.0	100.0	100.0	100.0	100.0	(X)
Automobile or truck.....	90.5	90.7	89.6	87.0	87.3	\$19,400
Drive alone.....	71.5	72.4	72.2	72.7	76.7	\$19,500
Automobile.....	54.6	56.1	59.6	61.0	65.2	\$19,400
Truck.....	17.0	16.3	12.7	11.7	11.5	\$19,800
Carpool.....	19.0	18.3	17.3	14.3	10.6	\$19,300
Automobile.....	15.5	15.3	15.1	11.9	9.1	\$19,500
Truck.....	3.5	3.0	2.3	2.4	1.5	\$18,800
Public transportation.....	3.8	3.8	5.2	4.8	6.3	\$14,000
Bus or streetcar.....	2.2	2.1	2.6	1.5	1.3	\$12,500
Subway or elevated.....	1.1	1.1	1.3	1.0	1.6	\$14,700
Railroad.....	0.5	0.6	1.3	2.0	3.2	\$27,300
Taxicab.....	-	-	-	0.3	0.2	\$9,100
Bicycle.....	0.5	0.4	0.3	-	0.1	\$14,100
Motorcycle.....	0.8	0.7	0.6	0.5	0.4	\$19,000
Walk only.....	2.1	1.8	1.5	2.9	1.7	\$12,100
Other means.....	0.5	0.4	0.6	1.1	0.8	\$20,200
Work at home.....	1.6	1.8	2.0	3.3	3.2	\$14,500
Not reported.....	0.2	0.3	0.4	0.5	0.2	\$16,000

X Not applicable.
- Represents zero.

Table J. Sex of Householder, by Means of Transportation

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands)

Means of transportation	Total	Male	Female
Total.....	54,104	44,344	9,759
Percent.....	100.0	100.0	100.0
Automobile or truck.....	85.7	87.6	77.3
Drive alone.....	68.6	69.9	63.0
Automobile.....	54.3	52.6	61.9
Truck.....	14.3	17.2	1.1
Carpool.....	17.1	17.7	14.3
Automobile.....	14.1	14.1	14.0
Truck.....	2.9	3.5	0.3
Public transportation.....	5.9	4.3	13.3
Bus or streetcar.....	3.6	2.3	9.3
Subway or elevated.....	1.7	1.4	3.0
Railroad.....	0.6	0.6	0.5
Taxicab.....	0.1	0.1	0.5
Bicycle.....	0.6	0.6	0.5
Motorcycle.....	0.7	0.8	0.1
Walk only.....	3.9	3.3	6.7
Other means.....	0.5	0.5	0.3
Work at home.....	2.3	2.5	1.5
Not reported.....	0.4	0.3	0.5

Table K. Average (Mean) Travel Time and Distance to Work, by Family Income

(For the United States: 1979. Data refer to householders with a job the week prior to interview)

Family income	Average travel time (minutes)	Average distance to work (miles)
Total.....	22.5	11.1
Less than \$3,000.....	19.7	7.7
\$3,000 to \$6,999.....	20.5	7.4
\$7,000 to \$9,999.....	20.2	8.3
\$10,000 to \$14,999.....	22.0	10.3
\$15,000 to \$19,999.....	22.3	11.0
\$20,000 to \$24,999.....	22.9	12.3
\$25,000 to \$34,999.....	23.9	12.8
\$35,000 to \$49,999.....	24.9	13.3
\$50,000 to \$74,999.....	24.7	13.2
\$75,000 or more.....	23.3	11.8

BACKGROUND AND STRUCTURE OF THE SURVEY

The Journey-to-Work Supplement to the Annual Housing Survey. The journey-to-work data presented in this report are based on information collected by personal interview during September through December 1979, as part of the enumeration for the Annual Housing Survey (AHS) national sample. The AHS is conducted by the Bureau of the Census for the Department of Housing and Urban Development; the

1979 Journey-to-Work Supplement to the AHS was sponsored by the Department of Transportation. A facsimile of the Supplement can be found in appendix C.

The designated sample for the 1979 AHS consisted of approximately 79,000 housing units located in the counties and independent cities comprising the 461 primary sampling units used in current surveys conducted by the Census Bureau. A sample of housing units was selected in these areas from the 1970 census and updated to include units constructed since 1970. Detailed information on the sample design, size of sample, estimation procedure, and sampling variability associated with these data can be found in appendix B.

Statistics are presented in this report for the United States and each of the four geographic regions, and by inside and outside standard metropolitan statistical areas (SMSA's). The boundaries of central cities and SMSA's recognized in the survey are those that were employed in the 1970 census.

In order to be eligible for the Journey-to-Work Supplement, the householder of the housing unit must have held a job during the week prior to the interview. Householders who were on vacation, laid off, or otherwise temporarily absent from work during the reference week were nevertheless still eligible to be interviewed for the Journey-to-Work Supplement. This procedure differs from that used in the 1970 and 1980 decennial censuses, where persons were required to have actually been at work during the reference week to be eligible to respond to the journey-to-work items. In addition, other factors such as the difference in the unemployment (or conversely, employment) rate between 1979 and 1970 make comparisons of raw numbers between the survey and the census inadvisable. Meaningful comparisons may be made between the survey and the census, however, if the raw numbers of householders are converted into proportions (percentages) or rates. For example, the proportion of householders who walked to work in 1979 versus the comparable 1970 percentage constitutes a valid comparison.

Related travel-to-work data. In addition to data on means of transportation, travel time, and distance to work for the householder (as collected in each national Annual Housing Survey since 1974), there are four other sources of travel-to-work data from the AHS. The Department of Transportation sponsored supplements to the 1975 national AHS, and to the 1975-76, 1976-77, and 1977-78 AHS SMSA samples as well. The supplemental questions on travel to work contained in these surveys were asked of each worker in the sample households, i.e., not only of the householders who had jobs, but also of spouses, roommates, partners, children, or anyone else living in the unit who had a job. In addition, these four supplements contained questions concerning the actual physical location of each worker's place of work. As such, these data represent the most complete and most detailed journey-to-work data collected between 1970 and 1980.

Results from the 1975 national Travel-to-Work Supplement have been published in *The Journey to Work in the*

United States: 1975, Series P-23, No. 99 of the Bureau of the Census Current Population Reports. Information concerning more extensive, unpublished tabulations may be obtained by writing to the Chief, Journey-to-Work and Migration Statistics Branch, Population Division, U.S. Bureau of the Census, Washington, D.C. 20233. Information concerning computer tapes of unidentified, microdata records for workers residing in geographical aggregates of at least 250,000 population may be obtained by writing to the Chief, Customer Services Branch, Data User Services Division, U.S. Bureau of the Census, Washington, D.C. 20233.

Results from the three AHS SMSA samples provide data at one point in time for a total of 60 metropolitan areas. Approximately 20 SMSA's were sampled in each year of a 3-year cycle. (See list below of the SMSA's in each group and the period during which they were sampled.) Reports

for the largest of the SMSA's sampled in the 1975-76 period were published in Current Population Reports, Series P-23, Nos. 86 through 98. Data for SMSA's in the other two groups will not be published, but information concerning unpublished tabulations may be obtained as described above for the 1975 national data.

Two computer tape products are available for each of the 60 SMSA's sampled. The first is a summary tape which presents the number of workers commuting from one census tract to another within the SMSA, cross-classified by means of transportation and departure time for work. The second tape product for each SMSA is a file of unidentified, microdata records of workers residing in geographical aggregates of at least 250,000 population. Information concerning these tapes may be obtained as described above for the national AHS.

List of SMSA's by Survey Group

SURVEY GROUP I (1977 to 1978)

Albany-Schenectady-Troy, N.Y.
 Anaheim-Santa Ana-Garden Grove,
 Calif.
 Boston, Mass.*
 Dallas, Tex.
 Detroit, Mich.*
 Fort Worth, Tex.
 Los Angeles-Long Beach, Calif.*
 Madison, Wis.†
 Memphis, Tenn.-Ark.
 Minneapolis-St. Paul, Minn.
 Newark, N.J.
 Orlando, Fla.
 Phoenix, Ariz.
 Pittsburgh, Pa.
 Saginaw, Mich.
 Salt Lake City, Utah
 Spokane, Wash.
 Tacoma, Wash.
 Washington, D.C.-Md.-Va.*
 Wichita, Kans.

SURVEY GROUP II (1975 to 1976)

Atlanta, Ga.*
 Chicago, Ill.*
 Cincinnati, Ohio-Ky.-Ind.
 Colorado Springs, Colo.
 Columbus, Ohio
 Hartford, Conn.
 Kansas City, Mo.-Kans.
 Miami, Fla.
 Milwaukee, Wis.
 New Orleans, La.
 Newport News-Hampton, Va.
 Paterson-Clifton-Passaic, N.J.
 Philadelphia, Pa.-N.J.*
 Portland, Oreg.-Wash.
 Rochester, N.Y.
 San Antonio, Tex.
 San Bernardino-Riverside-Ontario,
 Calif.
 San Diego, Calif.
 San Francisco-Oakland, Calif.*
 Springfield-Chicopee-Holyoke,
 Mass.-Conn.

SURVEY GROUP III (1976 to 1977)

Allentown-Bethlehem-Easton, Pa.-N.J.
 Baltimore, Md.
 Birmingham, Ala.
 Buffalo, N.Y.
 Cleveland, Ohio
 Denver, Colo.
 Grand Rapids, Mich.
 Honolulu, Hawaii
 Houston, Tex.*
 Indianapolis, Ind.
 Las Vegas, Nev.
 Louisville, Ky.-Ind.
 New York, N.Y.*
 Oklahoma City, Okla.
 Omaha, Nebr.-Iowa
 Providence-Pawtucket-Warwick, R.I.-
 Mass.
 Raleigh, N.C.
 Sacramento, Calif.
 St. Louis, Mo.-Ill.*
 Seattle-Everett, Wash.*

*Sample size of 15,000 housing units; all others are 5,000 housing units.

†Included with Group II for the first (1975-76) enumeration.

Table 1. Principal Means of Transportation, by Distance to Work and Metropolitan-Nonmetropolitan Residence

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands. For meaning of symbols, see appendix A)

Distance to work by metropolitan-nonmetropolitan residence	Principal means of transportation														Work at home
	Total	Automobile or truck			Public transportation					Bicycle	Motor-cycle	Walk only	Other means	Not reported	
		Total	Drive alone	Car-pool	Total	Bus or streetcar	Subway or elevated	Rail-road	Taxi						
Total.....	54,104	46,368	37,129	9,240	3,219	1,922	901	323	73	309	375	2,117	256	200	1,261
Work at home.....	1,261	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
No fixed place of work.....	6,316	5,970	5,023	948	173	99	37	25	12	15	16	60	68	12	(X)
Distance not reported.....	1,042	723	585	139	176	102	62	12	-	2	2	15	17	107	(X)
Reporting distance.....	45,485	39,675	31,522	8,153	2,870	1,720	802	286	62	292	356	2,042	171	81	(X)
Less than 1 mile.....	4,376	2,493	2,178	316	72	53	6	2	11	59	19	1,690	27	17	(X)
1-2 miles.....	6,149	5,213	4,517	696	381	292	63	-	25	124	62	316	36	19	(X)
3-4 miles.....	6,074	5,456	4,635	821	439	323	99	2	14	69	45	30	27	8	(X)
5-9 miles.....	10,514	9,601	7,921	1,679	737	516	201	12	9	27	113	6	17	14	(X)
10-14 miles.....	6,978	6,447	5,126	1,321	455	246	180	27	2	10	46	-	15	6	(X)
15-19 miles.....	4,158	3,883	2,903	980	219	91	110	16	2	3	33	-	9	11	(X)
20-29 miles.....	4,129	3,760	2,563	1,197	319	123	119	77	-	-	29	-	19	2	(X)
30-49 miles.....	2,405	2,207	1,338	869	175	45	21	108	-	-	8	-	11	4	(X)
50-74 miles.....	566	500	278	223	61	26	2	34	-	-	1	-	4	-	(X)
75 miles or more.....	135	115	62	53	13	4	-	9	-	-	1	-	6	1	(X)
Mean distance.....	11.1	11.6	10.4	16.0	12.6	9.6	12.2	34.2	3.4	2.8	9.4	0.7	13.5	8.9	(X)
In SMSA central cities.....	15,420	11,936	9,656	2,280	2,230	1,311	809	59	51	104	94	792	62	62	139
Work at home.....	139	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
No fixed place of work.....	1,565	1,387	1,174	214	120	71	36	7	6	7	2	28	15	7	(X)
Distance not reported.....	427	261	205	56	129	68	57	4	-	-	-	5	5	27	(X)
Reporting distance.....	13,289	10,288	8,278	2,010	1,982	1,172	717	48	45	98	92	759	42	28	(X)
Less than 1 mile.....	1,123	447	385	62	61	44	6	2	9	8	3	590	10	4	(X)
1-2 miles.....	2,003	1,447	1,253	194	324	245	63	-	17	42	17	154	10	9	(X)
3-4 miles.....	2,240	1,801	1,509	292	378	275	91	2	11	29	11	12	7	3	(X)
5-9 miles.....	3,626	2,996	2,417	579	566	375	181	5	5	14	39	3	2	7	(X)
10-14 miles.....	2,130	1,802	1,429	373	315	140	161	12	2	2	10	-	-	2	(X)
15-19 miles.....	970	800	605	195	148	43	101	3	2	3	10	-	5	3	(X)
20-29 miles.....	789	641	444	197	142	39	92	10	-	-	3	-	3	-	(X)
30-49 miles.....	314	278	187	91	31	5	20	6	-	-	-	-	5	-	(X)
50-74 miles.....	82	67	42	25	15	7	2	7	-	-	-	-	-	-	(X)
75 miles or more.....	12	10	7	3	2	-	-	2	-	-	-	-	-	-	(X)
Mean distance.....	8.8	9.4	8.8	11.7	9.0	6.8	11.9	27.9	3.6	3.5	7.6	0.8	9.9	5.4	(X)
In SMSA's, outside central cities.....	22,255	20,033	16,225	3,808	886	533	91	256	6	113	158	556	101	79	329
Work at home.....	329	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
No fixed place of work.....	2,831	2,730	2,342	388	39	19	2	18	-	5	9	11	34	3	(X)
Distance not reported.....	423	325	265	60	44	31	5	9	-	-	2	4	4	43	(X)
Reporting distance.....	18,673	16,978	13,617	3,361	803	483	85	230	6	108	148	541	62	33	(X)
Less than 1 mile.....	1,150	668	581	87	6	6	-	-	-	18	5	446	3	5	(X)
1-2 miles.....	1,788	1,583	1,390	194	42	39	-	-	3	46	20	78	13	6	(X)
3-4 miles.....	2,032	1,909	1,625	284	50	41	8	-	-	25	22	14	11	1	(X)
5-9 miles.....	4,492	4,270	3,576	695	160	131	20	7	2	12	38	3	5	4	(X)
10-14 miles.....	3,444	3,261	2,627	634	137	102	20	15	-	7	25	-	10	3	(X)
15-19 miles.....	2,159	2,062	1,600	463	70	47	10	13	-	-	17	-	3	6	(X)
20-29 miles.....	2,210	2,007	1,454	553	174	80	27	67	-	-	16	-	11	2	(X)
30-49 miles.....	1,175	1,038	660	378	125	26	1	99	-	-	5	-	4	3	(X)
50-74 miles.....	184	150	88	62	31	7	-	24	-	-	1	-	2	-	(X)
75 miles or more.....	39	29	17	12	8	2	-	6	-	-	-	-	-	1	(X)
Mean distance.....	12.6	12.7	11.8	16.4	20.0	14.0	15.0	35.0	(B)	3.1	10.9	0.8	13.2	13.3	(X)
Outside SMSA's.....	16,428	14,400	11,248	3,151	102	78	-	8	16	91	123	769	93	59	792
Work at home.....	792	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
No fixed place of work.....	1,920	1,853	1,507	346	15	9	-	-	5	4	6	21	19	2	(X)
Distance not reported.....	193	138	115	23	3	3	-	-	-	2	1	5	8	36	(X)
Reporting distance.....	13,524	12,409	9,626	2,783	84	65	-	8	11	86	116	742	66	20	(X)
Less than 1 mile.....	2,103	1,378	1,211	167	5	3	-	-	2	32	11	654	14	8	(X)
1-2 miles.....	2,358	2,183	1,874	308	14	9	-	-	5	36	25	83	13	4	(X)
3-4 miles.....	1,801	1,746	1,502	244	11	7	-	-	3	15	13	5	9	3	(X)
5-9 miles.....	2,395	2,335	1,929	406	11	10	-	-	1	2	35	-	10	3	(X)
10-14 miles.....	1,405	1,384	1,070	314	3	3	-	-	-	1	11	-	6	1	(X)
15-19 miles.....	1,030	1,021	698	322	1	1	-	-	-	-	7	-	1	1	(X)
20-29 miles.....	1,131	1,113	665	447	4	4	-	-	-	-	10	-	4	-	(X)
30-49 miles.....	916	891	491	400	18	14	-	4	-	-	4	-	2	1	(X)
50-74 miles.....	300	284	147	136	15	12	-	3	-	-	-	-	2	-	(X)
75 miles or more.....	85	76	39	37	2	2	-	1	-	-	1	-	6	-	(X)
Mean distance.....	11.3	11.9	9.9	18.7	25.2	26.8	(B)	(B)	2.4	1.7	9.3	0.6	16.0	5.5	(X)

Table 2. Principal Means of Transportation, by Travel Time to Work and Metropolitan-Nonmetropolitan Residence

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands. For meaning of symbols, see appendix A)

Travel time to work by metropolitan-nonmetropolitan residence	Principal means of transportation														Work at home	
	Automobile or truck				Public transportation					Bicycle	Motor-cycle	Walk only	Other means	Not reported		
	Total	Drive alone	Car-pool	Total	Bus or streetcar	Subway or elevated	Rail-road	Taxi								
Total.....	54,104	46,368	37,129	9,240	3,219	1,922	901	323	73	309	375	2,117	256	200	1,261	
Work at home.....	1,261	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	1,261
No fixed place of work.....	6,316	5,970	5,023	948	173	99	37	25	12	15	16	60	68	12	(X)	
Travel time not reported.....	487	319	276	43	17	14	2	2	-	-	-	25	20	106	(X)	
Reporting travel time.....	46,040	40,079	31,830	8,249	3,028	1,808	862	296	62	293	358	2,032	167	82	(X)	
Less than 10 minutes.....	9,187	7,729	6,850	879	77	51	7	2	17	78	75	1,160	55	15	(X)	
10-14 minutes.....	7,543	6,843	5,847	997	126	96	11	-	19	93	72	376	17	16	(X)	
15-19 minutes.....	7,722	7,115	5,811	1,304	243	201	32	2	9	46	74	216	15	12	(X)	
20-29 minutes.....	9,068	8,362	6,616	1,746	401	295	84	10	12	35	69	166	23	12	(X)	
30-34 minutes.....	5,273	4,595	3,296	1,299	535	369	142	21	3	16	34	71	9	12	(X)	
35-49 minutes.....	4,416	3,623	2,398	1,225	712	370	286	54	2	13	23	32	8	7	(X)	
50 minutes or more.....	2,831	1,812	1,013	799	934	426	300	208	-	13	11	11	41	9	(X)	
Mean travel time.....	22.5	21.7	20.1	27.9	42.3	38.3	46.8	60.1	15.0	17.3	19.5	10.8	28.5	25.2	(X)	
In SMSA central cities.....	15,420	11,936	9,656	2,280	2,230	1,311	809	59	51	104	94	792	62	62	139	
Work at home.....	139	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	139
No fixed place of work.....	1,565	1,387	1,174	214	120	71	36	7	6	7	2	28	15	7	(X)	
Travel time not reported.....	119	74	62	12	9	9	-	-	-	-	-	3	7	26	(X)	
Reporting travel time.....	13,597	10,474	8,420	2,054	2,102	1,232	774	52	45	98	92	761	40	29	(X)	
Less than 10 minutes.....	2,099	1,636	1,455	181	58	40	7	2	9	17	19	351	16	2	(X)	
10-14 minutes.....	2,323	2,020	1,700	319	92	71	10	-	12	25	14	163	3	6	(X)	
15-19 minutes.....	2,643	2,298	1,867	431	193	151	32	2	9	24	19	103	2	4	(X)	
20-29 minutes.....	2,887	2,432	1,944	487	315	220	81	2	12	15	25	91	3	5	(X)	
30-34 minutes.....	1,607	1,133	818	315	418	279	130	7	2	8	8	32	2	7	(X)	
35-49 minutes.....	1,183	668	461	207	491	222	253	15	2	3	2	15	-	3	(X)	
50 minutes or more.....	855	289	174	114	535	248	261	25	-	5	5	5	14	3	(X)	
Mean travel time.....	23.1	20.5	19.5	24.7	39.9	36.2	46.2	51.8	17.3	19.2	20.4	12.5	31.5	28.7	(X)	
In SMSA's, outside central cities.....	22,255	20,033	16,225	3,808	886	533	91	256	6	113	158	556	101	79	329	
Work at home.....	329	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	329
No fixed place of work.....	2,831	2,730	2,342	388	39	19	2	18	-	5	9	11	34	3	(X)	
Travel time not reported.....	206	137	120	17	8	5	2	2	-	-	-	11	6	43	(X)	
Reporting travel time.....	18,890	17,165	13,762	3,403	839	509	88	236	6	108	149	534	60	33	(X)	
Less than 10 minutes.....	2,993	2,609	2,322	286	10	8	-	-	2	24	24	307	16	4	(X)	
10-14 minutes.....	2,708	2,518	2,159	359	22	18	2	-	3	39	24	96	4	5	(X)	
15-19 minutes.....	3,024	2,871	2,391	480	41	41	-	-	-	17	31	52	8	4	(X)	
20-29 minutes.....	4,307	4,119	3,321	798	79	67	3	8	-	11	34	49	8	6	(X)	
30-34 minutes.....	2,513	2,348	1,781	567	113	85	12	14	2	4	20	17	5	5	(X)	
35-49 minutes.....	2,173	1,926	1,326	601	213	140	33	40	-	9	13	6	2	2	(X)	
50 minutes or more.....	1,172	774	462	312	362	149	39	174	-	5	3	7	16	5	(X)	
Mean travel time.....	24.2	23.4	22.0	29.0	48.7	42.5	52.2	61.5	(B)	18.4	21.2	11.1	30.3	26.9	(X)	
Outside SMSA's.....	16,428	14,400	11,248	3,151	102	78	-	8	16	91	123	769	93	59	792	
Work at home.....	792	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	792
No fixed place of work.....	1,920	1,853	1,507	346	15	9	-	-	5	4	6	21	19	2	(X)	
Travel time not reported.....	163	108	93	14	1	1	-	-	-	-	-	11	7	36	(X)	
Reporting travel time.....	13,553	12,439	9,648	2,791	87	68	-	8	11	87	117	737	66	20	(X)	
Less than 10 minutes.....	4,095	3,484	3,072	412	9	3	-	-	6	36	32	502	22	9	(X)	
10-14 minutes.....	2,511	2,305	1,987	318	12	7	-	-	5	29	35	116	9	5	(X)	
15-19 minutes.....	2,054	1,946	1,553	393	9	9	-	-	-	5	24	60	6	4	(X)	
20-29 minutes.....	1,875	1,811	1,351	460	7	7	-	-	-	9	10	26	11	1	(X)	
30-34 minutes.....	1,153	1,114	697	417	4	4	-	-	-	3	6	22	2	1	(X)	
35-49 minutes.....	1,060	1,028	611	418	8	8	-	-	-	1	7	10	5	1	(X)	
50 minutes or more.....	805	750	377	373	37	30	-	8	-	3	3	-	12	-	(X)	
Mean travel time.....	19.7	20.3	17.8	28.9	41.0	43.9	(B)	(B)	7.9	13.4	16.4	8.7	25.6	13.4	(X)	

Table 3. Distance to Work, by Travel Time to Work and Means of Transportation

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands. For meaning of symbols, see appendix A)

Means of transportation and distance to work	Reporting travel time to work (minutes)										Work at home or no fixed place of work	Travel time not reported
	Total	Total	Less than 10	10 to 14	15 to 19	20 to 29	30 to 34	35 to 49	50 or more	Mean travel time		
Total.....	54,104	46,040	9,187	7,543	7,722	9,068	5,273	4,416	2,831	22.5	7,577	487
Work at home.....	1,261	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	1,261	(X)
No fixed place of work.....	6,316	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	6,316	(X)
Distance not reported.....	1,042	590	23	19	77	112	143	109	107	35.6	(X)	453
Reporting distance.....	45,485	45,450	9,164	7,524	7,644	8,956	5,130	4,307	2,724	22.4	(X)	35
Less than 1 mile.....	4,376	4,346	3,486	555	198	67	31	-	9	6.7	(X)	30
1-2 miles.....	6,149	6,145	3,581	1,556	541	310	115	26	15	9.3	(X)	5
3-4 miles.....	6,074	6,074	1,572	2,405	1,299	465	183	97	54	13.7	(X)	-
5-9 miles.....	10,514	10,514	524	2,693	3,770	2,409	648	324	146	19.2	(X)	-
10-14 miles.....	6,978	6,978	-	316	1,555	3,254	1,178	488	188	26.0	(X)	-
15-19 miles.....	4,158	4,158	1	-	281	1,759	1,323	614	181	30.9	(X)	-
20-29 miles.....	4,129	4,129	-	-	1	690	1,445	1,539	455	38.7	(X)	-
30-49 miles.....	2,405	2,405	-	-	-	-	209	1,219	978	52.5	(X)	-
50-74 miles.....	566	566	-	-	-	-	-	-	566	70.0	(X)	-
75 miles or more.....	135	135	-	-	-	2	-	1	133	69.6	(X)	-
Mean distance.....	11.1	11.1	1.8	4.5	7.2	11.7	16.7	24.4	38.1	(X)	(X)	0.6
Drive alone.....	37,129	31,830	6,850	5,847	5,811	6,616	3,296	2,398	1,013	20.1	5,023	276
Work at home.....	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
No fixed place of work.....	5,023	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	5,023	(X)
Distance not reported.....	585	321	15	15	56	84	82	52	18	29.1	(X)	263
Reporting distance.....	31,522	31,509	6,835	5,832	5,755	6,532	3,214	2,346	996	20.0	(X)	12
Less than 1 mile.....	2,178	2,165	1,975	150	30	3	4	-	2	5.3	(X)	12
1-2 miles.....	4,517	4,517	3,055	1,118	262	66	14	1	2	7.5	(X)	-
3-4 miles.....	4,635	4,635	1,346	2,044	935	272	31	4	3	11.8	(X)	-
5-9 miles.....	7,921	7,921	458	2,270	3,043	1,768	313	54	15	17.4	(X)	-
10-14 miles.....	5,126	5,126	-	250	1,259	2,575	804	213	27	24.2	(X)	-
15-19 miles.....	2,903	2,903	-	-	226	1,337	932	383	25	29.0	(X)	-
20-29 miles.....	2,563	2,563	-	-	-	511	974	937	141	36.3	(X)	-
30-49 miles.....	1,338	1,338	-	-	-	-	142	754	442	50.2	(X)	-
50-74 miles.....	278	278	-	-	-	-	-	-	278	70.0	(X)	-
75 miles or more.....	62	62	-	-	-	-	-	-	62	70.0	(X)	-
Mean distance.....	10.4	10.4	2.0	4.8	7.6	12.2	17.8	26.5	44.9	(X)	(X)	0.5
Carpool.....	9,240	8,249	879	997	1,304	1,746	1,299	1,225	799	27.9	948	43
Work at home.....	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
No fixed place of work.....	948	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	948	(X)
Distance not reported.....	139	96	3	3	10	15	23	17	24	38.7	(X)	43
Reporting distance.....	8,153	8,153	876	993	1,294	1,730	1,277	1,208	776	27.7	(X)	-
Less than 1 mile.....	316	316	252	43	17	2	1	-	-	6.4	(X)	-
1-2 miles.....	696	696	373	230	78	9	4	-	1	8.9	(X)	-
3-4 miles.....	821	821	194	283	258	57	21	9	-	13.5	(X)	-
5-9 miles.....	1,679	1,679	57	375	625	478	113	29	2	19.1	(X)	-
10-14 miles.....	1,321	1,321	-	62	266	624	272	88	8	25.4	(X)	-
15-19 miles.....	980	980	-	-	49	393	353	156	28	30.9	(X)	-
20-29 miles.....	1,197	1,197	-	-	-	167	449	499	82	37.7	(X)	-
30-49 miles.....	869	869	-	-	-	-	64	428	377	53.4	(X)	-
50-74 miles.....	223	223	-	-	-	-	-	-	223	70.0	(X)	-
75 miles or more.....	53	53	-	-	-	-	-	-	53	70.0	(X)	-
Mean distance.....	16.0	16.0	2.0	4.8	7.3	12.6	18.5	27.4	46.6	(X)	(X)	(B)
Public transportation.....	3,219	3,028	77	126	243	401	535	712	934	42.3	173	17
Work at home.....	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
No fixed place of work.....	173	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	173	(X)
Distance not reported.....	176	159	7	-	7	10	38	40	62	47.9	(X)	17
Reporting distance.....	2,870	2,870	75	126	236	391	497	671	872	42.0	(X)	-
Less than 1 mile.....	72	72	20	21	14	5	7	-	5	17.7	(X)	-
1-2 miles.....	381	381	43	63	96	107	53	7	12	21.1	(X)	-
3-4 miles.....	439	439	9	28	64	112	115	71	39	31.0	(X)	-
5-9 miles.....	737	737	3	14	51	117	205	229	117	38.4	(X)	-
10-14 miles.....	455	455	-	-	10	33	84	177	150	47.5	(X)	-
15-19 miles.....	219	219	-	-	2	8	19	75	114	54.6	(X)	-
20-29 miles.....	319	319	-	-	-	8	11	82	219	60.6	(X)	-
30-49 miles.....	175	175	-	-	-	-	2	30	142	64.4	(X)	-
50-74 miles.....	61	61	-	-	-	-	-	-	61	70.0	(X)	-
75 miles or more.....	13	13	-	-	-	-	-	-	13	70.0	(X)	-
Mean distance.....	12.6	12.6	1.7	2.4	3.8	5.4	7.2	12.6	23.7	(X)	(X)	(B)
Walk only.....	2,117	2,032	1,160	376	216	166	71	32	11	10.8	60	25
Work at home.....	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
No fixed place of work.....	60	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	60	(X)
Distance not reported.....	15	7	3	1	2	2	-	-	-	(B)	(X)	8
Reporting distance.....	2,042	2,025	1,157	375	215	164	71	32	11	10.7	(X)	17
Less than 1 mile.....	1,690	1,678	1,142	326	136	54	19	-	-	7.9	(X)	12
1-2 miles.....	316	311	15	49	79	110	40	19	-	21.8	(X)	5
3-4 miles.....	30	30	-	-	-	-	12	13	5	42.7	(X)	-
5-9 miles.....	6	6	-	-	-	-	-	-	6	(B)	(X)	-
10-14 miles.....	-	-	-	-	-	-	-	-	-	(B)	(X)	-
15-19 miles.....	-	-	-	-	-	-	-	-	-	(B)	(X)	-
20-29 miles.....	-	-	-	-	-	-	-	-	-	(B)	(X)	-
30-49 miles.....	-	-	-	-	-	-	-	-	-	(B)	(X)	-
50-74 miles.....	-	-	-	-	-	-	-	-	-	(B)	(X)	-
75 miles or more.....	-	-	-	-	-	-	-	-	-	(B)	(X)	-
Mean distance.....	0.7	0.7	0.5	0.6	0.9	1.2	1.6	2.3	5.4	(X)	(X)	0.8

Table 3. Distance to Work, by Travel Time to Work and Means of Transportation—Continued

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands. For meaning of symbols, see appendix A)

Means of transportation and distance to work	Total	Reporting travel time to work (minutes)								Mean travel time	Work at home or no fixed place of work	Travel time not reported
		Total	Less than 10	10 to 14	15 to 19	20 to 29	30 to 34	35 to 49	50 or more			
All other means ¹	939	819	207	182	136	127	59	43	65	20.5	100	20
Work at home.....	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
No fixed place of work.....	100	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	100	(X)
Distance not reported.....	21	6	-	-	2	1	1	-	2	(B)	(X)	15
Reporting distance.....	818	813	207	182	133	126	59	43	62	20.3	(X)	6
Less than 1 mile.....	105	99	84	10	1	2	-	-	2	7.1	(X)	6
1-2 miles.....	221	221	93	90	20	15	4	-	-	10.6	(X)	-
3-4 miles.....	141	141	23	46	40	24	3	-	5	16.8	(X)	-
5-9 miles.....	156	156	6	34	48	42	15	8	5	22.1	(X)	-
10-14 miles.....	71	71	-	3	20	21	16	10	2	27.6	(X)	-
15-19 miles.....	46	46	1	-	4	19	11	-	12	37.6	(X)	-
20-29 miles.....	47	47	-	-	1	3	9	21	13	46.2	(X)	-
30-49 miles.....	20	20	-	-	-	-	1	5	14	61.1	(X)	-
50-74 miles.....	5	5	-	-	-	-	-	-	5	(B)	(X)	-
75 miles or more.....	7	7	-	-	-	2	-	1	5	(B)	(X)	-
Mean distance.....	7.9	8.0	1.6	3.2	6.3	9.8	12.9	22.7	30.9	(X)	(X)	(B)
Not reported.....	200	82	15	16	12	12	12	7	9	25.2	12	106
Work at home.....	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
No fixed place of work.....	12	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	12	(X)
Distance not reported.....	107	2	-	-	-	-	-	-	2	(B)	(X)	106
Reporting distance.....	81	81	15	16	12	12	12	7	7	23.8	(X)	-
Less than 1 mile.....	17	17	12	4	-	-	-	-	-	6.0	(X)	-
1-2 miles.....	19	19	2	7	7	3	-	-	-	15.0	(X)	-
3-4 miles.....	8	8	-	4	2	1	-	-	2	(B)	(X)	-
5-9 miles.....	14	14	-	-	4	5	2	3	-	27.2	(X)	-
10-14 miles.....	6	6	-	1	-	2	2	-	2	(B)	(X)	-
15-19 miles.....	11	11	-	-	-	2	7	-	2	37.5	(X)	-
20-29 miles.....	3	3	-	-	-	-	2	1	-	(B)	(X)	-
30-49 miles.....	4	4	-	-	-	-	-	2	1	(B)	(X)	-
50-74 miles.....	-	-	-	-	-	-	-	-	-	(B)	(X)	-
75 miles or more.....	1	1	-	-	-	-	-	-	1	(B)	(X)	-
Mean distance.....	9.2	9.2	0.6	2.4	3.8	8.4	17.2	(B)	(B)	(X)	(X)	(B)
Work at home.....	1,261	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	1,261	(X)

¹Includes bicycle, motorcycle, and other means.

Table 4. Means of Transportation, by Region, Metropolitan-Nonmetropolitan Residence, Race, and Spanish Origin

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands. For meaning of symbols, see appendix A)

Means of transportation by region of residence	Total				Black				Spanish origin			
	Total	In SMSA central cities	In SMSA's, outside central cities	Outside SMSA's	Total	In SMSA central cities	In SMSA's, outside central cities	Outside SMSA's	Total	In SMSA central cities	In SMSA's, outside central cities	Outside SMSA's
United States.....	54,104	15,420	22,255	16,428	5,075	2,943	1,136	996	2,879	1,393	1,031	456
Automobile or truck.....	46,368	11,936	20,033	14,400	3,879	2,021	985	872	2,335	1,000	923	412
Drive alone.....	37,129	9,656	16,225	11,248	2,868	1,537	766	565	1,785	771	716	298
Carpool.....	9,240	2,280	3,808	3,151	1,010	484	219	307	551	229	207	114
Public transportation.....	3,219	2,230	886	102	858	759	81	19	333	278	49	6
Walk only.....	2,117	792	556	769	234	115	38	82	139	82	35	22
All other means ¹	939	260	372	307	35	14	11	10	39	19	14	7
Work at home.....	1,261	139	329	792	36	14	12	10	27	8	9	11
Not reported.....	200	62	79	59	33	20	9	3	7	5	2	-
Northeast.....	11,424	3,422	5,542	2,460	920	685	183	52	450	329	89	32
Automobile or truck.....	8,791	1,845	4,782	2,164	477	295	145	37	184	99	65	19
Drive alone.....	7,050	1,442	3,905	1,704	371	233	109	29	145	77	56	11
Carpool.....	1,740	404	877	460	106	62	36	8	39	22	9	8
Public transportation.....	1,595	1,165	390	41	369	344	20	4	203	183	15	4
Walk only.....	648	304	194	150	53	30	13	10	54	39	6	9
All other means ¹	145	56	56	34	7	5	1	1	5	5	-	-
Work at home.....	200	34	103	62	10	7	3	-	3	2	2	-
Not reported.....	45	19	18	8	4	3	-	1	2	2	-	-
North Central.....	14,435	3,767	5,909	4,759	977	747	176	54	219	115	70	34
Automobile or truck.....	12,450	3,050	5,453	3,947	750	548	162	40	187	88	68	31
Drive alone.....	10,150	2,455	4,493	3,202	588	422	134	31	141	67	52	22
Carpool.....	2,300	595	959	745	162	126	28	9	46	21	16	9
Public transportation.....	645	433	195	18	167	155	11	2	22	22	-	-
Walk only.....	548	184	95	269	43	29	2	12	8	5	2	1
All other means ¹	205	49	58	97	2	2	-	-	-	-	-	-
Work at home.....	526	31	93	402	5	3	2	-	2	-	-	2
Not reported.....	61	21	15	25	10	10	-	-	-	-	-	-
South.....	17,464	4,722	5,679	7,063	2,631	1,194	576	861	1,006	510	308	188
Automobile or truck.....	15,788	4,103	5,217	6,468	2,180	915	496	769	900	446	279	175
Drive alone.....	12,351	3,329	4,138	4,884	1,528	670	375	483	684	344	218	122
Carpool.....	3,437	773	1,080	1,584	652	245	121	286	216	102	61	53
Public transportation.....	531	350	153	28	271	222	37	12	44	31	11	1
Walk only.....	526	165	131	229	126	46	21	59	35	20	10	5
All other means ¹	223	53	85	86	21	4	9	10	12	9	4	-
Work at home.....	342	39	67	236	20	3	7	10	13	3	3	7
Not reported.....	54	12	26	15	12	3	6	2	3	2	1	-
West.....	10,781	3,508	5,126	2,147	547	316	202	29	1,204	438	565	201
Automobile or truck.....	9,340	2,938	4,581	1,821	471	262	182	26	1,064	367	511	187
Drive alone.....	7,577	2,430	3,689	1,458	381	212	148	22	815	283	389	143
Carpool.....	1,762	507	892	363	90	51	34	5	249	84	122	43
Public transportation.....	447	283	149	15	51	37	13	2	64	42	22	-
Walk only.....	396	139	136	121	13	10	2	1	42	18	13	6
All other means ¹	365	103	173	89	5	4	2	-	22	7	10	7
Work at home.....	193	35	66	92	-	-	-	-	9	2	4	2
Not reported.....	40	10	20	10	7	3	3	-	2	2	1	-

¹Includes bicycle, motorcycle, and other means.

Table 5. Distance to Work, by Family Income and Metropolitan-Nonmetropolitan Residence

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands. For meaning of symbols, see appendix A)

Distance to work by metropolitan-nonmetropolitan residence	Total	Family income										Median (dollars)
		Less than \$3,000	\$3,000-\$6,999	\$7,000-\$9,999	\$10,000-\$14,999	\$15,000-\$19,999	\$20,000-\$24,999	\$25,000-\$34,999	\$35,000-\$49,999	\$50,000-\$74,999	\$75,000 or more	
Total.....	54,104	1,200	3,712	4,956	10,576	8,885	8,414	9,189	4,718	1,697	758	18,700
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
Work at home.....	2.3	7.9	5.2	2.8	2.1	1.6	1.6	1.8	2.0	3.3	3.2	14,500
No fixed place of work.....	11.7	12.8	10.2	8.6	10.0	10.9	11.4	12.8	15.9	18.1	19.3	20,900
Distance not reported.....	1.9	2.9	3.0	2.6	1.9	1.8	1.3	1.8	2.0	1.9	1.5	16,600
Reporting distance.....	84.1	76.3	81.6	86.0	86.1	85.7	85.8	83.6	80.1	76.7	76.0	18,600
Less than 1 mile.....	8.1	16.1	15.2	13.1	9.3	7.8	6.1	4.8	4.0	6.5	5.2	14,000
1-2 miles.....	11.4	15.9	16.2	15.0	12.9	10.5	9.3	8.0	8.1	8.9	8.9	16,000
3-4 miles.....	11.2	11.0	12.2	12.4	12.2	11.9	11.1	9.9	10.0	8.5	8.9	17,600
5-9 miles.....	19.4	14.1	18.1	19.1	20.2	20.5	19.7	19.6	18.2	17.6	20.6	18,700
10-14 miles.....	12.9	7.4	8.4	12.6	11.7	14.3	14.0	14.3	14.0	12.4	11.2	19,800
15-19 miles.....	7.7	3.8	5.0	6.1	7.5	7.7	8.4	9.1	9.1	6.9	7.0	20,500
20-29 miles.....	7.6	5.2	3.8	4.5	7.5	7.4	8.5	9.5	9.6	8.4	8.5	21,300
30-49 miles.....	4.4	2.0	2.0	2.6	3.6	4.4	5.9	5.4	5.7	6.7	4.7	22,100
50-74 miles.....	1.0	0.6	0.5	0.5	1.0	0.9	1.4	1.4	1.2	1.1	0.7	22,000
75 miles or more.....	0.3	0.3	0.1	0.1	0.3	0.3	0.2	0.3	0.3	0.4	0.3	20,100
Mean distance.....	11.1	7.7	7.4	8.3	10.3	11.0	12.3	12.8	13.3	13.2	11.8	(X)
In SMSA central cities.....	15,420	423	1,372	1,776	3,233	2,485	2,132	2,287	1,107	435	171	16,800
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
Work at home.....	0.9	2.0	2.2	1.2	0.6	0.4	0.6	0.8	0.9	1.5	2.1	12,600
No fixed place of work.....	10.2	12.0	8.6	6.5	8.5	8.7	10.0	11.2	18.0	20.4	20.1	20,200
Distance not reported.....	2.8	3.6	4.5	3.6	2.4	3.0	1.8	2.5	2.5	1.9	0.9	14,700
Reporting distance.....	86.2	82.4	84.7	88.7	88.5	87.9	87.6	85.6	78.6	76.2	76.9	16,600
Less than 1 mile.....	7.3	15.9	12.5	10.5	8.1	7.1	5.2	3.9	2.6	5.9	3.0	12,600
1-2 miles.....	13.0	15.9	18.1	15.9	13.7	12.2	11.2	12.0	7.8	9.7	10.7	14,600
3-4 miles.....	14.5	16.1	14.4	15.6	15.1	15.1	14.1	12.9	15.2	11.4	13.2	16,200
5-9 miles.....	23.5	18.9	21.1	23.1	24.4	25.0	25.1	23.0	21.6	20.9	26.7	17,000
10-14 miles.....	13.8	5.9	9.6	12.9	13.3	15.1	15.7	15.7	15.2	13.3	11.4	18,300
15-19 miles.....	6.3	3.1	3.9	5.0	6.4	6.6	7.0	8.0	7.5	4.7	4.9	18,700
20-29 miles.....	5.1	3.9	3.5	3.8	5.3	4.7	5.9	5.9	6.2	6.3	6.0	18,900
30-49 miles.....	2.0	2.3	1.2	1.5	2.0	1.5	2.9	2.8	1.7	3.1	1.0	20,200
50-74 miles.....	0.5	0.4	0.4	0.4	0.2	0.6	0.5	1.2	0.6	0.8	-	23,800
75 miles or more.....	0.1	-	-	-	0.1	0.1	-	0.2	0.1	-	-	26,700
Mean distance.....	8.8	6.8	6.7	7.4	8.4	8.6	9.7	10.5	10.2	10.3	8.6	(X)
In SMSA's, outside central cities.....	22,255	334	931	1,544	3,746	3,481	3,738	4,489	2,621	919	452	21,500
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
Work at home.....	1.5	4.4	3.8	1.8	1.2	0.8	1.2	1.2	1.5	2.7	2.7	21,500
No fixed place of work.....	12.7	13.4	11.5	10.1	10.6	11.4	11.6	13.8	16.1	18.1	19.7	23,600
Distance not reported.....	1.9	4.1	3.3	2.8	2.1	1.6	1.3	1.8	1.8	1.5	1.8	19,000
Reporting distance.....	83.9	78.0	81.4	85.3	86.2	86.2	85.9	83.1	80.6	77.6	75.9	21,200
Less than 1 mile.....	5.2	13.1	11.6	11.2	6.7	5.0	4.2	2.6	2.4	4.7	4.1	15,000
1-2 miles.....	8.0	14.4	12.5	12.1	9.8	8.0	8.1	6.0	5.3	5.0	6.6	18,100
3-4 miles.....	9.1	7.7	12.8	10.3	10.6	9.7	9.2	8.0	8.0	6.1	5.8	19,700
5-9 miles.....	20.2	15.2	21.2	20.2	21.3	21.3	20.0	20.4	18.4	16.8	20.6	21,000
10-14 miles.....	15.5	11.2	9.6	16.0	13.7	17.0	16.6	16.7	15.9	14.0	11.5	22,000
15-19 miles.....	9.7	4.6	6.5	7.7	9.5	9.6	9.9	10.9	10.9	9.9	8.7	22,600
20-29 miles.....	9.9	9.4	4.6	4.3	9.7	9.8	10.2	11.7	11.5	11.2	10.9	23,400
30-49 miles.....	5.3	1.4	2.1	2.9	3.8	5.3	6.5	5.6	6.9	8.5	6.6	24,000
50-74 miles.....	0.8	0.5	0.6	0.4	0.9	0.4	1.0	1.0	1.0	1.1	0.8	24,300
75 miles or more.....	0.2	0.5	-	0.1	0.1	-	0.2	0.2	0.3	0.4	0.2	25,900
Mean distance.....	12.6	9.7	8.2	9.2	11.5	12.1	13.3	13.9	14.8	15.4	14.0	(X)
Outside SMSA's.....	16,428	443	1,409	1,636	3,597	2,919	2,543	2,413	991	343	134	16,900
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
Work at home.....	4.8	16.2	9.1	5.6	4.4	3.5	2.9	3.6	4.3	7.3	6.4	13,300
No fixed place of work.....	11.7	13.2	10.9	9.5	10.7	12.1	12.2	12.4	13.1	15.4	17.3	18,000
Distance not reported.....	1.2	1.3	1.4	1.3	1.1	1.0	0.7	1.2	1.9	2.7	1.1	16,800
Reporting distance.....	82.3	69.3	78.6	83.7	83.8	83.4	84.2	82.7	80.7	74.6	75.3	17,000
Less than 1 mile.....	12.8	18.5	20.3	17.7	13.0	11.7	9.7	9.7	9.8	12.3	11.8	14,200
1-2 miles.....	14.4	17.1	16.9	16.6	15.3	12.1	13.3	12.9	15.3	14.5	14.0	15,600
3-4 miles.....	11.0	8.7	9.8	10.8	11.2	12.0	11.4	10.5	9.6	11.2	14.1	17,000
5-9 miles.....	14.6	8.8	13.1	13.6	15.3	15.7	14.9	14.8	13.7	15.2	12.8	17,200
10-14 miles.....	8.6	5.9	6.3	9.1	8.2	10.3	8.6	8.7	7.8	7.1	9.8	17,400
15-19 miles.....	6.3	3.7	5.1	5.8	6.5	6.3	7.5	6.9	6.0	2.0	4.2	17,700
20-29 miles.....	6.9	3.4	3.5	5.5	7.1	6.9	8.3	8.7	8.2	3.4	3.5	18,800
30-49 miles.....	5.6	2.0	2.7	3.4	4.9	5.7	7.4	7.6	7.1	6.6	2.9	20,300
50-74 miles.....	1.8	0.9	0.6	0.8	1.7	1.9	2.7	2.4	2.6	1.6	1.2	20,600
75 miles or more.....	0.5	0.3	0.3	0.3	0.5	0.8	0.4	0.5	0.5	0.9	1.1	17,900
Mean distance.....	11.3	7.5	7.4	8.6	10.8	11.9	13.1	13.2	13.0	10.9	10.5	(X)

Table 6. Distance to Work, by Family Income, Race, and Spanish Origin

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands. For meaning of symbols, see appendix A)

Race, Spanish origin, and distance to work	Total	Family income										Median (dollars)
		Less than \$3,000	\$3,000- \$6,999	\$7,000- \$9,999	\$10,000- \$14,999	\$15,000- \$19,999	\$20,000- \$24,999	\$25,000- \$34,999	\$35,000- \$49,999	\$50,000- \$74,999	\$75,000 or more	
Black householders.....	5,075	222	851	785	1,102	780	533	522	218	42	20	13,100
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
Work at home.....	0.7	2.6	1.3	1.1	0.2	-	0.9	0.4	-	-	-	7,300
No fixed place of work.....	8.2	12.8	9.5	5.6	6.8	6.6	8.3	9.0	13.8	14.6	32.0	13,600
Distance not reported.....	4.5	4.4	6.3	5.2	3.9	4.0	2.9	4.5	5.3	4.0	-	11,300
Reporting distance.....	86.6	80.2	82.9	88.1	89.0	89.4	87.9	86.0	80.9	81.4	68.0	13,200
Less than 1 mile.....	7.8	14.2	12.4	10.4	7.1	5.1	5.8	4.2	1.5	-	12.3	9,200
1-2 miles.....	12.8	14.4	16.5	13.4	16.1	10.0	11.0	8.8	5.7	1.7	8.0	11,400
3-4 miles.....	12.0	12.1	12.5	14.6	12.5	12.3	8.5	9.9	11.2	11.7	-	12,000
5-9 miles.....	20.4	18.1	21.4	16.0	19.9	24.8	20.2	21.5	21.2	11.9	24.9	13,900
10-14 miles.....	14.5	8.0	9.7	15.3	13.3	18.1	17.7	18.9	10.9	21.5	-	15,000
15-19 miles.....	7.8	7.4	4.1	8.9	7.3	7.9	8.8	10.0	13.4	11.3	7.6	14,800
20-29 miles.....	6.8	3.0	4.7	5.2	7.8	6.6	9.1	7.2	12.8	14.2	8.0	15,000
30-49 miles.....	3.4	3.0	1.1	3.4	3.3	3.4	6.0	4.2	4.3	9.1	-	16,400
50 miles or more.....	1.1	-	0.5	0.9	1.8	1.4	0.9	1.2	-	-	7.2	14,000
Mean distance.....	10.3	7.7	7.2	9.6	10.5	10.9	12.2	11.9	12.7	16.2	13.3	(X)
Spanish origin householders....	2,879	79	317	443	737	480	355	297	126	33	12	14,100
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
Work at home.....	0.9	2.2	3.2	1.2	0.3	-	1.2	-	1.4	3.0	-	7,800
No fixed place of work.....	9.7	10.3	11.1	10.3	9.8	9.7	7.0	9.8	7.3	14.8	33.2	13,500
Distance not reported.....	3.1	4.4	5.7	3.7	1.8	3.9	3.2	1.6	2.6	-	-	12,600
Reporting distance.....	86.3	83.2	80.0	84.8	88.1	86.4	88.6	88.6	88.7	82.2	66.8	14,200
Less than 1 mile.....	8.6	16.0	13.7	10.5	8.9	7.1	5.5	6.3	4.0	4.7	-	11,600
1-2 miles.....	12.8	18.4	13.8	18.2	12.6	12.2	12.1	8.3	6.6	2.2	14.6	12,500
3-4 miles.....	11.6	8.3	9.7	8.7	12.8	9.9	16.2	11.5	15.0	20.5	-	14,900
5-9 miles.....	20.4	14.1	21.3	18.8	24.0	21.9	18.3	17.6	15.4	7.7	25.5	13,700
10-14 miles.....	13.3	10.1	8.9	13.2	12.2	15.0	14.3	18.2	15.6	9.0	-	15,500
15-19 miles.....	8.2	4.3	5.1	8.5	6.9	9.9	9.4	9.6	8.4	19.3	-	15,900
20-29 miles.....	5.9	8.1	3.8	3.7	6.3	6.2	5.7	7.4	8.8	14.0	14.1	15,600
30-49 miles.....	4.3	2.0	2.7	2.5	3.6	2.9	6.6	6.7	12.9	4.7	12.7	20,100
50 miles or more.....	1.1	2.0	1.0	0.7	0.7	1.3	0.5	3.0	2.0	-	-	17,700
Mean distance.....	10.4	9.8	8.4	8.7	9.6	10.5	11.0	13.7	15.6	14.4	(B)	(X)

Table 7. Means of Transportation, by Distance to Work and Family Income

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands. For meaning of symbols, see appendix A)

Means of transportation and distance to work	Total	Family income										Median (dollars)
		Less than \$3,000	\$3,000-\$6,999	\$7,000-\$9,999	\$10,000-\$14,999	\$15,000-\$19,999	\$20,000-\$24,999	\$25,000-\$34,999	\$35,000-\$49,999	\$50,000-\$74,999	\$75,000 or more	
Total.....	54,104	1,200	3,712	4,956	10,576	8,885	8,414	9,189	4,718	1,697	758	18,700
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
Work at home.....	2.3	7.9	5.2	2.8	2.1	1.6	1.6	1.8	2.0	3.3	3.2	14,500
No fixed place of work.....	11.7	12.8	10.2	8.6	10.0	10.9	11.4	12.8	15.9	18.1	19.3	20,900
Distance not reported.....	1.9	2.9	3.0	2.6	1.9	1.8	1.3	1.8	2.0	1.9	1.5	16,600
Reporting distance.....	84.1	76.3	81.6	86.0	86.1	85.7	85.8	83.6	80.1	76.7	76.0	18,600
Less than 1 mile.....	8.1	16.1	15.2	13.1	9.3	7.8	6.1	4.8	4.0	6.5	5.2	14,000
1-2 miles.....	11.4	15.9	16.2	15.0	12.9	10.5	9.3	8.0	8.1	8.9	8.9	16,000
3-4 miles.....	11.2	11.0	12.2	12.4	12.2	11.9	11.1	9.9	10.0	8.5	8.9	17,600
5-9 miles.....	19.4	14.1	18.1	19.1	20.2	20.5	19.7	19.6	18.2	17.6	20.6	18,700
10-14 miles.....	12.9	7.4	8.4	12.6	11.7	14.3	14.0	14.3	14.0	12.4	11.2	19,800
15-19 miles.....	7.7	3.8	5.0	6.1	7.5	7.7	8.4	9.1	9.1	6.9	7.0	20,500
20-29 miles.....	7.6	5.2	3.8	4.5	7.5	7.4	8.5	9.5	9.6	8.4	8.5	21,300
30-49 miles.....	4.4	2.0	2.0	2.6	3.6	4.4	5.9	5.4	5.7	6.7	4.7	22,100
50-74 miles.....	1.0	0.6	0.5	0.5	1.0	0.9	1.4	1.4	1.2	1.1	0.7	22,000
75 miles or more.....	0.3	0.3	0.1	0.1	0.3	0.3	0.2	0.3	0.3	0.4	0.3	20,100
Mean distance.....	11.1	7.7	7.4	8.3	10.3	11.0	12.3	12.8	13.3	13.2	11.8	(X)
Drive alone.....	37,129	620	1,948	3,095	7,255	6,315	6,019	6,653	3,408	1,234	581	19,500
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
No fixed place of work.....	13.5	17.1	11.5	9.3	11.3	12.0	12.8	15.0	19.3	21.1	22.4	22,000
Distance not reported.....	1.6	2.0	2.0	1.9	1.6	1.5	0.9	1.6	1.8	1.9	1.2	18,300
Reporting distance.....	84.9	80.9	86.5	88.8	87.0	86.4	86.2	83.3	78.9	77.0	76.4	19,100
Less than 1 mile.....	5.9	9.5	10.1	9.3	7.2	5.7	5.0	3.8	3.1	5.2	4.8	15,300
1-2 miles.....	12.2	18.9	18.7	15.3	13.9	11.2	11.4	10.2	9.4	8.8	9.1	17,100
3-4 miles.....	12.5	11.6	14.2	14.4	13.4	13.5	12.2	11.0	11.1	9.4	9.6	18,200
5-9 miles.....	21.3	18.7	21.2	21.3	21.4	22.1	21.7	21.7	19.6	19.6	22.5	19,400
10-14 miles.....	13.8	9.1	9.6	14.2	12.3	15.5	14.4	14.9	14.2	12.9	12.1	20,000
15-19 miles.....	7.8	4.7	5.8	7.0	7.6	7.7	8.7	8.7	8.2	7.3	6.4	20,500
20-29 miles.....	6.9	5.9	4.0	4.3	7.2	6.6	7.3	8.0	7.8	7.3	7.8	21,100
30-49 miles.....	3.6	1.7	2.3	2.5	3.0	3.3	4.7	3.8	4.6	5.5	3.1	22,000
50-74 miles.....	0.7	0.8	0.4	0.4	0.8	0.6	0.8	1.1	0.8	0.5	0.8	22,200
75 miles or more.....	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.3	0.1	19,000
Mean distance.....	10.4	8.3	7.7	8.5	9.9	10.3	11.0	11.6	11.9	12.0	11.0	(X)
Carpool.....	9,240	173	624	790	1,729	1,505	1,598	1,678	818	243	80	19,300
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
No fixed place of work.....	10.3	14.6	14.1	13.1	10.0	10.8	9.4	7.9	8.7	12.1	13.2	17,600
Distance not reported.....	1.5	1.8	3.5	2.0	1.1	1.9	1.3	1.2	1.0	0.3	2.1	16,700
Reporting distance.....	88.2	83.6	82.4	84.9	88.9	87.3	89.3	90.9	90.3	87.6	84.7	19,600
Less than 1 mile.....	3.4	8.7	8.1	5.3	3.3	3.2	2.8	1.9	2.3	2.4	-	14,400
1-2 miles.....	7.5	12.5	10.5	13.1	9.5	5.7	6.9	6.0	3.6	3.8	7.2	14,800
3-4 miles.....	8.9	13.3	11.2	10.4	9.8	8.6	8.1	7.7	7.2	8.7	10.2	17,600
5-9 miles.....	18.2	14.2	22.8	19.6	19.8	19.2	16.3	15.8	17.1	18.2	21.7	18,000
10-14 miles.....	14.3	11.5	10.6	14.4	14.0	12.5	15.3	15.9	16.4	15.5	12.6	20,600
15-19 miles.....	10.6	5.5	8.0	8.3	10.2	10.5	10.4	12.1	14.5	10.0	11.5	21,000
20-29 miles.....	13.0	9.6	5.6	7.6	11.9	13.8	14.1	15.8	16.5	12.9	17.6	21,600
30-49 miles.....	9.4	7.4	3.9	4.9	7.6	10.4	11.3	12.4	10.1	13.1	4.0	22,000
50-74 miles.....	2.4	0.4	1.2	1.0	2.3	2.6	3.5	2.8	2.2	2.4	-	21,400
75 miles or more.....	0.6	0.4	0.4	0.4	0.6	0.8	0.7	0.6	0.4	0.7	-	19,500
Mean distance.....	16.0	12.3	10.6	11.7	14.8	16.9	17.8	18.1	17.4	18.0	13.1	(X)
Public transportation.....	3,219	132	450	456	718	416	324	351	244	82	48	14,000
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
No fixed place of work.....	5.4	9.1	8.6	3.7	4.7	3.8	4.3	6.8	3.4	10.3	4.8	12,900
Distance not reported.....	5.5	9.1	6.4	8.3	5.2	4.5	3.9	6.2	3.0	-	-	11,300
Reporting distance.....	89.2	81.9	85.0	88.1	90.1	91.8	91.8	87.0	93.7	89.7	95.2	14,200
Less than 1 mile.....	2.2	3.9	3.9	3.4	2.7	1.5	1.8	0.5	-	-	-	9,500
1-2 miles.....	11.8	22.5	14.9	16.2	10.9	10.7	9.2	8.6	5.3	10.0	14.1	11,300
3-4 miles.....	13.6	16.9	17.7	16.3	14.4	12.6	12.3	8.4	11.3	8.2	7.2	12,100
5-9 miles.....	22.9	16.4	24.5	24.6	28.5	27.6	20.4	15.4	15.2	12.0	14.3	13,000
10-14 miles.....	14.1	7.7	12.0	13.4	13.7	18.5	15.1	16.0	14.6	12.3	7.4	15,200
15-19 miles.....	6.8	5.0	4.9	4.8	7.8	6.2	5.4	9.8	10.2	4.0	13.6	15,600
20-29 miles.....	9.9	6.9	5.8	6.3	6.8	7.4	14.9	17.7	18.9	19.5	7.1	21,700
30-49 miles.....	5.4	-	1.0	2.4	4.6	4.8	7.7	7.6	11.4	15.3	29.7	23,800
50-74 miles.....	1.9	1.2	0.4	0.7	0.5	2.0	4.2	2.7	5.0	8.4	1.8	24,500
75 miles or more.....	0.4	1.3	-	-	0.2	0.4	0.8	0.2	1.7	-	-	22,500
Mean distance.....	12.6	9.7	8.2	9.0	10.7	12.2	16.1	16.7	20.0	21.7	20.2	(X)
Walk only.....	2,117	138	381	358	439	322	180	169	69	49	13	12,100
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
No fixed place of work.....	2.9	4.6	4.0	2.9	2.1	2.3	2.3	0.9	5.1	1.6	15.6	9,600
Distance not reported.....	0.7	-	0.8	1.4	0.8	-	-	-	4.6	-	-	9,500
Reporting distance.....	96.4	95.4	95.2	95.7	97.1	97.7	97.7	99.1	90.3	98.4	84.4	12,200
Less than 1 mile.....	79.8	78.5	75.0	79.1	81.3	81.0	80.7	85.4	82.0	77.3	84.4	12,400
1-2 miles.....	14.9	12.2	18.1	15.2	14.2	15.7	14.9	12.1	5.8	21.1	-	11,400
3-4 miles.....	1.4	2.4	2.1	1.0	1.6	1.1	1.3	1.5	-	-	-	10,200
5-9 miles.....	0.3	2.2	-	0.4	-	-	-	-	2.5	-	-	(B)
10-14 miles.....	-	-	-	-	-	-	-	-	-	-	-	(B)
15-19 miles.....	-	-	-	-	-	-	-	-	-	-	-	(B)
20-29 miles.....	-	-	-	-	-	-	-	-	-	-	-	(B)
30-49 miles.....	-	-	-	-	-	-	-	-	-	-	-	(B)
50-74 miles.....	-	-	-	-	-	-	-	-	-	-	-	(B)
75 miles or more.....	-	-	-	-	-	-	-	-	-	-	-	(B)
Mean distance.....	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.5	(X)

Table 7. Means of Transportation, by Distance to Work and Family Income—Continued

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands. For meaning of symbols, see appendix A)

Means of transportation and distance to work	Total	Family income										Median (dollars)
		Less than \$3,000	\$3,000-\$6,999	\$7,000-\$9,999	\$10,000-\$14,999	\$15,000-\$19,999	\$20,000-\$24,999	\$25,000-\$34,999	\$35,000-\$49,999	\$50,000-\$74,999	\$75,000 or more	
All other means ¹	939	26	92	96	176	154	145	144	69	26	10	17,600
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
No fixed place of work.....	10.6	9.6	12.8	5.7	7.6	11.4	9.9	11.0	12.8	34.0	14.0	19,800
Distance not reported.....	2.2	-	1.7	0.5	2.1	-	3.3	2.1	6.8	5.9	6.9	24,700
Reporting distance.....	87.1	90.4	85.5	93.8	90.3	88.6	86.8	86.9	80.3	60.2	79.1	17,100
Less than 1 mile.....	11.2	6.3	14.7	21.1	12.6	12.9	8.4	7.1	3.4	6.6	7.4	13,800
1-2 miles.....	23.5	15.4	37.7	34.3	22.2	25.0	17.7	20.5	18.7	6.4	17.0	14,900
3-4 miles.....	15.0	38.6	21.2	8.3	19.6	12.0	17.5	11.3	12.8	-	-	14,800
5-9 miles.....	16.7	17.6	4.2	18.0	17.3	15.5	21.0	22.0	15.5	7.3	16.1	19,600
10-14 miles.....	7.5	9.5	4.3	8.0	1.8	12.8	11.0	4.4	10.6	12.6	7.5	19,600
15-19 miles.....	4.9	-	0.8	0.8	6.4	5.3	2.6	12.0	5.8	-	-	22,700
20-29 miles.....	5.0	3.1	0.9	1.7	7.0	4.6	3.1	5.8	7.8	18.1	16.2	21,200
30-49 miles.....	2.1	-	-	1.6	2.2	0.5	4.0	3.2	2.2	6.5	-	23,300
50-74 miles.....	0.5	-	1.6	-	0.9	-	0.5	0.5	-	-	-	12,500
75 miles or more.....	0.7	-	-	-	0.4	-	1.1	-	3.4	2.7	14.8	42,200
Mean distance.....	7.9	5.5	4.7	5.0	8.1	6.5	9.4	9.2	11.8	21.6	(B)	(X)
Not reported.....	200	16	24	19	36	31	16	32	18	8	2	16,000
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
No fixed place of work.....	6.1	11.3	6.8	7.9	6.7	5.0	-	10.4	-	-	-	12,500
Distance not reported.....	53.6	46.0	74.5	50.8	42.9	49.5	71.5	42.2	54.4	77.9	100.0	16,300
Reporting distance.....	40.3	42.7	18.7	41.3	50.4	45.4	28.5	47.3	45.6	22.1	-	16,200
Less than 1 mile.....	8.3	21.2	3.7	4.0	11.8	-	4.8	2.5	22.9	22.1	-	13,900
1-2 miles.....	9.6	10.8	7.7	19.6	13.6	18.2	-	4.6	-	-	-	12,400
3-4 miles.....	3.9	10.7	-	9.4	-	6.9	14.1	-	-	-	-	(B)
5-9 miles.....	6.8	-	7.4	-	16.4	9.4	-	9.9	-	-	-	14,300
10-14 miles.....	2.8	-	-	8.4	2.1	-	9.7	-	9.7	-	-	(B)
15-19 miles.....	5.3	-	-	-	4.5	10.9	-	10.1	12.9	-	-	25,900
20-29 miles.....	1.2	-	-	-	-	-	-	7.8	-	-	-	(B)
30-49 miles.....	2.0	-	-	-	2.0	-	-	10.0	-	-	-	(B)
50-74 miles.....	-	-	-	-	-	-	-	-	-	-	-	(B)
75 miles or more.....	0.4	-	-	-	-	-	-	2.4	-	-	-	(B)
Mean distance.....	8.9	(B)	(B)	(B)	7.6	6.3	(B)	22.1	(B)	(B)	(B)	(X)
Work at home.....	1,261	95	193	141	223	141	132	162	93	56	24	14,500

¹Includes bicycle, motorcycle, and other means.

Table 8. Travel Time to Work, by Family Income and Metropolitan-Nonmetropolitan Residence

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands. For meaning of symbols, see appendix A)

Travel time to work by metropolitan-nonmetropolitan residence	Total	Family income										Median (dollars)
		Less than \$3,000	\$3,000-\$6,999	\$7,000-\$9,999	\$10,000-\$14,999	\$15,000-\$19,999	\$20,000-\$24,999	\$25,000-\$34,999	\$35,000-\$49,999	\$50,000-\$74,999	\$75,000 or more	
Total.....	54,104	1,200	3,712	4,956	10,576	8,885	8,414	9,189	4,718	1,697	758	18,700
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
Work at home.....	2.3	7.9	5.2	2.8	2.1	1.6	1.6	1.8	2.0	3.3	3.2	14,500
No fixed place of work.....	11.7	12.8	10.2	8.6	10.0	10.9	11.4	12.8	15.9	18.1	19.3	20,900
Travel time not reported.....	0.9	1.6	1.1	1.2	0.8	0.7	0.6	0.9	1.2	1.4	0.8	18,000
Reporting travel time.....	85.1	77.6	83.5	87.3	87.1	86.8	86.4	84.6	81.0	77.2	76.6	18,500
Less than 10 minutes.....	17.0	23.0	20.6	21.2	18.2	16.5	16.1	14.4	13.5	15.7	16.3	17,000
10-14 minutes.....	13.9	15.1	15.2	15.4	14.8	15.1	13.8	12.7	10.8	10.7	12.9	17,600
15-19 minutes.....	14.3	11.2	15.2	16.2	14.7	14.6	14.5	13.7	13.3	10.7	11.2	18,100
20-29 minutes.....	16.8	10.9	13.3	15.6	16.6	18.0	18.1	18.2	16.0	15.6	14.1	19,300
30-34 minutes.....	9.7	7.5	8.8	8.8	9.9	9.8	9.8	10.6	10.8	8.0	7.2	19,200
35-49 minutes.....	8.2	5.1	5.5	5.9	7.8	7.9	9.1	9.2	10.3	9.7	8.9	20,800
50 minutes or more.....	5.2	4.7	4.9	4.2	5.1	5.0	5.1	5.7	6.1	6.8	5.9	19,800
Mean travel time.....	22.5	19.7	20.5	20.2	22.0	22.3	22.9	23.9	24.9	24.7	23.3	(X)
In SMSA central cities.....	15,420	423	1,372	1,776	3,233	2,485	2,132	2,287	1,107	435	171	16,800
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
Work at home.....	0.9	2.0	2.2	1.2	0.6	0.4	0.6	0.8	0.9	1.5	2.1	12,600
No fixed place of work.....	10.2	12.0	8.6	6.5	8.5	8.7	10.0	11.2	18.0	20.4	20.1	20,200
Travel time not reported.....	0.8	1.2	0.8	0.9	0.6	0.7	0.3	1.0	1.1	1.9	-	17,600
Reporting travel time.....	88.2	84.8	88.5	91.5	90.3	90.2	89.1	87.0	80.0	76.2	77.8	16,500
Less than 10 minutes.....	13.6	19.5	14.4	15.1	13.3	13.5	13.6	12.9	11.6	11.8	12.4	16,100
10-14 minutes.....	15.1	15.9	15.2	15.9	15.6	15.4	15.3	14.4	12.7	13.6	13.4	16,300
15-19 minutes.....	17.1	12.6	17.2	20.2	16.8	16.9	18.7	16.6	14.7	13.6	17.6	16,500
20-29 minutes.....	18.7	15.4	14.7	16.8	18.5	20.4	21.0	20.0	19.0	17.1	16.6	17,800
30-34 minutes.....	10.4	8.7	11.0	10.2	11.7	11.1	9.4	10.0	9.8	7.6	7.8	16,000
35-49 minutes.....	7.7	6.0	8.3	6.9	8.7	7.1	7.2	7.9	7.4	8.0	7.1	16,400
50 minutes or more.....	5.5	6.8	7.7	6.3	5.6	5.7	4.0	5.3	4.8	4.4	2.9	15,000
Mean travel time.....	23.1	22.1	24.2	22.6	23.5	23.2	22.0	23.3	23.5	22.9	21.5	(X)
In SMSA's, outside central cities	22,255	334	931	1,544	3,746	3,481	3,738	4,489	2,621	919	452	21,500
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
Work at home.....	1.5	4.4	3.8	1.8	1.2	0.8	1.2	1.2	1.5	2.7	2.7	21,500
No fixed place of work.....	12.7	13.4	11.5	10.1	10.6	11.4	11.6	13.8	16.1	18.1	19.7	23,600
Travel time not reported.....	0.9	2.9	1.5	1.5	1.0	0.6	0.8	0.7	1.1	0.8	1.1	19,900
Reporting travel time.....	84.9	79.2	83.2	86.6	87.3	87.2	86.4	84.3	81.3	78.4	76.6	21,200
Less than 10 minutes.....	13.4	21.6	18.8	19.5	15.5	12.5	13.4	11.1	9.7	11.6	14.8	19,200
10-14 minutes.....	12.2	15.0	13.5	14.9	12.9	14.2	11.7	11.1	10.0	8.7	10.6	19,700
15-19 minutes.....	13.6	12.0	15.4	15.8	15.0	14.1	13.8	12.4	12.6	9.6	10.6	20,300
20-29 minutes.....	19.4	11.5	17.5	17.0	19.2	21.6	20.2	20.9	17.3	17.7	13.2	21,500
30-34 minutes.....	11.3	6.9	9.0	9.8	11.3	10.9	11.7	12.5	12.2	10.2	7.8	22,200
35-49 minutes.....	9.8	7.3	5.1	6.6	8.3	9.3	10.8	10.4	12.6	11.9	11.1	23,400
50 minutes or more.....	5.3	4.9	3.9	3.0	5.0	4.5	4.8	5.7	6.9	8.7	8.4	24,100
Mean travel time.....	24.2	20.6	20.6	20.2	23.1	23.5	24.2	25.4	27.1	27.9	26.1	(X)
Outside SMSA's.....	16,428	443	1,409	1,636	3,597	2,919	2,543	2,413	991	343	134	16,900
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
Work at home.....	4.8	16.2	9.1	5.6	4.4	3.5	2.9	3.6	4.3	7.3	6.4	13,300
No fixed place of work.....	11.7	13.2	10.9	9.5	10.7	12.1	12.2	12.4	13.1	15.4	17.3	18,000
Travel time not reported.....	1.0	1.1	1.1	1.4	0.9	0.8	0.6	1.1	1.4	2.3	1.1	16,500
Reporting travel time.....	82.5	69.5	78.9	83.5	84.0	83.6	84.3	82.9	81.1	75.0	75.3	17,000
Less than 10 minutes.....	24.9	27.4	27.9	29.4	25.5	23.7	22.2	21.9	25.6	31.5	26.1	16,000
10-14 minutes.....	15.3	14.4	16.5	15.4	16.0	16.1	15.7	14.1	11.0	12.3	20.2	16,400
15-19 minutes.....	12.5	9.3	12.9	12.2	12.4	13.0	12.1	13.3	13.7	9.7	5.2	17,100
20-29 minutes.....	11.4	6.2	9.2	13.0	12.1	11.6	12.6	11.4	9.1	8.1	13.9	16,900
30-34 minutes.....	7.0	6.8	6.6	6.1	6.9	7.4	7.2	7.8	8.3	2.5	4.1	17,500
35-49 minutes.....	6.5	2.7	3.1	4.2	6.3	6.9	8.1	8.3	7.6	5.8	4.0	19,400
50 minutes or more.....	4.9	2.6	2.7	3.2	4.8	4.9	6.4	6.1	5.7	5.0	1.7	19,400
Mean travel time.....	19.7	16.2	16.5	17.2	19.5	20.0	21.6	21.7	20.8	17.6	15.9	(X)

Table 9. Travel Time to Work, by Family Income, Race, and Spanish Origin

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands. For meaning of symbols, see appendix A)

Race, Spanish origin, and travel time to work	Family income											
	Total	Less than \$3,000	\$3,000-\$6,999	\$7,000-\$9,999	\$10,000-\$14,999	\$15,000-\$19,999	\$20,000-\$24,999	\$25,000-\$34,999	\$35,000-\$49,999	\$50,000-\$74,999	\$75,000 or more	Median (dollars)
Black householders.....	5,075	222	851	785	1,102	780	533	522	218	42	20	13,100
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
Work at home.....	0.7	2.6	1.3	1.1	0.2	-	0.9	0.4	-	-	-	7,300
No fixed place of work.....	8.2	12.8	9.5	5.6	6.8	6.6	8.3	9.0	13.8	14.6	32.0	13,600
Travel time not reported.....	1.2	2.2	0.9	1.9	1.1	1.4	0.3	1.3	1.4	-	-	11,400
Reporting travel time.....	89.9	82.5	88.3	91.3	91.9	92.0	90.5	89.3	84.8	85.4	68.0	13,100
Less than 10 minutes.....	11.1	15.0	12.6	13.5	11.6	9.0	9.7	9.7	6.0	3.9	3.8	11,400
10-14 minutes.....	11.2	11.3	12.9	10.1	11.8	11.7	9.8	9.3	10.3	9.5	16.5	12,700
15-19 minutes.....	16.1	10.2	17.8	16.4	17.0	12.1	18.3	14.0	4.0	8.2	8.2	12,800
20-29 minutes.....	18.7	13.8	14.9	19.9	18.1	19.9	23.5	20.2	17.3	25.2	8.4	14,000
30-34 minutes.....	14.3	13.6	12.5	14.9	13.8	15.3	14.4	14.3	17.4	15.5	8.3	13,500
35-49 minutes.....	10.2	8.2	8.5	7.8	11.3	11.0	11.7	9.7	13.0	25.5	7.6	14,300
50 minutes or more.....	8.5	10.4	9.2	8.6	8.2	8.1	9.1	7.8	6.9	1.8	15.2	12,600
Mean travel time.....	26.6	26.9	25.9	25.7	26.3	26.9	28.1	26.6	28.2	31.0	33.8	(X)
Spanish-origin householders....	2,879	79	317	443	737	480	355	297	126	33	12	14,100
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
Work at home.....	0.9	2.2	3.2	1.2	0.3	-	1.2	-	1.4	3.0	-	7,800
No fixed place of work.....	9.7	10.3	11.1	10.3	9.8	9.7	7.0	9.8	7.3	14.8	33.2	13,500
Travel time not reported.....	1.0	-	1.2	1.4	1.1	1.0	0.9	0.5	1.3	-	-	12,900
Reporting travel time.....	88.3	87.6	84.5	87.1	88.8	89.3	90.9	89.7	90.0	82.2	66.8	14,200
Less than 10 minutes.....	14.3	17.8	16.6	15.3	13.9	11.2	15.3	14.1	12.3	22.0	27.0	13,500
10-14 minutes.....	15.5	15.5	15.5	18.6	15.2	15.6	17.1	13.7	11.6	-	-	13,500
15-19 minutes.....	16.4	17.8	14.4	17.8	16.1	17.0	15.8	15.0	22.4	10.6	-	14,100
20-29 minutes.....	17.9	17.5	11.2	14.7	19.4	25.1	16.2	19.5	11.0	26.0	-	15,000
30-34 minutes.....	10.5	6.0	11.8	8.1	11.3	9.6	13.9	11.3	7.0	5.2	14.1	14,400
35-49 minutes.....	7.4	8.5	8.8	6.6	5.4	6.3	6.8	8.8	16.0	18.4	25.7	15,500
50 minutes or more.....	6.3	4.3	6.3	6.0	7.5	4.7	5.7	7.4	9.8	-	-	13,700
Mean travel time.....	23.3	21.0	23.2	22.0	23.7	22.7	22.7	24.7	26.7	23.6	25.4	(X)

Table 10. Means of Transportation, by Travel Time to Work and Family Income

(For the United States: 1979. Data refer to householders with a job the week prior to interview. Numbers in thousands. For meaning of symbols, see appendix A)

Means of transportation and travel time to work	Total	Family income									Median (dollars)	
		Less than \$3,000	\$3,000-\$6,999	\$7,000-\$9,999	\$10,000-\$14,999	\$15,000-\$19,999	\$20,000-\$24,999	\$25,000-\$34,999	\$35,000-\$49,999	\$50,000-\$74,999		\$75,000 or more
Total.....	54,104	1,200	3,712	4,956	10,576	8,885	8,414	9,189	4,718	1,697	758	18,700
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
Work at home.....	2.3	7.9	5.2	2.8	2.1	1.6	1.6	1.8	2.0	3.3	3.2	14,500
No fixed place of work.....	11.7	12.8	10.2	8.6	10.0	10.9	11.4	12.8	15.9	18.1	19.3	20,900
Time not reported.....	0.9	1.6	1.1	1.2	0.8	0.7	0.6	0.9	1.2	1.4	0.8	18,000
Reporting travel time.....	85.1	77.6	83.5	87.3	87.1	86.8	86.4	84.6	81.0	77.2	76.6	18,500
Less than 10 minutes.....	17.0	23.0	20.6	21.2	18.2	16.5	16.1	14.4	13.5	15.7	16.3	17,000
10 to 14 minutes.....	13.9	15.1	15.2	15.4	14.8	15.1	13.8	12.7	10.8	10.7	12.9	17,600
15 to 19 minutes.....	14.3	11.2	15.2	16.2	14.7	14.6	14.5	13.7	13.3	10.7	11.2	18,100
20 to 29 minutes.....	16.8	10.9	13.3	15.6	16.6	18.0	18.1	18.2	16.0	15.6	14.1	19,300
30 to 34 minutes.....	9.7	7.5	8.8	8.8	9.9	9.8	9.8	10.6	10.8	8.0	7.2	19,200
35 to 49 minutes.....	8.2	5.1	5.5	5.9	7.8	7.9	9.1	9.2	10.3	9.7	8.9	20,800
50 minutes or more.....	5.2	4.7	4.9	4.2	5.1	5.0	5.1	5.7	6.1	6.8	5.9	19,800
Mean travel time.....	22.5	19.7	20.5	20.2	22.0	22.3	22.9	23.9	24.9	24.7	23.3	(X)
Drive alone.....	37,129	620	1,948	3,095	7,255	6,315	6,019	6,653	3,408	1,234	581	19,500
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
No fixed place of work.....	13.5	17.1	11.5	9.3	11.3	12.0	12.8	15.0	19.3	21.1	22.4	22,000
Time not reported.....	0.7	1.4	0.6	1.0	0.8	0.6	0.5	0.7	1.1	1.0	0.4	18,900
Reporting travel time.....	85.7	81.4	87.9	89.6	87.9	87.4	86.7	84.2	79.6	77.9	77.2	19,100
Less than 10 minutes.....	18.4	26.2	24.6	22.9	20.2	17.3	17.9	15.5	15.3	16.8	17.9	17,800
10 to 14 minutes.....	15.7	18.1	18.9	17.2	16.9	16.8	15.5	14.3	12.4	12.5	14.0	18,200
15 to 19 minutes.....	15.6	11.5	17.1	17.9	15.7	16.3	15.6	15.3	14.6	12.6	12.8	18,900
20 to 29 minutes.....	17.8	13.0	14.1	17.2	17.5	19.1	18.8	19.2	16.5	16.0	14.4	19,800
30 to 34 minutes.....	8.9	6.6	7.3	7.9	8.9	8.8	8.8	9.9	9.9	7.9	7.1	20,100
35 to 49 minutes.....	6.5	4.0	3.9	4.7	6.0	6.2	7.1	7.1	8.1	8.5	7.8	21,500
50 minutes or more.....	2.7	2.1	2.0	1.8	2.8	2.7	2.9	2.9	2.8	3.5	3.2	20,700
Mean travel time.....	20.1	16.9	17.1	18.0	19.6	20.2	20.5	21.3	21.6	21.7	20.8	(X)
Carpool.....	9,240	173	624	790	1,729	1,505	1,598	1,678	818	243	80	19,300
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
No fixed place of work.....	10.3	14.6	14.1	13.1	10.0	10.8	9.4	7.9	8.7	12.1	13.2	17,600
Time not reported.....	0.5	1.0	0.5	0.9	0.3	0.4	0.3	0.6	0.3	0.3	2.1	18,300
Reporting travel time.....	89.3	84.4	85.4	86.0	89.6	88.7	90.2	91.6	91.0	87.6	84.7	19,500
Less than 10 minutes.....	9.5	16.5	10.9	12.2	9.8	8.5	8.8	9.5	7.1	10.1	8.3	18,000
10 to 14 minutes.....	10.8	12.9	12.7	15.4	11.3	12.2	9.5	8.9	7.3	8.5	15.7	17,200
15 to 19 minutes.....	14.1	17.0	19.2	18.4	17.0	11.3	14.3	11.5	12.3	6.1	11.1	16,900
20 to 29 minutes.....	18.9	13.1	18.6	16.2	18.7	20.2	18.4	19.0	20.1	22.7	25.0	19,600
30 to 34 minutes.....	14.1	13.5	13.4	11.4	14.0	13.9	14.2	14.9	16.6	11.5	12.7	20,000
35 to 49 minutes.....	13.3	6.3	5.7	7.4	10.9	14.3	15.9	16.6	17.9	13.4	6.9	22,100
50 minutes or more.....	8.6	5.1	4.9	5.0	7.9	8.5	9.3	11.1	9.6	15.3	5.0	21,900
Mean travel time.....	27.9	22.5	23.4	23.0	26.7	28.3	29.0	30.2	30.6	32.1	24.7	(X)
Public transportation.....	3,219	132	450	456	718	416	324	351	244	82	48	14,000
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
No fixed place of work.....	5.4	9.1	8.6	3.7	4.7	3.8	4.3	6.8	3.4	10.3	4.8	12,900
Time not reported.....	0.5	-	0.7	0.4	0.4	0.4	1.0	0.9	0.7	-	-	19,000
Reporting travel time.....	94.1	90.9	90.7	96.0	95.0	95.8	94.6	92.3	95.9	89.7	95.2	14,000
Less than 10 minutes.....	2.4	5.3	3.6	3.5	1.5	2.3	2.7	1.2	1.5	-	-	9,800
10 to 14 minutes.....	3.9	6.3	5.1	6.1	4.1	3.0	3.8	2.0	1.2	1.9	3.3	10,700
15 to 19 minutes.....	7.5	15.8	10.0	12.7	5.8	7.2	5.5	3.3	5.4	3.9	3.6	9,900
20 to 29 minutes.....	12.5	12.8	11.7	14.2	14.7	10.9	17.3	10.1	7.4	6.3	3.8	13,200
30 to 34 minutes.....	16.6	13.1	17.0	18.3	18.0	20.1	14.9	15.3	12.7	10.0	6.7	13,500
35 to 49 minutes.....	22.1	15.8	19.3	17.5	25.5	20.5	21.7	23.5	25.4	30.2	33.8	14,600
50 minutes or more.....	29.0	21.8	24.0	23.7	25.3	31.8	28.6	36.9	42.2	37.3	43.9	16,600
Mean travel time.....	42.3	36.3	39.4	37.9	41.3	43.4	42.0	47.6	49.2	49.4	52.1	(X)
Walk only.....	2,117	138	381	358	439	322	180	169	69	49	13	12,100
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
No fixed place of work.....	2.9	4.6	4.0	2.9	2.1	2.3	2.3	0.9	5.1	1.6	15.6	9,600
Time not reported.....	1.2	1.1	0.6	2.7	0.9	0.2	1.3	1.0	1.1	3.4	-	9,600
Reporting travel time.....	96.0	94.2	95.4	94.4	97.0	97.5	96.3	98.1	93.8	95.0	84.4	12,200
Less than 10 minutes.....	54.8	51.1	47.6	53.7	55.1	59.5	56.6	56.2	62.2	65.8	78.4	12,800
10 to 14 minutes.....	17.7	20.7	18.2	17.5	18.5	15.1	21.0	18.9	16.8	6.5	6.0	11,700
15 to 19 minutes.....	10.2	8.7	13.8	8.2	9.8	11.4	7.2	11.1	8.4	10.7	-	11,700
20 to 29 minutes.....	7.8	4.8	9.1	9.4	8.0	7.3	7.9	6.3	3.9	10.6	-	11,200
30 to 34 minutes.....	3.4	3.6	4.8	3.2	3.6	3.7	1.4	3.4	-	1.5	-	10,300
35 to 49 minutes.....	1.5	3.1	1.5	1.9	1.6	0.5	2.3	1.1	-	-	-	9,500
50 minutes or more.....	0.5	2.2	0.4	0.4	0.4	-	-	1.0	2.5	-	-	8,900
Mean travel time.....	10.8	12.2	12.0	11.1	10.8	9.9	9.8	11.0	10.2	9.1	5.2	(X)
All other means ¹	939	26	92	96	176	154	145	144	69	26	10	17,600
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
No fixed place of work.....	10.6	9.6	12.8	5.7	7.6	11.4	9.9	11.0	12.8	34.0	14.0	19,800
Time not reported.....	2.2	-	0.8	0.8	2.6	0.6	0.6	2.2	7.9	12.5	6.9	32,800
Reporting travel time.....	87.2	90.4	86.4	93.5	89.9	88.1	89.6	86.8	79.2	53.6	79.1	17,100
Less than 10 minutes.....	22.0	22.0	19.8	38.0	22.6	25.3	18.8	21.8	9.4	-	24.4	15,400
10 to 14 minutes.....	19.3	25.2	25.6	19.6	18.3	21.4	16.1	19.6	18.3	6.4	16.1	16,500
15 to 19 minutes.....	14.5	3.0	14.2	11.9	17.2	15.7	18.1	11.1	17.3	6.3	-	17,500
20 to 29 minutes.....	13.5	18.0	17.1	12.4	10.0	11.9	16.6	15.6	12.7	7.3	14.8	18,700
30 to 34 minutes.....	6.3	13.0	6.1	4.2	8.5	4.0	8.4	5.8	4.5	5.9	-	16,300
35 to 49 minutes.....	4.6	3.1	0.9	3.9	3.5	4.6	5.4	7.2	4.6	9.0	7.5	21,900
50 minutes or more.....	6.9	6.2	2.5	3.5	9.7	5.1	6.2	5.8	12.6	18.6	16.2	20,100
Mean travel time.....	20.5	22.5	17.0	15.5	21.8	18.3	21.4	20.2	26.6	43.2	(B)	(X)
Not reported.....	200	16	24	19	36	31	16	32	18	8	2	16,000
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	(X)
No fixed place of work.....	6.1	11.3	6.8	7.9	6.7	5.0	-	10.4	-	-	-	12,500
Time not reported.....	52.9	46.0	74.5	50.8	42.9	49.5	71.5	42.2	45.7	77.9	100.0	16,000
Reporting travel time.....	41.1	42.7	18.7	41.3	50.4	45.4	28.5	47.3	54.3	22.1	-	16,400
Less than 10 minutes.....	7.3	10.9	3.7	4.0	6.2	7.8	4.8	-	22.9	22.1	-	18,500
10 to 14 minutes.....	7.8	21.2	7.7	-	7.6	17.3	9.6	2.5	-	-	-	14,800
15 to 19 minutes.....	6.1	-	-	20.5	11.3	9.4	-	4.6	-	-	-	12,800
20 to 29 minutes.....	6.0	-	-	8.5	9.2	-	14.2	15.1	-	-	-	22,400
30 to 34 minutes.....	6.2	-	7.4	-	-	-	-	10.1	22.7	-	-	28,

Appendix A.

Definitions and Explanations

Most of the terms used in this report are self-explanatory or can best be understood by reference to the appropriate questionnaire items. (See appendix C.) An explanation of other subjects is provided below.

Automobile. The category "automobile" includes cars, station wagons, company cars, and passenger vans.

Distance to work. The one-way, "door-to-door" distance in whole miles usually travelled between home and work during the week prior to the interview was counted as the distance to work.

Family income. The total net income received from all sources during the 12 months prior to interview by the householder, and by all household members 14 years old or over related to the householder by blood, marriage, or adoption is termed family income.

Household. A household consists of all persons who occupy a housing unit. A house, an apartment, a group of rooms, or a single room is regarded as a housing unit when it is occupied or intended for occupancy as separate living quarters. Separate living quarters are those in which the occupants do not live and eat with any other persons in the structure and which have either (1) direct access from the outside of the building or through a common hall or (2) complete kitchen facilities for the exclusive use of the occupants.

A household includes the related family members and all the unrelated persons such as lodgers, foster children, wards, or employees who share the housing unit. A person living alone in a housing unit or a group of unrelated persons sharing a housing unit are both counted as a household. By definition, the count of households is the same as the count of occupied housing units.

Householder. In the 1979 national Annual Housing Survey, one person in each sample household was designated as the "head." The head of household was defined as the person who was regarded as the head by the members of the household. A married woman was not classified as the head of household, however, if her husband was living with her at the time of the survey. In this report, although the concept used in collecting the data was that of "head of household," the term "householder" has in all cases been used instead of "head" in the text of the report.

In SMSA central cities. In this report, this term refers to householders who lived within the legal city boundaries of a

central city, as those boundaries existed at the time of the 1970 census. This includes, for a few central cities, areas that were within the city limits but classified as rural in the 1970 census.

Each 1970 census standard metropolitan statistical area included at least one central city. They were determined essentially according to the following criteria:

1. The largest city in a SMSA is always a central city.
2. One or two additional cities may also be named central cities on the basis and in the order of the following criteria:
 - a. The additional city or cities have at least 250,000 inhabitants.
 - b. The additional city or cities have a population of one-third or more of that of the largest city and a minimum population of 25,000.

In SMSA's, outside central cities. This term refers to that portion of a standard metropolitan statistical area which lies outside the legal limits of the central city or cities as determined at the time of the 1970 census. This type of area may also be referred to in the text of this report as suburban area or as the suburbs for convenience, even though in some metropolitan areas the territory outside central cities extends beyond areas that might reasonably be considered suburban in character.

Means of transportation to work. Means of transportation refers to the principal mode of travel used to get from home to work. Householders who used different means of transportation on different days of the week were asked to specify the one used most often. Householders who used more than one means of transportation to get to work each day were asked to specify the one used for the longest distance during the work trip.

Metropolitan residence. In this report, the term "metropolitan residence," or simply "metropolitan" refers to housing units located inside the boundaries of the 243 standard metropolitan statistical areas (SMSA's) recognized in the 1970 census.

Nonmetropolitan residence. The term "nonmetropolitan residence," or "nonmetropolitan" is used in this report to refer to households that are located outside of the 243 SMSA's as defined at the time of the 1970 census. Nonmetropolitan is synonymous with the term "outside SMSA's."

No fixed place of work. Householders with no fixed place of work were those who did not usually report to a central

location to begin work each day, and were therefore assumed to not usually work at the same location each day.

Outside SMSA's. This term refers to householders who live outside the boundaries of the 243 SMSA's recognized in the 1970 census. See "Nonmetropolitan residence" above.

Race. The classification of "race" refers to the race of the head of the household (householder) occupying the housing unit. However, the concept of race as used by the Census Bureau does not denote clear-cut scientific definitions of biological stock. The interviewer was to report the race of the householder (head) in one of three categories: White, Black (Negro), and other. The last category includes American Indian, Chinese, Eskimo, Japanese, Korean, and any other race except White and Black. In this report, the categories White and other are not separately tabulated; only the category Black is identified. The classification of race in the Annual Housing Survey was made by the interviewer based on his or her own observation. In the 1970 and 1980 censuses, race was essentially a self-classification by people according to the race with which they identified themselves.

Spanish origin. The classification "Spanish origin" refers to the origin of the householder (head) occupying the housing unit. Spanish origin was determined on the basis of a question that asked for self-identification of a person's origin or descent. Respondents were asked to select their origins from a "flash card." Persons of Spanish origin were those who indicated that their origin was either Mexican American, Chicano, Mexican, Mexicano, Puerto Rican, Cuban, Central or South American, or other Spanish.

Care should be exercised in the interpretation of differences in the estimated counts of Spanish-origin households between the 1979 Annual Housing Survey and the 1970 census and other current surveys. The main reason for this caution is that Spanish persons are identified according to various criteria: birthplace, birthplace of parents, language, surname, and origin or descent. In addition, research indi-

cates that 1970 estimates of Spanish-origin households may be significantly overstated in the South Region and North Central Region. In the 1970 census some respondents apparently misinterpreted the Spanish-origin category, "Central or South American" to mean the central or southern part of the United States.

Standard metropolitan statistical areas (SMSA's). The SMSA's referred to in this report are those used in the 1970 census. Changes in SMSA definition criteria, boundaries, and titles made after February 1971 are not reflected in the report.

Except in the New England states, for purposes of the 1970 census and the Annual Housing Survey, a standard metropolitan statistical area was defined essentially as a county or group of contiguous counties containing at least one city of 50,000 inhabitants or more, or "twin cities" with a combined population of at least 50,000, and contiguous counties if, according to certain criteria, these were socially and economically integrated with the central county or counties. In the New England states, SMSA's consist of towns and cities instead of counties. Each 1970 census SMSA included at least one central city, and the complete title of an SMSA identified the central city or cities.

Symbols used in this report. A dash (—) means rounds to or represents zero. An "X" means not applicable. A "B" means that the base of the derived figure is less than 10,000.

Travel time to work. The total elapsed time in minutes that the householder reported it usually took to get from home to work during the week prior to interview was counted as the travel time to work. The elapsed time included time spent waiting for public transportation and picking up members of carpools. Respondents were instructed to report travel time to the nearest minute.

Truck. The category "truck" includes householders using pick-up trucks, panel trucks, and other trucks of 1-ton capacity or less. Householders who used larger trucks to get to work are classified as using "other means."

Appendix B.

Source and Reliability of the Estimates

SAMPLE DESIGN

The estimates in this report are based on data collected in the last quarter of each year from 1974 to 1979 for the Annual Housing Survey (AHS), which was conducted by the Bureau of the Census, acting as collection agent for the Department of Housing and Urban Development. In each of these years, the AHS questionnaire contained several questions pertaining to journey to work for the head of the

household (householder). The sample for this survey was spread over 461 sample areas (called primary sampling units), comprising 923 counties and independent cities with coverage in each of the 50 States and the District of Columbia.

The following table gives the approximate number of sample housing units (both occupied and vacant) that were eligible for interview in the Annual Housing Survey for each year from 1974 to 1979.

Year	HU's eligible for interview	Eligible HU's not interviewed	HU's not eligible for interview in AHS
1974.....	71,300	2,200	7,000
1975.....	72,600	3,700	7,300
1976.....	75,500	4,500	6,600
1977.....	70,600	4,000	6,300
1978.....	72,000	4,400	5,900
1979.....	73,300	4,300	5,600

There were various reasons for classifying HU's as non-interviews. For occupied HU's, the main reason was that the occupants refused to be interviewed after repeated calls. For vacant HU's, interviews were not obtained because an informed respondent was not found after repeated visits.

Housing units not eligible for interview were housing units which were visited but found not to be eligible for interview for AHS in terms of collecting information relevant to the housing inventory.

Selection of sample areas. The United States was divided into areas made up of counties and independent cities referred to as primary sampling units (PSU's). These PSU's were then grouped into 376 strata, 156 of which consisted of only one PSU which was in sample with certainty. These 156 strata were mostly the larger SMSA's and were called self-representing (SR) since the sample from the sample area represented just that PSU. Each one of the other 220 strata consisted of a group of PSU's and was referred to as non-self-representing (NSR), since the sample of housing units from the sample PSU in a stratum represented the other PSU's in the stratum as well.

One PSU was selected from each NSR stratum with probability proportionate to the 1970 census population of the PSU. (This resulted in 220 NSR sample PSU's.) In addition, the NSR strata were grouped into 110 pairs and one stratum was picked at random from each pair. From this stratum, an additional PSU was selected independently of the other

PSU selected from this stratum. Since the two PSU's were independently selected, it was possible for the same PSU to be selected twice. This occurred in 25 instances, producing an additional 85 NSR sample PSU's, thus giving a grand total of 461 PSU's.

Designation of sample housing units for the 1974-79 enumerations. The sample housing units designated to be interviewed in an enumeration consisted of the following categories, which are described in detail in succeeding sections.

1. All sample housing units that were interviewed in the previous year's enumeration.
2. All sample housing units that were either type A non-interviews (i.e., units eligible to be interviewed) or type B noninterviews (i.e., units not eligible for interview at the time of enumeration but which could become eligible in the future) in the previous year's enumeration. Examples of type A noninterviews are units where the occupants are not home after repeated visits, they are temporarily absent, they are unable to be located or they refuse the interview. Examples of type B noninterviews are units constructed for nonresidential use, unoccupied mobile home or tent sites, units under construction but not yet completed, units scheduled to be demolished or condemned, units damaged by fire, or units whose interior is exposed to the elements. These are just examples and there are other reasons for noninterviews.

3. All sample housing units that were selected from the list of building permits issued since the previous year's enumeration. (This sample represented the housing units built in permit-issuing areas, since the previous year's enumeration.)
4. Units added as the result of the updated listings in selected areas which do not issue building permits.

Selection of the 1973 sample housing units. The overall sampling rate used to select the sample for the 1973 AHS was about 1 in 1,366. The within-PSU sampling rate for AHS was determined so that the overall probability of selection for each sample housing unit was the same (e.g., if the probability of selecting a NSR PSU was 1 in 10, then the within-PSU sampling rate would be 1 in 136.6).

Within the sample PSU's, a sample of the housing units enumerated in the 1970 Census of Population and Housing was selected for AHS. In addition, a sample of new construction building permits was also selected to represent the units constructed since the 1970 census. These samples were selected at about twice the rate mentioned previously (i.e., at 2 in 1,366), thereby producing a sample twice as large as needed. This sample was split into two equal-sized samples: one to be used for AHS, and one to be held in reserve for possible future use for the AHS. The procedure used to split this sample into equal-sized samples is described in the next section.

The sample of 1970 census units was selected in several stages. Within the sample PSU's, the first step was the selection of a sample of census enumeration districts (ED's), administrative units used in the 1970 census. The probability of selection for an ED was proportional to the 1970 census counts of housing units (HU's) and persons in group quarters, combined in the following formula:

$$\frac{\text{Number of HU's in ED} + \frac{\text{Number of group-quarters persons in ED}}{3}}{4}$$

The next step was to select an expected cluster of about four neighboring housing units within each sample ED. For most of the ED's, the selection was accomplished using the list of addresses for the ED as compiled in the 1970 census. However, in those ED's where addresses were incomplete or inadequate (mostly rural areas), the selection process was accomplished using area sampling methods. These ED's were divided into segments (i.e., small land areas with well-defined boundaries, having an expected size of four, or a multiple of four, housing units) and a segment was selected. Those selected segments with an expected size which was a multiple of four were further subsampled at the time of enumeration so that an expected four housing units were chosen for interview.

The sample of new construction units was selected from building permits issued since January 1970. Within each sample PSU, the building permits were chronologically ordered by month issued, and compact clusters of approximately four housing units were created. These clusters were then sampled at the rate of 2 in 1,366. Housing units constructed since the 1970 census in areas which do not issue

building permits were brought into the sample as a result of the area sample described above.

Splitting of the sample. The sample selection procedure as described above produced clusters (or segments) of size-four housing units for the sample taken from the census address frame, the new construction frame and the area sampling frame (mainly rural areas). Clusters of this size should result in a minimum loss in precision for estimates of housing characteristics in rural areas because of the heterogeneity of neighboring units. However, clusters of size two, were considered to be more optimum within those areas where the housing characteristics of neighboring units tend to be very similar (i.e., urban areas and new construction units). A splitting operation was then carried out for clusters selected from the census address and the new construction frames. This consisted of halving each sample cluster from these frames. Thus, two housing units from each of these clusters were included in the survey and two housing units were held in reserve. No splitting operation was carried out within the clusters selected from the area sampling frame; every other area sample cluster of four housing units was used for the survey and the remaining clusters were assigned to the reserve sample.

Selection of supplemental sample housing units in rural areas. In 1974, it was decided to increase the reliability of the AHS estimates of rural housing characteristics, by doubling the number of sample housing units from rural areas. This was accomplished by reactivating the reserve sample, selected in the original sampling operations in 1973, from rural areas only. For the reserve sample selected in census address and new construction frames, this meant that the other half of each rural cluster (an expected two housing units) was reactivated in 1974. Similarly for the area sampling frame, this meant the entire reserve cluster (an expected four housing units) was reactivated in 1974 if the cluster was rural. This supplementation increased the overall probability of selection for sample housing units in rural areas to about 2 in 1,366; whereas, the overall probability of selection for sample housing units in urban areas remained at 1 in 1,366.

Selection of sample housing units for the 1976 Coverage Improvement Program. The 1976 Coverage Improvement Program was undertaken to correct certain deficiencies in the AHS national sample from the census address and new construction frames. The coverage deficiencies included the following units:

1. New construction, from building permits issued prior to January 1970 for which construction had not been completed at the time of the 1970 census.
2. Units converted to residential use in structures totally nonresidential at the time of the 1970 census.
3. Houses that have been moved onto their present site, since the 1970 census.

4. Mobile homes placed in parks either missed in or established since the 1970 census.
5. Mobile homes placed outside parks since the 1970 census or vacant at the time of the 1970 census.

A sample of new construction units whose permits were issued before January 1970 was selected in two stages. First, units whose permits were issued before January 1970, but which were completed after the census, were identified from the Survey of Construction (SOC), a survey of building permits conducted monthly by the Bureau of the Census. In the second stage, these units were then sampled such that the overall probability of selection was about 1 in 1,320.

A sample of mobile homes placed in a park missed by the census or established after the census was also selected in two stages. During the first stage, a list of mobile home parks was obtained from commercial listings. This list was then supplemented by additional parks identified by a canvassing operation similar to that performed in ED's where area sampling methods are used. The second stage consisted of dividing the parks into clusters of an expected size of four sites. These clusters were then sampled so that the overall probability of selection was about 1 in 1,366.

For the remaining units, (i.e., mobile homes placed outside parks since the 1970 census, mobile homes vacant at the time of the 1970 census, units converted from nonresidential to residential use since the 1970 census, and houses that had been moved onto their present site since the 1970 census), the sampling was done in three stages. First, a subsample of the regular AHS sample units from the census address frame was selected. Second, succeeding structures that had been eligible to be selected from the census address frame were then listed until eight structures (excluding mobile home parks) were found. Finally, the intervening structures that had been listed which did not have a chance of selection in AHS were identified and the units within these structures were interviewed.

1977 sample reduction. By 1977, the addition to the sample from primarily new construction and the coverage improvements had increased the total sample size (interviews plus noninterviews) to about 81,100. The sample was reduced by about 7 percent to approximately 75,000 in 1977. However, this reduction did not include any CEN-SUP¹ units or units which were selected as part of the 1976 Coverage Improvement Program. Thus, the overall probability of selection for these latter units remained unchanged, and for the rest of the units their probability of selection was about 1 in 1,472 if they were urban and about 1 in 736 if they were rural.

ESTIMATION

AHS estimates employed a three-stage ratio estimation procedure. However, prior to implementation of the procedure, the basic weight (i.e., the inverse of the probability

¹ CEN-SUP units resulted from a 1970 census evaluation study and represented units missed in the 1970 census.

of selection) was adjusted to account for the type A non-interview housing units encountered in AHS. This noninterview adjustment was done separately for occupied and vacant units. The noninterview adjustment was equal to the following ratio:

$$\frac{\text{Interviewed housing units} + \text{noninterviewed housing units}}{\text{Interviewed housing units}}$$

The first-stage ratio estimation procedure was employed for sample housing units from non-self-representing (NSR) PSU's only. This procedure was designed to reduce the contribution to the variance arising from the sampling of PSU's. The first-stage ratio estimation procedure takes into account the differences that existed at the time of the 1970 census in the distribution by tenure and residence of the housing population estimated from the sample NSR PSU's and that of the NSR housing population in each of the four census regions of the country.

The first-stage ratio estimation factor for each specified category was as follows:

$$\frac{\text{The 1970 census housing population in the residence-tenure category for all NSR strata in a census region}}{\text{Estimate of the housing population category using 1970 census housing counts for sample NSR PSU's in a census region}}$$

The numerators of the ratios were calculated by obtaining the 1970 census housing counts for each of the residence-tenure categories for each NSR stratum and summing these counts across the NSR strata in each census region. The denominators were calculated by obtaining the 1970 census housing counts for each of the residence-tenure categories for each NSR sample PSU, weighting these counts by the inverse of the probability of selecting that PSU and summing these weighted counts across the NSR sample PSU's in each census region. The computed first-stage ratio estimation factor was then applied to the existing weight for each NSR sample unit in each first-stage ratio estimation category.

The second-stage ratio estimation procedure was designed to adjust the AHS sample estimate of new construction units, i.e., sample units built April 1, 1970, or later, to an independently derived current estimate where a known deficiency in the AHS sample exists (see the section on non-sampling error) for each of the four regions. For 1974 and 1975 the second-stage ratio estimation factor was applied to both conventional new construction and new construction mobile homes. Starting in 1976 this factor was applied only to conventional new construction. This estimate was considered to be the best estimate available for the number of new construction units in this category.

The second-stage ratio estimation factor was as follows:

$$\frac{\text{Current best estimate of new construction in the category}}{\text{AHS sample estimate of new construction units in the category}}$$

The numerator of the ratio for conventional new construction units was derived from data based on the Survey of Construction (SOC). For mobile homes, the numerators of the ratios were derived from estimates of mobile home shipments adjusted to account for mobile homes shipped and actually occupied as primary residences.

The denominator of the ratio was obtained from the weighted estimates for the AHS sample units using the existing weight after the first-stage ratio estimation procedure. The computed second-stage ratio estimation factor was then applied to the existing weight for each sample unit in each second-stage ratio estimation category.

The third-stage ratio estimation procedure was employed for all AHS sample units. This procedure was designed to adjust the AHS sample estimates of housing (i.e., the estimates employing the noninterview, first-stage, and second-stage adjustments) to current vacant housing estimates for four categories of vacant housing units and to independently derived current housing estimates for 24 categories of occupied housing units. Each of these 24 categories is a combination of the characteristics of residence, tenure, race of the householder, and sex of the householder.

The third-stage ratio estimation factor for each specified category was as follows:

$$\frac{\text{Current independent estimate of housing units in the category}}{\text{AHS sample estimate of housing units in the category}}$$

The numerators of the ratios for occupied housing units were derived from data based on the Current Population Survey (CPS), a sample household survey conducted monthly by the Bureau of the Census. The numerators of the ratios for vacant housing units were derived from data based on the Housing Vacancy Survey (HVS), a quarterly vacancy survey also conducted by the Bureau of the Census.

The denominators of the ratios were obtained from the weighted estimates for the AHS sample units, using the existing weight after the second-stage ratio estimation procedure. The computed third-stage ratio estimation factor was then applied to the existing weight for each sample unit in each third-stage ratio estimation category.

The second-stage and the third-stage ratio estimation procedures were iterated in order to bring the AHS estimates into close agreement with both sets of "independent" estimates. The second-stage was modified so that the estimates for all categories of new construction would be identical to the estimates before the third-stage.

The effect of the third-stage ratio estimation procedure, as well as the overall estimation procedure, was to reduce the sampling error for most statistics below what would have been obtained by simply weighting the results of the sample by the inverse of the probability of selection. The distribution of the housing population selected for the sample differed somewhat, by chance, from that of the nation as a whole in such basic housing characteristics as tenure, vacancy status, residence, race of head, and sex of head. These characteristics are probably closely correlated with other housing characteristics measured for AHS. Therefore, through the use of the three-stage ratio estimation procedure one can expect the sample estimate to be improved substantially.

RELIABILITY OF THE ESTIMATES

There are two types of possible errors associated with estimates based on data from sample surveys; sampling and nonsampling errors. The following is a description of the

sampling and nonsampling errors associated with the AHS national sample.

Sampling errors. The particular sample used for this survey is one of a large number of possible samples of the same size that could have been selected using the same sample design. Even if the same schedules, instructions, and enumerators were used, estimates from each of the different samples would differ from each other. The variability between estimates from all possible samples is defined as sampling error. One common measure of sampling error is the standard error which measures the precision with which an estimate from a sample approximates the average result of all possible samples. In addition, the standard error as calculated for this report also partially reflects the variation in the estimates due to some nonsampling errors, but it does not measure, as such, any systematic biases in the data. Therefore, the accuracy of the estimates depends on both the sampling and nonsampling errors measured by the standard error, biases, and some additional nonsampling errors not measured by the standard error.

The sample estimate and its estimated standard error enable one to construct interval estimates such that the interval includes the average result of all possible samples with a known probability. For example, if all possible samples were selected, and each of these samples was surveyed under essentially the same general conditions and an estimate and its estimated standard error were calculated for each sample, then:

1. Approximately 68 percent of the intervals from one standard error below the estimate, to one standard error above the estimate, would include the average result of all possible samples;
2. Approximately 90 percent of the intervals from 1.6 standard errors below the estimate to 1.6 standard errors above the estimate would include the average result of all possible samples;
3. Approximately 95 percent of the intervals from two standard errors below the estimate to two standard errors above the estimate would include the average result of all possible samples.

The average result of all possible samples either is or is not contained in any particular computed interval. However, for a particular sample one can say with specified confidence that the average result of all possible samples is included in the constructed interval.

The figures presented in the tables below are approximations to the standard errors of various estimates shown in this report. In order to derive standard errors that would be applicable to a wide variety of items and also could be prepared at a moderate cost, a number of approximations were required. As a result, the tables of standard errors provide an indication of the order of magnitude of the standard errors rather than the precise standard error for any specific item.

Standard errors may also be used to perform hypothesis testing, a procedure for distinguishing between population

parameters using sample estimates. The most common types of hypotheses appearing in this report are 1) the population parameters are identical or 2) they are different. An example of this would be comparing the mean travel time of men versus the mean travel time of women. Tests may be performed at various levels of significance, where a level of significance is the probability of concluding that the parameters are different when, in fact, they are identical.

All statements of comparison in the text have passed a hypothesis test at the 0.10 level of significance or better, and most have passed a hypothesis test at the 0.05 level of significance or better. This means that, for most differences cited in the text, the estimated difference between parameters is greater than twice the standard error of the difference. For the other differences mentioned, the estimated difference between parameters is between 1.6 and 2.0 times the standard error of the difference. When this is the case, the statement of comparison will be qualified in some way; e.g., by use of the phrase "some evidence."

Table B-1 presents standard errors of national estimates for 1974-76 and table B-2 presents standard errors of national estimates for 1977-79. Table B-3 presents standard errors for each of the four regions (Northeast, North Central, South, and West) for 1979. Linear interpolation should be used to determine standard errors for levels of estimates not specifically shown in tables B-1 through B-3.

Standard errors of estimates of percentages. The reliability of an estimated percentage, computed by using sample data for both numerator and denominator, depends upon both the size of the percentage and the size of the total upon which the percentage is based. Estimated percentages are relatively more reliable than the corresponding estimates of the numerators of the percentages, particularly if the percentages are 50 percent or more.

Tables B-4 through B-6 present the standard errors of estimated percentages. Table B-4 contains estimated standard errors of nationally estimated percentages from 1974-79 data including 1979 data for Black householders. Table B-5

shows estimated standard errors of national percentages for Spanish-origin householders. Table B-6 shows estimated standard errors of percentages for households in one of the four regions (Northeast, North Central, South, and West) for 1979. Two-way interpolation should be used to determine standard errors for estimated percentages not specifically shown in tables B-4 through B-6.

Included in tables B-1 through B-6 are estimates of standard errors for estimates of zero and zero percent. These estimates of standard errors are considered to be overestimates of the true standard errors and should be used primarily for construction of confidence intervals for characteristics when an estimate of zero is obtained.

Standard errors of ratios. For ratios of the form $(100) \left(\frac{x}{y}\right)$ where x is not a subclass of y, the above tables, i.e., tables B-4 through B-6, underestimate the standard error of the ratio when there is little or no correlation between x and y. For this type of ratio, a better approximation of the standard error may be obtained by letting the standard error of the ratio be approximately equal to:

$$(100) \left(\frac{x}{y}\right) \sqrt{\left(\frac{\sigma_x}{x}\right)^2 + \left(\frac{\sigma_y}{y}\right)^2}$$

where: x = the numerator of the ratio

y = the denominator of the ratio

σ_x = the standard error of the numerator

σ_y = the standard error of the denominator

Illustration of the use of the standard error tables. Table A of this report shows 46,368,000 householders using an automobile or truck to get to work in 1979. Interpolation in table B-2 of this appendix shows that the standard error of an estimate of this size is approximately 185,000. The following procedure was used in interpolating.

Table B-1. Standard Errors of Estimated Numbers of Households for 1974, 1975, and 1976

(68 chances out of 100)

Size of estimate (000)	Standard error (000)	Size of estimate (000)	Standard error (000)
0.....	2	1,000.....	39
1.....	2	1,500.....	47
2.....	2	2,000.....	54
5.....	3	2,500.....	61
10.....	4	5,000.....	84
25.....	6	7,500.....	102
50.....	9	10,000.....	115
75.....	11	15,000.....	136
100.....	12	25,000.....	162
150.....	15	35,000.....	174
200.....	17	50,000.....	170
250.....	19	60,000.....	153
500.....	27	70,000.....	120
750.....	34	75,000.....	91

Table B-2. Standard Errors of Estimated Numbers of Households for 1977, 1978, and 1979

(68 chances out of 100)

Size of estimate (000)	Other ¹ (000)	Black householder ² (000)	Spanish-origin householder ² (000)
0.....	2	2	2
1.....	2	2	2
2.....	2	2	2
5.....	3	3	3
10.....	4	4	5
25.....	7	7	8
50.....	9	9	11
75.....	11	11	13
100.....	13	13	15
150.....	16	16	19
200.....	19	18	22
250.....	21	21	24
500.....	29	29	34
750.....	36	34	42
1,000.....	42	39	48
1,500.....	51	46	59
2,000.....	58	51	68
2,500.....	65	55	76
5,000.....	91	57	105
7,500.....	109	27	-
10,000.....	124	2	-
15,000.....	146	-	-
25,000.....	174	-	-
35,000.....	187	-	-
50,000.....	185	-	-
60,000.....	169	-	-
70,000.....	136	-	-
75,000.....	109	-	-
80,000.....	64	-	-

¹Other includes all estimates from 1977, 1978 and all estimates from 1979 except those referring to the regions (Northeast, North Central, South, and West) or Black householders or Spanish-origin householders.

²Data in this report for Black householders or Spanish-origin householders are only provided for 1979.

Table B-3. Standard Errors of Estimated Numbers of Households for the Regions: 1979

(68 chances out of 100)

Size of estimate (000)	Standard error (000)	Size of estimate (000)	Standard error (000)
0.....	2	500.....	31
1.....	2	750.....	37
2.....	2	1,000.....	43
5.....	3	1,500.....	53
10.....	4	2,000.....	61
25.....	7	2,500.....	68
50.....	10	5,000.....	97
75.....	12	7,500.....	119
100.....	14	10,000.....	137
150.....	17	15,000.....	168
200.....	19	25,000.....	216
250.....	22	35,000.....	256

Note: Data in this report for the regions (Northeast, North Central, South, and West) are only provided for 1979.

The information presented in the table below was extracted from table B-2. The entry for "x" is the one sought.

Size of estimate (000)	Standard error (000)
35,000	187
46,368	X
50,000	185

By vertically interpolating between 187 and 185, the entry for "x" is determined to be 185.

$$46,368 - 35,000 = 11,368$$

$$50,000 - 35,000 = 15,000$$

$$187 + \frac{11,368}{15,000} (185-187) = 185$$

Consequently, the 68-percent confidence interval, as shown by these data, is from 46,183,000 to 46,553,000. Therefore, a conclusion that the average estimate, derived from all possible samples, of householders using an automobile or truck to get to work in 1979 lies within a range computed in this way would be correct for roughly 68

percent of all possible samples. Similarly, we could conclude the average estimate, derived from all possible samples, lies within the interval from 46,072,000 to 46,664,000 with 90-percent confidence; and that the average estimate lies within the interval from 45,998,000 to 46,738,000 with 95-percent confidence.

Table A also shows that of the 54,104,000 employed householders 3,219,000, or 5.9 percent, use public transportation to get to work. Interpolation in table B-4 (i.e., interpolation on both the base and percent) of this appendix shows that the standard error of the above percentage is approximately 0.14 percentage points. The following procedure was used in interpolating.

The information presented in the table below was extracted from table B-4. The entry for "p" is the one sought.

Base of percentage (000)	Estimated percentage		
	5.0	5.9	10.0
50,000	0.13	a	0.2
54,104		p	
60,000	0.12	b	0.2

Table B-4. Standard Errors of Estimated Percentages of Households for 1974-79 and Estimated Percentages of Black Householders for 1979

(68 chances out of 100)

Base of percentage (000)	Estimated percentage					
	0 or 100	1 or 99	5 or 95	10 or 90	25 or 75	50
2.5.....	41.1	41.1	41.1	41.1	41.1	41.8
5.....	25.9	25.9	25.9	25.9	25.9	29.5
10.....	14.8	14.8	14.8	14.8	18.1	20.9
25.....	6.5	6.5	6.5	7.9	11.4	13.2
50.....	3.4	3.4	4.1	5.6	8.1	9.3
75.....	2.3	2.3	3.3	4.6	6.6	7.6
100.....	1.7	1.7	2.9	4.0	5.7	6.6
150.....	1.1	1.1	2.3	3.2	4.7	5.4
200.....	0.9	0.9	2.0	2.8	4.0	4.7
250.....	0.7	0.8	1.8	2.5	3.6	4.2
500.....	0.3	0.6	1.3	1.8	2.6	3.0
750.....	0.2	0.5	1.1	1.4	2.1	2.4
1,000.....	0.2	0.4	0.9	1.3	1.8	2.1
1,500.....	0.12	0.3	0.7	1.0	1.5	1.7
2,000.....	0.09	0.3	0.6	0.9	1.3	1.5
2,500.....	0.07	0.3	0.6	0.8	1.1	1.3
5,000.....	0.03	0.2	0.4	0.6	0.8	0.9
7,500.....	0.02	0.15	0.3	0.5	0.7	0.8
10,000.....	0.02	0.13	0.3	0.4	0.6	0.7
15,000.....	0.01	0.11	0.2	0.3	0.5	0.5
25,000.....	0.01	0.08	0.2	0.3	0.4	0.4
35,000.....	0.01	0.07	0.15	0.2	0.3	0.4
50,000.....	0.01	0.06	0.13	0.2	0.3	0.3
60,000.....	0.01	0.05	0.12	0.2	0.2	0.3
70,000.....	0.01	0.05	0.11	0.15	0.2	0.2
75,000.....	0.01	0.05	0.11	0.14	0.2	0.2
80,000.....	0.01	0.05	0.10	0.14	0.2	0.2

Note: Data in this report for Black householders are only provided for 1979.

1. By horizontal interpolation between 0.13 and 0.2, the entry for cell "a" is determined to be 0.14.

$$\begin{aligned} 5.9 - 5.0 &= 0.9 \\ 10.0 - 5.0 &= 5.0 \\ 0.13 + \frac{0.9}{5.0} (0.2 - 0.13) &= 0.14 \end{aligned}$$

2. By horizontal interpolation between 0.12 and 0.2, the entry for cell "b" is determined to be 0.13.

$$\begin{aligned} 5.9 - 5.0 &= 0.9 \\ 10.0 - 5.0 &= 5.0 \\ 0.12 + \frac{0.9}{5.0} (0.2 - 0.12) &= 0.13 \end{aligned}$$

3. By vertical interpolation between 0.14 and 0.13, the entry for "p" is determined to be 0.14.

$$\begin{aligned} 54,104 - 50,000 &= 4,104 \\ 60,000 - 50,000 &= 10,000 \\ 0.14 + \frac{4,104}{10,000} (0.13 - 0.14) &= 0.14 \end{aligned}$$

Consequently, the 68-percent confidence interval, as shown by these data, is from 5.8 to 6.0 percent; the 90-percent confidence interval is from 5.7 to 6.1 percent; and the 95-percent confidence interval is from 5.6 to 6.2 percent.

Differences. The standard errors shown are not directly applicable to differences between two sample estimates. The standard error of a difference between estimates is approximately equal to the square root of the sum of the squares of the standard errors of each estimate considered separately. This formula is quite accurate for the difference between estimates of the same characteristic in two different areas or the difference between separate and uncorrelated characteristics in the same area. If, however, there is a high positive correlation between the two characteristics, the formula will overestimate the true error. Also, if there is a high negative correlation between the two characteristics, the formula will underestimate the true standard error.

Illustration of the computation of the standard error of a difference. Table A of this report shows that 37,129,000 householders drive alone to work and 9,240,000 carpool to work in 1979. Thus, the apparent difference between the number of householders driving alone and carpooling is 27,889,000. Table B-2 of the appendix shows that the standard error of 37,129,000 is approximately 187,000 and that the standard error of 9,240,000 is approximately 119,000. Therefore, the standard error of the estimated difference of 27,889,000 is about 222,000.

$$222,000 = \sqrt{(187,000)^2 + (119,000)^2}$$

Consequently, the 68-percent confidence interval for the 27,889,000 difference is from 27,667,000 to 28,111,000.

Therefore, a conclusion that the average estimate of this difference, derived from all possible samples, lies within a range computed in this way would be correct for roughly 68-percent of all possible samples. Similarly, the 90-percent confidence interval is from 27,534,000 to 28,244,000, and the 95-percent confidence interval is from 27,445,000 to 28,333,000. Thus, we can conclude with 95-percent confidence that the number of persons driving alone is greater than the number of householders who carpool since the 95-percent confidence interval of this difference does not include zero or negative values.

Medians. For medians, the sampling error depends on the size of the base and the distribution upon which the median is based. An approximate method for measuring the reliability of the estimated median is to determine an interval about the estimated median such that there is a stated degree of confidence that the average median from all possible samples lies within the interval. The following procedure may be used to estimate confidence limits of a median based on sample data:

1. From tables B-4 through B-6, determine the standard error of a 50-percent characteristic on the base of the median.
2. Add to and subtract from 50 percent, the standard error determined in step 1. This will give you a lower percentage limit (50 percent - standard error of 50 percent) and an upper percentage limit (50 percent + standard error of 50 percent).
3. To find the lower limit of the confidence interval, add to the lower bound of the interval containing the lower percentage limit the product of the range of the interval containing the lower percentage limit and the following factor:

$$\frac{\text{lower percentage limit} - \text{percentage of cases below the interval containing the lower percentage limit}}{\text{percentage of cases within the interval containing the lower percentage limit}}$$

To find the upper limit of the confidence interval, add to the lower bound of the interval containing the upper percentage limit the product of the range of the interval containing the upper percentage limit and the following factor:

$$\frac{\text{upper percentage limit} - \text{percentage of cases below the interval containing the upper percentage limit}}{\text{percentage of cases within the interval containing the upper percentage limit}}$$

Note that the interval containing the lower percentage limit need not be the same as the interval containing the median or the interval containing the upper percentage limit and vice versa. For about 68 out of 100 possible samples, the average median from all possible samples would lie between this lower and upper limit. If, in step 2 you add and subtract twice the standard error determined

Table B-5. Standard Errors of Estimated Percentages of Spanish-Origin Householders for 1979

(68 chances out of 100)

Base of percentage (000)	Estimated percentage					
	0 or 100	1 or 99	5 or 95	10 or 90	25 or 75	50
2.5.....	48.5	48.5	48.5	48.5	48.5	48.5
5.....	32.0	32.0	32.0	32.0	32.0	34.3
10.....	19.1	19.1	19.1	19.1	21.0	24.3
25.....	8.6	8.6	8.6	9.2	13.3	15.3
50.....	4.5	4.5	4.7	6.5	9.4	10.8
75.....	3.0	3.0	3.9	5.3	7.7	8.9
100.....	2.3	2.3	3.3	4.6	6.6	7.7
150.....	1.5	1.5	2.7	3.8	5.4	6.3
200.....	1.2	1.2	2.4	3.3	4.7	5.4
250.....	0.9	1.0	2.1	2.9	4.2	4.9
500.....	0.5	0.7	1.5	2.1	3.0	3.4
750.....	0.3	0.6	1.2	1.7	2.4	2.8
1,000.....	0.2	0.5	1.1	1.5	2.1	2.4
1,500.....	0.2	0.4	0.9	1.2	1.7	2.0
2,000.....	0.12	0.3	0.7	1.0	1.5	1.7
2,500.....	0.09	0.3	0.7	0.9	1.3	1.5
5,000.....	0.05	0.2	0.5	0.7	0.9	1.1

Note: Data in this report for Spanish-origin householders are only provided for 1979.

Table B-6. Standard Errors of Estimated Percentages of Households in One of the Regions for 1979

(68 chances out of 100)

Base of percentage (000)	Estimated percentage					
	0 or 100	1 or 99	5 or 95	10 or 90	25 or 75	50
2.5.....	42.8	42.8	42.8	42.8	42.8	43.3
5.....	27.3	27.3	27.3	27.3	27.3	30.6
10.....	15.8	15.8	15.8	15.8	18.7	21.6
25.....	7.0	7.0	7.0	8.2	11.9	13.7
50.....	3.6	3.6	4.2	5.8	8.4	9.7
75.....	2.4	2.4	3.4	4.7	6.8	7.9
100.....	1.8	1.8	3.0	4.1	5.9	6.8
150.....	1.2	1.2	2.4	3.4	4.8	5.6
200.....	0.9	1.0	2.1	2.9	4.2	4.8
250.....	0.7	0.9	1.9	2.6	3.7	4.3
500.....	0.4	0.6	1.3	1.8	2.7	3.1
750.....	0.2	0.5	1.1	1.5	2.2	2.5
1,000.....	0.2	0.4	0.9	1.3	1.9	2.2
1,500.....	0.12	0.4	0.8	1.1	1.5	1.8
2,000.....	0.09	0.3	0.7	0.9	1.3	1.5
2,500.....	0.07	0.3	0.6	0.8	1.2	1.4
5,000.....	0.04	0.2	0.4	0.6	0.8	1.0
7,500.....	0.02	0.2	0.3	0.5	0.7	0.8
10,000.....	0.02	0.14	0.3	0.4	0.6	0.7
15,000.....	0.01	0.11	0.2	0.3	0.5	0.6
25,000.....	0.01	0.09	0.2	0.3	0.4	0.4
35,000.....	0.01	0.07	0.2	0.2	0.3	0.4

Note: Data in this report for households in one of the four regions (Northeast, North Central, South, and West) are only provided for 1979.

in step 1, then for 95 out of 100 possible samples, the average median from all possible samples would lie within this interval.

Table 7 of this report shows that the median family income of householders using public transportation was \$14,000 in 1979, and that there was a total of 3,219,000 such householders. The 95-percent confidence interval for this median would be calculated as follows:

1. From table B-4, the standard error of 50 percent on a base of 3,219,000 is approximately 1.2 percentage points.
2. Adding and subtracting twice the standard error to 50 percent for a 95-percent confidence interval gives 47.6 and 52.4 as the lower and upper percentage limits, respectively.
3. Since 32.2 percent of the cases fell below the interval containing 47.6 percent (i.e., below \$10,000) and 22.3 percent of the cases fell within the same interval (i.e., \$10,000-\$14,999), the lower limit to the 95-percent confidence interval would be

$$\$10,000 + (14,999 - 10,000) \left(\frac{47.6-32.2}{22.3} \right) = \$13,500$$

Since the interval containing 52.4 percent is the same as that containing 47.6 percent, the same percentages as above apply and thus the upper limit to the confidence interval would be:

$$\$10,000 + (14,999 - 10,000) \left(\frac{52.4-32.2}{22.3} \right) = \$14,500$$

Thus, the 95-percent confidence interval ranges from \$13,500 to \$14,500.

Means. For the means presented in certain tables, the sampling error depends on the sample size, design of the sample, and the estimation procedure, as well as on the size of the base and on the distribution upon which the mean is based. To get an approximation of the standard error of a mean, the following formula can be used:

$$\bar{\sigma}_{\bar{X}} = B \sqrt{\frac{\left(\sum_{i=1}^C P_i X_i^2 \right) - \left(\sum_{i=1}^C P_i X_i \right)^2}{Y}}$$

where c is the total number of classes,

P_i is the proportion of total cases in the i^{th} class,

X_i is the midpoint of the i^{th} class, with the midpoint of the upper open-ended class taken to be 3/2 times its lower limit,

\bar{X} is the mean,

Y is the base of the distribution,

and B is a constant which depends on the sample size, the sample design, and the estimation procedure. $B = 42$ for all means except for means involving a Spanish-origin householder. For means involving Spanish-origin householders, $B = 49$.

Illustration of the computation of the standard error of a mean. Table 2 of this report presents a distribution of travel time to work for workers living in central cities of SMSA's. The mean travel time to work as shown in this table for householders who drive alone to work is 19.5 minutes. From this distribution we can calculate

$$\left(\sum_{i=1}^C P_i X_i^2 \right) - \left(\sum_{i=1}^C P_i X_i \right)^2$$

to be approximately 164.1. The base of the distribution is 8,420,000. Therefore, the standard error of the mean 19.5 is approximately 0.2 minutes. Consequently, the 68-percent confidence interval is from 19.3 to 19.7 minutes; and the 95-percent confidence interval is from 19.1 to 19.9 minutes.

Nonsampling errors. In general, nonsampling errors can be attributed to many sources: inability to obtain information about all cases, definitional difficulties, differences in the interpretation of questions, inability or unwillingness to provide correct information on the part of respondents, mistakes in recording or coding the data, and other errors of collection, response, processing, coverage, and estimation for missing data. As can be seen from the above list, nonsampling errors are not unique to sample surveys since they can, and do, occur in complete censuses as well.

Obtaining a measurement of the total nonsampling error associated with the estimates from a survey is very difficult, considering the number of possible sources of error. However, an attempt was made to measure some of the nonsampling errors associated with the estimates for the AHS national.

Reinterview Program. For the AHS national sample, a study was conducted to obtain a measurement of some of the components of nonsampling error associated with the AHS estimates. A reinterview program was conducted for a subsample of the AHS households. These households were revisited and answers to some of the questions on the AHS questionnaire were obtained again. Two groups of questions were identified. One group attempted to measure the response variation. The original interview and the reinterview were assumed to be two independent readings and thus were the basis for the measurement of the "response" error of these AHS estimates.

The other group had a low response variance and was used as a measure of quality control to evaluate the interviewer. These questions were asked to determine if the following was done during the original interview:

1. The correct unit was visited.
2. The correct number of housing units were interviewed at that address.

3. The correct information on "Year Built" was obtained.
4. The correct information on "Tenure" was obtained.
5. The correct information on "Household Composition" was obtained.
6. The correct information on "Type of Housing Unit" was obtained.
7. The correct information on "Occupancy Status" was obtained.

In 1974-78, both groups of questions were evaluated and analyzed. In 1979, only the group that was used to evaluate the interviewer was asked.

The results from the 1974-78 reinterview programs showed that usually one fourth to one third of the non-attitudinal items showed moderate to high levels of inconsistency and one third to one half of the attitudinal items showed high levels of inconsistency. Moderate levels indicate that there are some problems with inconsistent reporting and high levels indicate that improvements are needed in the data collection methods or that the category concepts themselves are ambiguous.

Cross tabulations involving those items, which are subject to substantial levels of inconsistency, may be subject to a large distortion as a consequence of the associated high level of response variance and, thus, are considered to be less reliable than comparable cross tabulations which do not involve these data.

The 1970 census reinterview results provide illustrations of possible nonsampling errors for some of the items which also appear in the AHS. For example, median value of homes was consistently underestimated by about 5 percent, and the average monthly cost of electricity and utility gas were consistently overestimated although the net effect on average gross rent was fairly small.

A possible explanation for the results of the AHS and census reinterview studies, as well as the surveys themselves, is that the respondents may lack precise information. Also, because the results of the reinterview studies are derived from sample surveys, there is sampling error associated with these estimates of nonsampling error. Therefore, the possibility of such errors should be taken into account when considering the results of these studies.

Coverage errors. With respect to errors of coverage and estimation for missing data, it was mentioned previously (in the section on estimation) that the AHS new construction sample had deficiencies with regard to the representation of conventional new construction. Each year, it is believed that the AHS sample misses some conventional housing units built after April 1970 because the permits for these units, which were built prior to each year's enumeration, were issued less than 5 months in advance of the survey. The second-stage ratio estimation procedure was employed to reduce the effect of this deficiency although some bias in the AHS estimates of conventional new construction probably still exists. Review of the second-stage ratio estimation procedures indicates that we have consistently overcompensated for this deficiency in every year since 1975 by ratio adjusting the new construction to counts of new construction for the end of interview period, which has been December or January,

instead of October. This overcompensation may inflate the new construction counts by 100,000 to 300,000 units.

In addition, the 1974 and 1975 surveys had deficiencies from both conventional new construction in permit-issuing areas and new construction mobile homes from the 1970 census. It was assumed that units with permits prior to January 1, 1970 would have been completed by the time of the 1970 census and therefore would have been in the sample chosen from the 1970 census. It is estimated that 600,000 conventional new construction units were missed because, even though their permits were issued prior to January 1, 1970, they were completed after the 1970 census. The 1976 Coverage Improvement Program helped account for this deficiency. There is a similar deficiency in 1974 and 1975 for mobile home parks in permit-issuing areas not in existence at the time of the 1970 census.

In addition, the 1976 Coverage Improvement Program also had certain deficiencies. First, when the canvassing was done to identify mobile home parks that were not in the sample frame or not on the commercial lists, only 92 percent of the census address frame ED's were represented. Second, it appears that the listing procedure (used to find mobile homes placed outside parks, units converted from non-residential to residential, and houses that had been moved onto their present site) was not very efficient for finding nonresidential conversions (which might be primarily in business districts), since the listing procedure started from a residential unit. In 1974 and 1975 these deficiencies were even greater due to the fact that there was no Coverage Improvement Program, although the second-stage ratio estimation procedure was employed to reduce the affect of these deficiencies.

Finally, it is felt that deficiencies also exist in ED's where area sampling methods are used. As before, it had been assumed that all units located inside these ED's would be represented in the sample. It is believed, however, that the AHS sample missed some of the housing units in ED's where area sampling methods are used because these units are not listed during the canvassing.

The third stage of ratio estimation corrects for these deficiencies as far as the count of total housing is concerned, i.e., as stated above, it adjusts the estimate of the total housing inventory to the best available estimate. However, biases of subtotals would still remain.

Rounding errors. With respect to errors associated with processing, the rounding of estimates introduces another source of error in the data, the severity of which depends on the statistic being measured. The effect of rounding is significant relative to the sampling error only for small percentages, mean distance of travel to work and mean time of travel to work when these figures are derived from relatively large bases. This means that confidence intervals formed from the standard errors given may be distorted, and this should be taken into account when considering the results of this survey. Also since medians in this report were computed using unrounded data, instead of the published rounded data, they can differ from medians calculated directly from the published data.

Appendix C. Facsimile of the Journey-to-Work Supplement

~ PGM 8 ↓

Section VIII – JOURNEY-TO-WORK SUPPLEMENT

85. Did . . . (head) have a job last week?

- (525) 1 Yes
 2 No – Skip to Section VIII, page 39

86. What is . . . 's (head) principal means of transportation to work?

- (526) 1 Truck }
 2 Car or carpool }
 (527) 1 Drives alone
 2 Shares driving
 3 Drives others
 4 Rides with someone else
 (527) 5 Walks only
 6 Works at home – Skip to Section VIII, page 39
 7 Railroad
 8 Subway or elevated
 9 Bus or streetcar
 10 Taxicab
 11 Motorcycle
 13 Bicycle
 12 Other means – Specify ↓

87. Does . . . (head) usually REPORT to the same location to begin work each day?

- (528) 1 Yes
 2 No – Skip to Section VIII, page 39

88. Does . . . (head) work in an incorporated city, town, borough or village?

- (529) 1 Yes
 2 No }
 3 Don't know } Skip to 90

89. Does . . . (head) live in the same city, town, borough or village that he/she works in?

- (530) 1 Yes
 2 No

90. How long does it usually take . . . (head) to get from home to work?

(531) _____ Minutes

91. What is . . . 's (head) ONE-WAY distance from home to work?

(532) _____ Miles OR } Go to Section VIII, page 39
 0 Less than 1 mile

Notes