CURRENT POPULATION REPORTS

Special Studies

U.S. Department of Commerce
BUREAU OF THE CENSUS

Series P-23, No. 72
Issued September 1978

Selected Characteristics of Travel to Work in 20 Metropolitan Areas: 1976

CURRENT POPULATION REPORTS

Special Studies

Series P-23, No. 72
Issued September 1978

Selected Characteristics of Travel to Work in 20 Metropolitan Areas: 1976

U.S. Department of Commerce
Juanita M. Kreps, Secretary
Courtenay M. Slater,
Chief Economist

BUREAU OF THE CENSUS
Manuel D. Plotkin,
Director

BUREAU OF THE CENSUS
Manuel D. Plotkin, Director
Robert L. Hagan, Deputy Director
Daniel B. Levine, Associate Director for
Demographic Fields

POPULATION DIVISION
Meyer Zitter, Chief

ACKNOWLEDGMENTS

This report was prepared by **Phillip A. Salopek,** with professional assistance from, and under the general direction of **Philip N. Fulton,** Chief of the Journey-to-Work Statistics Staff. Statistical assistance was provided by **Dorella M. Jones.** Computer programming and processing were performed by **Nathan Call,** under the supervision of **Merritt Woodard** and with general direction from **D. Richard Bartlett,** Demographic Surveys Division. Appendix A was prepared by **Carol Mylet** and sampling review was conducted by **Meson Melmuth,** both under the direction of **Dennis Schwanz,** Statistical Methods Division. Publication preparation within Population Division was performed under the direction of **Vivian J. Brown.** Overall direction was provided by **Charles E. Johnson, Jr.,** Assistant Chief (Demographic and Social Statistics Programs), Population Division.

SUGGESTED CITATION

U.S. Bureau of the Census, **Current Population Reports,** Series P-23, No. 72, "Selected Characteristics of Travel to Work in 20 Metropolitan Areas: 1976," U.S. Government Printing Office, Washington, D.C., 1978.

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, and U.S. Department of Commerce district offices. Postage stamps not acceptable; currency submitted at sender's risk. Remittances from foreign countries must be by international money order or by draft on a U.S. bank. Additional charge for foreign mailing, $14.00. All population series reports sold as a single consolidated subscription $56.00 per year. Price for this report $1.40.

Contents

TEXT TABLES

Contents—Continued

DETAILED TABLES

APPENDIXES

APPENDIX TABLES

SYMBOLS USED IN TABLES

– Represents zero.

B Base less than 1,000.

· · · Not applicable.

Selected Characteristics of Travel to Work in 20 Metropolitan Areas: 1976

(Data from the Travel-to-Work Supplement to the Annual Housing Survey)

INTRODUCTION

This report is one of a series of publications from the Travel-to-Work Supplement to the Bureau's Annual Housing Survey (AHS), initiated in 1975 under the sponsorship of the U.S. Department of Transportation (DOT). The AHS is conducted for the U.S. Department of Housing and Urban Development.

Travel-to-work data for the following standard metropolitan statistical areas (SMSA) are included in this report:

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.

The data presented here are based on the first 4 months of interviews from Group III of the survey's SMSA sample. The interviews were conducted from April to July 1976 and represent about one-third of the final sample from that group. Therefore, the findings are more susceptible to sampling error than the complete 12-month data will be, and any analysis or interpretation of the data should be made with this limitation in mind.

MAJOR MODE OF TRANSPORTATION TO WORK

Most workers living in the surveyed SMSA's (80 percent of the workers using vehicles) used an automobile or truck as their major mode[1] of travel to work in 1976 (table A). Sixty-two percent of the vehicle users drove alone, making this the dominant type of commuting, while 17 percent traveled in carpools. Public transportation was the major mode for 19 percent of the vehicle users, while 1 percent employed other means (bicycles, motorcycles, and other

[1] The classification of workers by major mode is based on the mode which is used for the greatest distance. Therefore, each modal category may include some workers who made part of their trip by some other means.

Table A. Major Mode of Transportation to Work, for 20 SMSA's: 1976

[For meaning of symbols, see text]

Mode	Number (thousands)	Percent[1]
All workers	12,657	...
Not working at home	11,963	...
Workers using vehicles	11,347	100
Auto or truck[2]	9,088	80
Drives alone	7,066	62
Carpool	1,957	17
Shares driving	687	6
Drives others	493	4
Rides with someone	777	7
Public transportation[3]	2,125	19
Bus or streetcar	874	8
Subway or elevated	1,055	9
Railroad	165	1
Other means[4]	135	1
Bicycle	67	1
Walks only	616	[5]
Works at home	223	[2]
Not reported	471	[4]

[1] Percent of workers using vehicles, except percents in square brackets [ ], which are of all workers.
[2] Includes a small number of workers using an auto or truck but not specifying type of riding arrangement.
[3] Includes workers using taxicabs.
[4] Includes workers using motorcycles and all other means not listed.

types of vehicles). Five percent of all workers (including those not using vehicles) walked to work, and 2 percent worked at home.

Public transportation. The highest rate of travel to work by public transportation occurred in the largest SMSA surveyed—the New York SMSA—where 48 percent of the workers using vehicles rode public transportation (table B). The dominant category of public transit in New York was the subway or elevated, accounting for 30 percent of the vehicle users. Buses or streetcars were used by another 13 percent, while 5 percent rode the railroad to work.

Among the other 19 SMSA's, the use of public transportation was much lower than in New York, with the highest rates occurring in the Baltimore (12 percent), Honolulu (12 percent), and Cleveland (11 percent) metropolitan areas (table B). In these areas, buses were the principal type of public transportation. In fact, other types of public transit were available for commuting only in the Cleveland SMSA (subway or elevated).

Use of automobiles and trucks. With the exception of the transit-oriented New York SMSA, where only 51 percent of the workers used autos or trucks, no less than 85 percent of the workers using vehicles in each area used an auto or truck as their major mode of transportation to work in 1976 (table 1). Following New York, the use of automobiles and trucks was lowest in the Honolulu (86 percent) and Cleveland (87 percent) SMSA's—areas that exhibited higher rates of use of public transportation.

Carpooling. No other surveyed SMSA had a higher rate of travel to work in carpools than Honolulu (26 percent of all vehicle users), although the figure for Raleigh (24 percent) was comparable (table 1). The New York SMSA exhibited the lowest incidence of carpooling among the 20 surveyed areas (11 percent of the vehicle users), while carpooling was also less prevalent in the Cleveland and Buffalo metropolitan areas (14 and 15 percent, respectively).

Table C presents the number of carpoolers in each SMSA as a percent of the workers who used an automobile or truck to get to work. The data indicate that in each SMSA fewer than 1 of every 3 commuters using an auto or truck were members of a carpool in 1976. The percentage of auto or truck usage attributable to carpools was higher in the Honolulu and Baltimore SMSA's than in most of the other

Table B. Workers Using Public Transportation, for 20 SMSA's and SMSA Transportation Groups: 1976

[Workers in thousands. SMSA's as of 1970 census; titles abbreviated for convenience. For explanation of transportation groups and meaning of symbols, see text]

SMSA's and SMSA groups	Workers using vehicles									
	Total		Public transportation							
			Total[1]		Bus or streetcar		Subway or elevated		Railroad	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total, 20 SMSA's.....	11,347	100	2,125	19	874	8	1,055	9	165	1
New York (Group A).....	3,443	100	1,660	48	432	13	1,045	30	165	5
Group B.....	2,281	100	214	9	197	9	10	-	-	-
Baltimore.....	811	100	99	12	94	12	-	-	-	-
Cleveland.....	661	100	76	11	66	10	10	1	-	-
St. Louis.....	809	100	39	5	38	5	-	-	-	-
Group C-North.....	1,439	100	62	4	59	4	-	-	-	-
Buffalo.....	431	100	25	6	23	5	-	-	-	-
Indianapolis.....	450	100	14	3	14	3	-	-	-	-
Omaha.....	223	100	11	5	10	5	-	-	-	-
Providence.....	336	100	12	4	12	3	-	-	-	-
Group C-South and West.....	2,896	100	169	6	166	6	-	-	-	-
Birmingham.....	272	100	9	3	8	3	-	-	-	-
Denver.....	568	100	32	6	31	5	-	-	-	-
Honolulu.....	286	100	34	12	34	12	-	-	-	-
Houston.....	948	100	36	4	34	4	-	-	-	-
Louisville.....	278	100	14	5	13	5	-	-	-	-
Seattle-Everett.....	543	100	45	8	45	8	-	-	-	-
Group D.....	1,288	100	20	2	20	2	-	-	-	-
Allentown.....	210	100	4	2	3	2	-	-	-	-
Grand Rapids.....	216	100	3	1	3	1	-	-	-	-
Las Vegas.....	141	100	3	2	3	2	-	-	-	-
Oklahoma City.....	280	100	2	1	2	1	-	-	-	-
Raleigh.....	108	100	2	1	1	1	-	-	-	-
Sacramento.....	334	100	8	2	7	2	-	-	-	-

[1] Includes workers using taxicabs.

Table C. Incidence of Carpooling Among Workers Commuting by Automobile or Truck, for 20 SMSA's and SMSA Transportation Groups: 1976

[Workers in thousands. SMSA's as of 1970 census; titles abbreviated for convenience. For explanation of transportation groups, see text]

SMSA's and SMSA groups	Workers commuting by auto or truck					
	Total[1]		Drives alone		Carpool	
	Number	Percent	Number	Percent	Number	Percent
Total, 20 SMSA's.....	9,088	100	7,066	78	1,957	22
New York (Group A).....	1,757	100	1,358	77	382	22
Group B.....	2,043	100	1,569	77	460	23
Baltimore.....	707	100	523	74	184	26
Cleveland.....	577	100	472	82	95	16
St. Louis.....	760	100	574	76	181	24
Group C-North.....	1,364	100	1,069	78	284	21
Buffalo.....	401	100	332	83	63	16
Indianapolis.....	433	100	331	76	99	23
Omaha.....	209	100	158	76	49	24
Providence.....	322	100	248	77	73	23
Group C-South and West.....	2,683	100	2,078	77	591	22
Birmingham.....	261	100	211	81	49	19
Denver.....	523	100	416	80	104	20
Honolulu.....	246	100	171	69	75	30
Houston.....	901	100	686	76	210	23
Louisville.....	262	100	206	79	54	21
Seattle-Everett.....	490	100	389	79	99	20
Group D.....	1,240	100	992	80	241	19
Allentown.....	205	100	160	78	44	21
Grand Rapids.....	209	100	170	82	37	18
Las Vegas.....	135	100	110	81	25	18
Oklahoma City.....	274	100	220	80	52	19
Raleigh.....	105	100	78	75	26	25
Sacramento.....	313	100	254	81	58	19

[1]Includes a small number of workers using an auto or truck but not specifying type of riding arrangement.

areas. (The apparent differences between Baltimore and St. Louis, Indianapolis, Omaha, Houston, and Raleigh, however, were not statistically significant.) In the Honolulu and Baltimore metropolitan areas, therefore, the overall use of autos and trucks for commuting was offset by relatively high rates of public transit ridership, and those workers who did use an auto or truck were more likely to carpool than workers in many of the other SMSA's.

Use of Trucks. Across all 20 metropolitan areas, 8 percent of the workers using vehicles commuted by truck (table D). However, the use of trucks was noticeably higher in several of the Western and Southwestern SMSA's. When viewed in comparison to most of the other metropolitan areas, the use of trucks was higher in the Houston (18 percent), Oklahoma City (17 percent), Las Vegas (15 percent), Sacramento (15 percent), and Denver (15 percent) SMSA's. Honolulu's low rate of truck use (6 percent) was in sharp contrast to that of the mainland western SMSA's.

CHANGES IN MAJOR MODE OF TRANSPORTATION TO WORK

Changes in the use of public transportation: 1970-76. Comparison of the survey data with data from the 1970 census indicates that the use of public transportation decreased by 5.6 percentage points, from 24.3 percent to 18.7 percent, among the 20 SMSA's from 1970 to 1976

Table D. Workers Commuting by Automobile and Truck, for 20 SMSA's and SMSA Transportation Groups: 1976

[Workers in thousands. SMSA's as of 1970 census; titles abbreviated for convenience. For explanation of transportation groups, see text]

SMSA's and SMSA groups	Workers commuting by-			Truck as percent of-	
	All vehicles	Auto	Truck	All vehicles	Auto and truck
Total, 20 SMSA's	11,347	8,163	925	8	10
New York (Group A)	3,443	1,691	66	2	4
Group B	2,281	1,880	164	7	8
Baltimore	811	652	55	7	8
Cleveland	661	545	32	5	6
St. Louis	809	683	76	9	10
Group C-North	1,439	1,237	128	9	9
Buffalo	431	378	23	5	6
Indianapolis	450	381	52	12	12
Omaha	223	182	27	12	13
Providence	336	297	25	7	8
Group C-South and West	2,896	2,285	398	14	15
Birmingham	272	225	36	13	14
Denver	568	439	83	15	16
Honolulu	286	230	17	6	7
Houston	948	733	168	18	19
Louisville	278	233	29	10	11
Seattle-Everett	543	425	65	12	13
Group D	1,288	1,071	170	13	14
Allentown	210	188	17	8	8
Grand Rapids	216	187	21	10	10
Las Vegas	141	114	21	15	16
Oklahoma City	280	226	48	17	17
Raleigh	108	93	12	11	11
Sacramento	334	263	50	15	16

(table E). This result is consistent with the findings of an earlier report from the Travel-to-Work Supplement, which showed a 3.4 percentage point decline in the use of public transportation during the 1970-75 period among 21 different SMSA's.[2]

Significant declines occurred in 16 of the 20 SMSA's surveyed in 1976, with the largest decline occurring in the Buffalo SMSA (5.8 percentage points), although the decline in the New York metropolitan area (5.4 percentage points) was statistically comparable. There was a significant increase in the use of public transportation in the Honolulu SMSA (3.6 percentage points), while the apparent increases in Denver and Seattle-Everett were not statistically significant.

[2] U.S. Bureau of the Census, **Current Population Reports**, Series P-23, No. 68, "Selected Characteristics of Travel to Work in 21 Metropolitan Areas: 1975," U.S. Government Printing Office, Washington, D.C., 1978.

Recent changes in major mode of transportation to work. Most workers surveyed had not altered their principal means of commuting in the 12 months prior to enumeration, and the magnitude of those changes between modes that were evidenced was quite small. However, among the workers who did change modes during the period, the survey results are at least indicative of some general patterns of choice.

Across the 20 SMSA's, 98 percent of the workers who had used an auto or truck and 94 percent of those who had used public transportation to get to work in 1975 were still using the same mode in 1976 (table F). Workers who had been using public transportation in 1975 were more likely to be using an auto or truck in 1976 than the reverse; 5 percent of those riding public transportation in 1975 were using an auto or truck to get to work in 1976, whereas 1 percent of the workers who used an auto and truck in 1975 were using public transportation in 1976.

Table E. Change in Commuter Use of Public Transportation for 20 SMSA's and SMSA Transportation Groups: 1970-76

[Workers in thousands. SMSA's as of 1970 census; titles abbreviated for convenience. For explanation of transportation groups and meaning of symbols, see text]

SMSA's and SMSA groups	1976			1970			1970-76	
	Vehicle users			Vehicle users			Change in use of public transportation	
	Total	Using public transportation		Total	Using public transportation			
		Total	Percent of total vehicle users		Total	Percent of total vehicle users[1]	Percentage-point difference[2]	Standard error of difference
Total, 20 SMSA's	11,347	2,125	18.7	11,322	2,755	24.3	-5.6	0.2
New York (Group A)	3,443	1,660	48.2	4,027	2,157	53.6	-5.4	0.9
Group B	2,281	214	9.4	2,322	292	12.6	-3.2	0.4
Baltimore	811	99	12.2	750	113	15.1	-2.9	0.9
Cleveland	661	76	11.5	750	108	14.3	-2.9	0.9
St. Louis	809	39	4.8	822	72	8.7	-3.9	0.4
Group C-North	1,439	62	4.3	1,388	112	8.1	-3.8	0.3
Buffalo	431	25	5.7	450	52	11.5	-5.8	0.7
Indianapolis	450	14	3.2	405	25	6.3	-3.1	0.5
Omaha	223	11	4.7	195	16	8.0	-3.3	0.6
Providence	336	12	3.7	338	20	5.9	-2.2	0.5
Group C-South and West	2,896	169	5.9	2,490	161	6.5	-0.6	0.3
Birmingham	272	9	3.2	250	16	6.5	-3.4	0.5
Denver	568	32	5.6	452	22	4.8	+0.8	0.6
Honolulu	286	34	12.0	241	20	8.4	+3.6	0.8
Houston	948	36	3.8	746	42	5.7	-1.9	0.3
Louisville	278	14	4.9	298	21	7.2	-2.3	0.6
Seattle-Everett	543	45	8.3	505	39	7.7	+0.7	0.5
Group D	1,288	20	1.6	1,096	32	2.9	-1.3	0.1
Allentown	210	4	1.7	196	7	3.7	-2.0	0.3
Grand Rapids	216	3	1.3	183	4	2.4	-1.1	0.3
Las Vegas	141	3	2.0	108	6	5.1	-3.1	0.4
Oklahoma City	280	2	1.0	248	4	1.7	-1.0	0.2
Raleigh	108	2	1.4	87	4	4.2	-2.8	0.3
Sacramento	334	8	2.3	274	7	2.5	-0.2	0.4

[1]Standard error of percents is less than 0.05 in each case.

[2]The percentage point differences in the use of public transportation noted in this table may be affected by the fact that workers who lived in group quarters are included in the 1970 census data, but not in the AHS sample: See the section of the text on the reliability and limitations of the data. A percentage point difference is significant if it is twice as large as its standard error.

Table F. Mode of Transportation to Work Last Year by Percent Using Current Modes, for 20 SMSA's: 1976

Mode last year (1975)	Current mode (1976)						
	All workers[1] (thousands)	Total (percent)	Auto or truck			Public transportation[3]	Other means[4]
			Total[2]	Drives alone	Carpool		
All workers reporting mode used last year	11,917	100	75	58	16	17	8
Auto or truck[2]	8,857	100	98	77	21	1	1
Drives alone	6,876	100	99	98	1	1	1
Carpool	1,870	100	98	3	95	1	1
Public transportation[3]	2,118	100	5	3	2	94	2
Other means[4]	942	100	9	6	3	2	89

[1]All workers who reported current mode.

[2]Includes a small number of workers using an auto or truck but not specifying type of riding arrangement.

[3]Bus or streetcar, subway or elevated, railroad, and taxicab.

[4]Bicycle, motorcycle, walks to work, works at home, and all other means not listed.

Among auto and truck users, the rate of change from carpooling to driving alone was greater than that in the opposite direction; 3 percent of the workers who previously had been in carpools changed their mode to driving alone, while 1 percent of those who had driven alone were in carpools 1 year later (table F). Among workers who had been using other means in 1975, 9 percent were using an auto or truck in 1976, while 2 percent had changed to public transportation.

SATISFACTION WITH MAJOR MODE OF TRANSPORTATION TO WORK

Workers enumerated in the survey were asked to specify their satisfaction with their principal means of transportation in conjunction with whether or not they had recently changed modes. Those who had changed modes in the past year were to report how satisfied they were with the new mode compared to the former mode. Workers who had not changed modes were to report their current degree of satisfaction with their commuting method compared to the same time last year. Response categories were "much more satisfied," "more satisfied," "about the same satisfaction," "less satisfied," and "much less satisfied." In this report, responses of "much more" and "more" are grouped as "more satisfied," and responses of "much less" and "less" are grouped as "less satisfied."

Satisfaction for workers who had not changed modes. Among workers who had not changed their mode of transportation to work during the year prior to the survey, the great majority (84 percent) reported that their satisfaction with that mode was about the same as a year ago (table G). Six percent of the workers who had not changed modes reported that they were more satisfied than last year, and 7 percent were less satisfied with their mode in 1976 than they had been in 1975.

The last column of table G presents the ratio of workers who reported that they were more satisfied with their mode than they were a year earlier to those who were less satisfied than a year earlier. Workers who reported "about the same" satisfaction are excluded from the ratios. The level of satisfaction of workers who reported "about the same" satisfaction is undetermined; they may be highly satisfied with their mode, or conversely, very dissatisfied. The data collected indicate only that their satisfaction, whether high or low, was unchaged during the year prior to the survey.

The ratios in table G are not, therefore, intended to reflect the overall degree of satisfaction among all users of the various modes of transportation, but rather, to provide a convenient summary measure of the extent to which the number of workers who reported an increase in satisfaction was greater or smaller than the number who experienced a decrease in satisfaction. Ratios of less than 1.00 occur when the number of workers who reported that they were less satisfied with a particular mode was greater than the number who reported that they were more satisfied. Conversely, ratios greater than 1.00 result when the number of workers who reported that they were more satisfied was larger than the number of workers who reported that they were less satisfied.

The survey results show that among all workers who did not change their mode, but whose level of satisfaction with that mode changed in the year prior to the interview, the

Table G. Satisfaction With Major Mode of Transportation for Workers Who Did Not Change Modes in the Last Year, for 20 SMSA's: 1976

Mode	All workers (thousands)	Satisfaction with mode: Total (percent)	More satisfied	About the same satisfaction	Less satisfied	Don't know, did not work last year, or no response	Ratio of more satisfied to less satisfied
All workers who did not change modes in the last year	11,698	100	6	84	7	2	0.79
Auto or truck[1]	8,512	100	6	87	5	2	1.22
Drives alone	6,689	100	6	87	5	1	1.21
Carpool	1,762	100	6	85	5	3	1.25
Public transportation[2]	1,946	100	5	73	19	3	0.24
Bus or streetcar	781	100	7	74	15	4	0.47
Subway or elevated	988	100	2	71	24	3	0.09
Railroad	149	100	8	76	15	1	0.53
Other means[3]	100	100	9	78	8	5	1.10
Walks only	530	100	6	86	4	5	1.59
Works at home	204	100	4	88	1	6	2.97
Not reported	406	100	4	89	6	2	0.59

[1]Includes a small number of workers using an auto or truck but not specifying type of riding arrangement.
[2]Includes workers using taxicabs.
[3]Bicycle, motorcycle, and all other means not listed.

satisfaction ratio is 0.79 (table G). This ratio indicates that among the relatively small group of workers who experienced a change in satisfaction without a corresponding change in mode, the number who were more satisfied was about 79 percent as large as the number who were less satisfied.

As might be expected, the relationship between the number of workers reporting more or less satisfaction noted above varies by means of transportation. The lowest ratios in table G are found among the public transportation modes; in fact, the ratio for each type of public transportation is well below 1.00, and the ratio for transit as a modal category is 0.24. Thus, for those public transit riders who reported a change in their satisfaction, the number who said they were more satisfied was only 24 percent as large as the number who said they were less satisfied. In contrast, the ratios for all the non-public modes are somewhat greater than 1.00, the result in each case of greater number of "more satisfied" workers than "less satisfied" workers among those who reported a change in their satisfaction.

Satisfaction with change of major mode. Workers who changed their major mode of transportation in the year prior to the survey were much more likely to be more satisfied than those who had not changed. Among workers who changed modes, 53 percent reported that they were more satisfied with their new mode of transportation to work (table H), while 23 percent reported "about the same" satisfaction and 23 percent said that they were less satisfied with their current mode than they had been with their former mode.

The final column of table H, as in table G, presents the ratio of workers who were more satisfied to those who were less satisfied. However, in this case the ratios refer to types of mode change, rather than to the same mode at two points in time. These ratios may therefore be interpreted as a measure of the level of satisfaction among workers who made each type of change of mode, and whose satisfaction changed as a result of it.

The satisfaction ratio for all workers who changed modes and whose satisfaction also changed in the last year is 2.33, indicating that the number of workers who were more satisfied with their current mode than with their previous mode was more than twice as large as those who were less satisfied after changing their means of transportation to work.

Among the four general mode change categories presented in table H, the highest ratio is found among workers who changed from public transportation to an auto or truck (7.44), indicating that a large majority of these workers experienced an increase in their level of satisfaction as a result of the change of mode. The lowest satisfaction ratio among the four general mode change categories is found among workers who changed from an auto or truck to public

Table H. Satisfaction With Change for Workers Who Changed Their Major Mode of Transportation in the Last Year, for 20 SMSA's: 1976

[For meaning of symbols, see text]

Nature of mode change	All workers (thousands)	Satisfaction with mode change: Total (percent)	More satisfied	About the same satisfaction	Less satisfied	Don't know, did not work last year, or no response	Ratio of more satisfied to less satisfied
All workers who changed modes and reported former and current mode	544	100	53	23	23	2	2.33
Auto or truck to auto or truck	125	100	49	28	22	-	2.24
Drives alone to carpool	65	100	43	28	28	-	1.54
Carpool to drives alone	60	100	56	28	16	-	3.60
Auto or truck[1] to public transportation[2]	80	100	28	30	42	-	0.65
Drives alone to public transportation	49	100	23	32	45	1	0.51
Carpool to public transportation	22	100	40	24	37	-	1.09
Public transportation to auto or truck	102	100	77	12	10	1	7.44
Public transportation to drives alone	67	100	77	11	11	1	7.34
Public transportation to carpool	35	100	77	14	10	-	7.57
Other changes[3]	237	100	53	23	22	3	2.41

[1] Includes workers using an auto or truck but not specifying type of riding arrangement.
[2] Bus or streetcar, subway or elevated, railroad, and taxicab.
[3] Changes from all other means to auto or truck; from all other means to public transportation; from auto or truck to all other means; from public transportation to all other means; from one means of public transportation to another; and changes among all other means not listed.

transportation (0.65), indicating that among this group of changers the number who were more satisfied was 65 percent as large as the number who were less satisfied.

Among other specific types of mode changes presented in table H, the satisfaction ratio for workers who changed from carpools to driving alone is 3.60, while for workers who changed from driving alone to carpools, the satisfaction ratio is 1.54. Thus, for both groups a greater number of the workers who changed modes were more satisfied as a result of the change than were less satisfied, but the ratio of "more satisfied" to "less satisfied" cases was more than twice as large for workers who left carpools in favor of driving alone than it was for workers who joined carpools.

The satisfaction ratio for workers who had been driving alone but who changed to public transportation is 0.51, indicating that for workers in this group whose level of satisfaction also changed, the number who were more satisfied with transit than with driving alone was 51 percent as large as the number who were less satisfied. In contrast, among workers who changed from a carpool to public transportation the satisfaction ratio is 1.09, showing that the number of workers expressing more satisfaction as a result of the mode change was about 9 percent larger than those who expressed less satisfaction.

The ratios for workers who changed from public transit to driving alone, and from public transit to carpooling are very similar (7.43 and 7.57, respectively). Ratios of this magnitude indicate that a very large majority of workers in these two groups of changers were more satisfied with driving alone or carpooling than with using public transportation.

TRIP LENGTH AND TRIP DURATION

Trip length. The median distance from home to work for the workers in the 20 SMSA's was 7.6 miles in 1976 (table I). The data indicate that the Houston SMSA had one of the longest median trips from home to work (9.2 miles), although this median was not significantly longer than those in the Seattle-Everett (8.9 miles) or Baltimore (8.8 miles) areas. The shortest median trip to work occurred in the Allentown-Bethlehem-Easton SMSA (4.8 miles), although there is only some evidence that this median was significantly shorter than that found in the Providence-Pawtucket-Warwick metropolitan area (5.2 miles).

Across the 20 SMSA's as a group, work trips made by carpool were generally longer than those of workers who drove alone. Median distance from home to work was 9.5 miles for workers in carpools, while median trip length for persons who drove alone was 7.9 miles (table J). Comparing types of pooling arrangements, workers who rode to work with someone else typically had the shortest trips, while those who shared driving had the longest.

Among public transportation modes, workers whose primary mode was a bus or streetcar evidenced the shortest median trip length (5.0 miles). The median distance from home to work for persons whose major mode was the subway or elevated was 10.2 miles, while the median commuting trip made by railroad was 36.0 miles. Workers using other means such as bicycles and motorcycles had a median trip length of 3.5 miles, while persons who walked generally worked less than a mile from their residence.

Table K, covering four of the largest SMSA's surveyed, presents additional data on trip length from the point of view of total commuter miles traveled to work. Workers living in the New York metropolitan area traveled by far the greatest total distance to work—just over 40 million miles, while total commuter miles in the Houston and St. Louis SMSA's were about 10 million miles and about 8 million miles, respectively. Workers in the Seattle-Everett SMSA traveled fewer total miles to work on a typical commuting day than workers in the other three large SMSA's—about 6 million miles.

About 90 percent of the total commuting mileage to work in the Houston, St. Louis, and Seattle-Everett metropolitan areas was attributable to workers using autos or trucks.

Table I. Median Distance From Home To Work, for 20 SMSA's and SMSA Transportation Groups: 1976

[Workers in thousands. SMSA's as of 1970 census; titles abbreviated for convenience. For explanation of transportation groups, see text]

SMSA's and SMSA groups	Total workers[1]	Distance (miles)	
		Median[2]	Standard error
Total, 20 SMSA's...	10,734	7.6	0.1
New York (Group A).....	3,323	7.9	0.2
Group B.....	2,138	8.3	0.1
Baltimore.....	773	8.8	0.3
Cleveland.....	614	7.8	0.3
St. Louis.....	751	8.4	0.2
Group C-North.....	1,369	6.0	0.2
Buffalo.....	417	5.5	0.3
Indianapolis.....	420	7.3	0.3
Omaha.....	205	5.4	0.2
Providence.....	327	5.2	0.4
Group C-South and West...	2,689	8.3	0.1
Birmingham.....	250	8.4	0.3
Denver.....	545	7.4	0.3
Honolulu.....	276	6.5	0.3
Houston.....	858	9.2	0.2
Louisville.....	260	7.7	0.3
Seattle-Everett.....	501	8.9	0.2
Group D.....	1,215	6.4	0.1
Allentown.....	210	4.8	0.1
Grand Rapids.....	207	6.1	0.3
Las Vegas.....	135	5.8	0.2
Oklahoma City.....	255	7.0	0.3
Raleigh.....	98	6.8	0.2
Sacramento.....	310	7.3	0.3

[1]Workers not working at home who reported distance traveled to work.

[2]A median is significant if it is twice as large as its standard error.

Table J. Median Distance From Home to Work by Major Mode of Transportation, for 20 SMSA's: 1976

Mode	Distance (miles)	
	Median[1]	Standard error
All workers not working at home	7.6	0.1
Workers using vehicles	8.2	0.1
Auto	8.1	0.1
Truck	9.3	0.3
Auto or truck[2]	8.2	0.1
Drives alone	7.9	0.1
Carpool	9.5	0.2
Shares driving	13.2	0.4
Drives others	9.5	0.3
Rides with someone	6.8	0.3
Public transportation[3]	8.8	0.2
Bus or streetcar	5.0	0.3
Subway or elevated	10.2	0.2
Railroad	36.0	1.1
Other means[4]	3.5	0.3
Walks only	0.6	0.1
Not reported	6.6	0.3

[1]A median is significant if it is twice as large as its standard error.
[2]Includes a small number of workers using an auto or truck but not specifying type of riding arrangement.
[3]Includes workers using taxicabs.
[4]Bicycle, motorcycle, and all other means not listed.

About two-thirds of the total mileage in the Houston, St. Louis, and Seattle-Everett areas resulted from workers who drove alone. In contrast, in the New York SMSA workers whose major mode was an auto or truck accounted for only about 50 percent of the total commuting mileage, and only about one-third of the total mileage resulted from workers who drove alone.

Commuters whose principal mode was public transportation contributed nearly 50 percent of the total commuter mileage in the New York area, compared to 7 percent in the Seattle-Everett SMSA, and 3 percent each in the Houston and St. Louis metropolitan areas. Of the mileage attributable to public transportation in the New York SMSA, more than one-half (10.6 million miles) resulted from workers whose principal mode of commuting was the subway or elevated.

Trip duration. The median travel time to work among the 20 surveyed SMSA's was 21.8 minutes in 1976 (table L). The longest median trip duration, 28.7 minutes, was found among workers living in the New York metropolitan area. Workers in the Grand Rapids SMSA, on the other hand, had one of the shortest median commuting times (15.7 minutes), but their median trip was not significantly shorter than that of workers in the Allentown-Bethlehem-Easton (16.0 minutes) or Las Vegas (16.5 minutes) SMSA's.

Across the 20 SMSA's as a group, work trips made by carpool typically took more time to complete than trips of workers who drove alone. The median travel time to work for workers who drove alone was 19.6 minutes, while the median work trip of persons in carpools was 22.7 minutes (table M). Comparing types of carpooling arrangements, workers who rode to work with someone else typically had

Table K. Total Commuter Miles Traveled From Home to Work by Major Mode of Transportation, for Four SMSA's: 1976

[For meaning of symbols, see text]

Mode	Total commuter miles							
	New York		Houston		St. Louis		Seattle-Everett	
	Number (thousands)	Percent	Number (thousands)	Percent	Number (thousands)	Percent	Number (thousands)	Percent
All workers not working at home	40,631	100	10,353	100	8,345	100	5,704	100
Automobile or truck[1]	19,730	49	9,571	92	7,708	92	5,070	89
Drives alone	14,390	35	6,941	67	5,364	64	3,823	67
Carpool	5,124	13	2,600	25	2,313	28	1,223	21
Public transportation[2]	18,925	47	332	3	291	3	423	7
Bus or streetcar	2,755	7	325	3	289	3	422	7
Subway or elevated	10,591	26	-	-	-	-	-	-
Railroad	5,532	14	-	-	-	-	-	-
Other means[3]	115	-	52	1	38	-	52	1
Not reported	1,651	4	375	4	283	3	136	2

[1]Includes a small number of workers using an auto or truck but not specifying type of riding arrangement.
[2]Includes workers using taxicabs.
[3]Bicycle, motorcycle, and all other means not listed.

trips of the shortest duration, while those who shared driving had the longest. This outcome is consistent with the data in table J, which show that workers who usually rode with someone else also had the shortest median distance to work, and those who shared driving had the longest.

Workers whose major mode of transportation was public transit typically spent much longer getting to work than workers who traveled in an auto or truck. The median travel time to work by public transportation was 39.5 minutes, compared with 20.2 minutes for persons in the surveyed SMSA's whose major mode was an auto or truck.

Among the different types of public tranportation, workers who rode a bus or streetcar to work had the shortest median trip duration—31.1 minutes. However, this was still significantly longer in duration than the median trip of auto or truck commuters, even though the typical work trip for bus riders (5.0 miles) covered a considerably shorter distance than that by auto or truck (8.2 miles).

The median subway or elevated commuting trip lasted 43.4 minutes, while the median trip by railroad took 68.2 minutes. Workers using other means typically took 15.5 minutes to get to work, and those who walked generally spent 9.2 minutes between their home and workplace.

BACKGROUND AND STRUCTURE OF THE SURVEY

The Annual Housing Survey. The Annual Housing Survey consists of a national sample of approximately 75,000 households, and a metropolitan area sample of about 140,000 households spread over 20 SMSA's (for operational reasons, the 1975-76 enumeration covered 21 areas). These SMSA's comprise one-third of a list of 60 SMSA's arranged in a 3-year cycle, so that, in all, about 420,000 metropolitan housing units are surveyed in a 3-year period. Each of the three survey groups of SMSA's contains four very large SMSA's, with approximately 15,000 sample housing units equally divided between the central city and the SMSA balance. The remaining SMSA's each contain about 5,000 sample housing units distributed in proportion to the actual distribution of housing units between the central city and the SMSA balance. The survey coverage relates to each SMSA as defined for the 1970 census. Below is a list of the SMSA's in each group and the period in which they were surveyed for the Travel-to-Work Supplement:

SURVEY GROUP I (1977 to 1978)	SURVEY GROUP II (1975 to 1976)	SURVEY GROUP III (1976 to 1977)
Albany-Schenectady-Troy, N.Y.	Atlanta, Ga.[3]	Allentown-Bethlehem-Easton, Pa.-N.J.
Anaheim-Santa Ana-Garden Grove, Calif.	Chicago, Ill[3]	Baltimore, Md.
Boston, Mass.[3]	Cincinnati, Ohio-Ky.-Ind.	Birmingham, Ala.
Dallas, Tex.	Colorado Springs, Colo.	Buffalo, N.Y.
Detroit, Mich.[3]	Columbus, Ohio	Cleveland, Ohio
Fort Worth, Tex.	Hartford, Conn.	Denver, Colo.
Los Angeles-Long Beach, Calif.[3]	Kansas City, Mo.-Kans.	Grand Rapids, Mich.
Madison, Wis.[4]	Miami, Fla.	Honolulu, Hawaii
Memphis, Tenn.-Ark.	Milwaukee, Wis.	Houston, Tex.[3]
Minneapolis-St. Paul, Minn.	New Orleans, La.	Indianapolis, Ind.
Newark, N.J.	Newport News-Hampton, Va.	Las Vegas, Nev.
Orlando, Fla.	Paterson-Clifton-Passaic, N.J.	Louisville, Ky.-Ind.
Phoenix, Ariz.	Philadelphia, Pa.-N.J.[3]	New York, N.Y.[3]
Pittsburgh, Pa.	Portland, Oreg.-Wash.	Oklahoma City, Okla.
Saginaw, Mich.	Rochester, N.Y.	Omaha, Nebr.-Iowa
Salt Lake City, Utah	San Antonio, Tex.	Providence- Pawtucket-Warwick, R.I.-Mass.
Spokane, Wash.	San Bernardino-Riverside-Ontario, Calif.	Raleigh, N.C.
Tacoma, Wash.	San Diego, Calif.	Sacramento, Calif.
Washington, D.C.-Md.-Va.[3]	San Francisco-Oakland, Calif.[3]	St. Louis, Mo.-Ill.[3]
Wichita, Kans.	Springfield-Chicopee-Holyoke, Mass.-Conn.	Seattle-Everett, Wash.[3]

[3] Sample size of 15,000 housing units; all others are 5,000 housing units.
[4] Included with Group II for the first (1975-76) enumeration.

Table L. Median Time Taken to Get to Work, for 20 SMSA's and SMSA Transportation Groups: 1976

[Workers in thousands. SMSA's as of 1970 census; titles abbreviated for convenience. For explanation of transportation groups, see text]

SMSA's and SMSA groups	Total workers[1]	Time taken (minutes)	
		Median[2]	Standard error
Total, 20 SMSA's...	10,827	21.8	0.1
New York (Group A).....	3,369	28.7	0.5
Group B.....	2,165	21.9	0.2
Baltimore.....	786	23.5	0.5
Cleveland.....	617	21.9	0.5
St. Louis.....	762	20.5	0.3
Group C-North.....	1,371	18.4	0.2
Buffalo.....	417	18.0	0.4
Indianapolis.....	420	20.6	0.4
Omaha.....	205	17.1	0.4
Providence.....	328	16.8	0.4
Group C-South and West...	2,704	20.7	0.1
Birmingham.....	251	20.6	0.4
Denver.....	546	19.3	0.4
Honolulu.....	279	21.6	0.4
Houston.....	867	21.6	0.3
Louisville.....	260	20.5	0.4
Seattle-Everett.....	502	20.6	0.2
Group D.....	1,218	17.0	0.2
Allentown.....	211	16.0	0.4
Grand Rapids.....	206	15.7	0.4
Las Vegas.....	135	16.5	0.3
Oklahoma City.....	257	18.2	0.4
Raleigh.....	98	17.5	0.4
Sacramento.....	311	17.8	0.4

[1]Workers not working at home who reported time taken to get to work.
[2]A median is significant if it is twice as large as its standard error.

Table M. Median Time Taken to Get to Work by Major Mode of of Transportation, for 20 SMSA's: 1976

Mode	Time taken (minutes)	
	Median[1]	Standard error
All workers not working at home.....	21.8	0.1
Workers using vehicles.....	22.4	0.1
Auto.....	20.2	0.1
Truck.....	20.6	0.5
Auto or truck[2].....	20.2	0.1
Drives alone.....	19.6	0.1
Carpool.....	22.7	0.3
Shares driving.....	26.7	0.5
Drives others.....	23.6	0.5
Rides with someone.....	19.1	0.4
Public transportation[3].....	39.5	0.5
Bus or streetcar.....	31.1	0.4
Subway or elevated.....	43.4	0.5
Railroad.....	68.2	1.5
Other means[4].....	15.5	0.9
Walks only.....	9.2	0.3
Not reported.....	19.7	0.5

[1]A median is significant if it is twice as large as its standard error.
[2]Includes a small number of workers using an auto or truck but not specifying type of riding arrangement.
[3]Includes workers using taxicabs.
[4]Bicycle, motorcycle, and all other means not listed.

The Travel-to-Work Supplement was first included for the Group II SMSA sample, the field enumeration of which ran from April 1975 through March 1976. It was also used in the 1975 Annual Housing Survey national sample which was completed in the late fall of that year. The Madison SMSA was included in Group II for the first enumeration, rather than in Group I, resulting in coverage of 21 metropolitan areas. Coverage of another 20 SMSA's (Group III) was undertaken from April 1976 through March 1977, and interviewing in the final 20 SMSA's (Group I repeated), including Madison again, was completed during the period of April 1977 through March 1978. A facsimile of the Travel-to-Work Supplement can be found in appendix B.

Standard metropolitan statistical areas (SMSA). The definitions of standard metropolitan statistical areas used in the Annual Housing Survey correspond to the 243 SMSA's used in the 1970 census. Changes in SMSA definition criteria, boundaries, and titles made after February 1971 are not reflected in this series of reports.

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, they were socially and economically integrated with the central county. 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.

SMSA transportation groupings. The groupings of SMSA's shown in the tables in this report conform to a Department of Transportation categorization of major SMSA's by transportation characteristics. Of the 20 SMSA's in Survey Group III, Transportation Group A, representing the largest metropolitan areas having major public transportation networks, includes only New York. Transportation Group B, representing very large metropolitan areas with less developed public transportation systems, includes Baltimore, Cleveland,

and St. Louis. Transportation Group C, representing other large and medium-sized metropolitan areas with well-established public transportation systems, has been subdivided into two regional groups. Group C-North includes Buffalo, Indianapolis, Omaha, and Providence-Pawtucket-Warwick; Group C-South and West includes Birmingham, Denver, Honolulu, Houston, Louisville, and Seattle-Everett. The final group, Transportation Group D, represents medium-sized and smaller SMSA's primarily oriented to automobile transportation. The six SMSA's in Survey Group III which fall in this category are Allentown-Bethlehem-Easton, Grand Rapids, Las Vegas, Oklahoma City, Raleigh, and Sacramento.

Issuance of results. A preliminary and a final report will be published for each of the SMSA survey groups, as well as a report for the 1975 national survey. While the preliminary reports will be limited to Travel-to-Work Supplement data for entire SMSA's, data tables in the final reports will cross-classify commuters and characteristics of the commuting trip by the socioeconomic characteristics obtainable from the Annual Housing Survey, which include age, sex, race, household relationship, and income. There are also questions on additional items related to commuting, such as the number of automobiles and trucks available, parking availability at the residence, and degree of satisfaction with public transportation. Some data tabulated by workplace will also be included in the final report.

Symbols used in this report. A dash "—" means "rounds to or represents zero." The symbol (B) signifies that the base for the median is less than 1,000. Three dots ". . ." means "not applicable."

Table 1. MAJOR MODE OF TRANSPORTATION TO WORK, FOR 20 SMSA'S AND SMSA TRANSPORTATION GROUPS: 1976

(Workers in thousands. SMSA's as of 1970 census. For explanation of transportation groups and meaning of symbols, see text)

Mode	Total, 20 SMSA's		New York (Group A)		Total, Group B		Baltimore		Cleveland	
	Number	Percent[1]	Number	Percent[1]	Number	Percent[1]	Number	Percent[1]	Number	Percent[1]
All workers	12,657	...	3,997	...	2,540	...	888	...	765	...
Not working at home	11,963	...	3,738	...	2,382	...	855	...	687	...
Workers using vehicles	11,347	100	3,443	100	2,281	100	811	100	661	100
Auto	8,163	72	1,691	49	1,880	82	652	80	545	82
Truck	925	8	66	2	164	7	55	7	32	5
Auto or truck[2]	9,088	80	1,757	51	2,043	90	707	87	577	87
Drives alone	7,066	62	1,358	39	1,569	69	523	64	472	71
Carpool	1,957	17	382	11	460	20	184	23	95	14
Shares driving	687	6	139	4	161	7	62	8	32	5
Drives others	493	4	90	3	122	5	50	6	30	5
Rides with someone	777	7	153	4	176	8	72	9	33	5
Public transportation[3]	2,125	19	1,660	48	214	9	99	12	76	11
Bus or streetcar	874	8	432	13	197	9	94	12	66	10
Subway or elevated	1,055	9	1,045	30	10	-	-	-	10	1
Railroad	165	1	165	5	-	-	-	-	-	-
Other means[4]	135	1	26	1	24	1	5	1	8	1
Bicycle	67	1	13	-	11	-	3	-	3	-
Walks only	616	[5]	295	[7]	101	[4]	44	[5]	25	[3]
Works at home	223	[2]	63	[2]	37	[1]	9	[1]	14	[2]
Not reported	471	[4]	197	[5]	121	[5]	25	[3]	65	[8]

	St. Louis		Total, Group C-North		Buffalo		Indianapolis		Omaha	
All workers	887	...	1,587	...	484	...	493	...	242	...
Not working at home	841	...	1,505	...	456	...	464	...	232	...
Workers using vehicles	809	100	1,439	100	431	100	450	100	223	100
Auto	683	84	1,237	86	378	88	381	85	182	82
Truck	76	9	128	9	23	5	52	12	27	12
Auto or truck[2]	760	94	1,364	95	401	93	433	96	209	94
Drives alone	574	71	1,069	74	332	77	331	74	158	71
Carpool	181	22	284	20	63	15	99	22	49	22
Shares driving	67	8	80	6	18	4	25	6	16	7
Drives others	42	5	75	5	14	3	30	7	12	5
Rides with someone	72	9	129	9	30	7	45	10	21	10
Public transportation[3]	39	5	62	4	25	6	14	3	11	5
Bus or streetcar	38	5	59	4	23	5	14	3	10	5
Subway or elevated	-	-	-	-	-	-	-	-	-	-
Railroad	-	-	-	-	-	-	-	-	-	-
Other means[4]	10	1	13	1	5	1	3	1	3	1
Bicycle	5	1	7	-	4	1	1	-	1	-
Walks only	32	[4]	67	[4]	25	[5]	15	[3]	9	[4]
Works at home	15	[2]	36	[2]	11	[2]	14	[3]	7	[3]
Not reported	32	[4]	45	[3]	17	[4]	15	[3]	4	[1]

	Providence		Total, Group C-South and West		Birmingham		Denver		Honolulu	
All workers	368	...	3,144	...	289	...	622	...	308	...
Not working at home	354	...	2,998	...	279	...	599	...	298	...
Workers using vehicles	336	100	2,896	100	272	100	568	100	286	100
Auto	297	88	2,285	79	225	83	439	77	230	80
Truck	25	7	398	14	36	13	83	15	17	6
Auto or truck[2]	322	96	2,683	93	261	96	523	92	246	86
Drives alone	248	74	2,078	72	211	78	416	73	171	60
Carpool	73	22	591	20	49	18	104	18	75	26
Shares driving	20	6	221	8	15	5	54	9	15	5
Drives others	20	6	149	5	10	4	23	4	29	10
Rides with someone	33	10	221	8	25	9	28	5	31	11
Public transportation[3]	12	4	169	6	9	3	32	6	34	12
Bus or streetcar	12	3	166	6	8	3	31	5	34	12
Subway or elevated	-	-	-	-	-	-	-	-	-	-
Railroad	-	-	-	-	-	-	-	-	-	-
Other means[4]	2	1	44	2	2	1	14	2	6	2
Bicycle	1	-	19	1	-	-	7	1	3	1
Walks only	18	[5]	102	[3]	7	[2]	31	[5]	12	[4]
Works at home	4	[1]	58	[2]	3	[1]	17	[3]	4	[1]
Not reported	10	[3]	89	[3]	7	[2]	6	[1]	6	[2]

See footnotes at end of table.

Table 1. MAJOR MODE OF TRANSPORTATION TO WORK, FOR 20 SMSA'S AND SMSA TRANSPORTATION GROUPS: 1976—Continued

(Workers in thousands. SMSA's as of 1970 census. For explanation of transportation groups and meaning of symbols, see text)

Mode	Houston		Louisville		Seattle-Everett		Total, Group D		Allentown	
	Number	Percent[1]	Number	Percent[1]	Number	Percent[1]	Number	Percent[1]	Number	Percent[1]
All workers	1,027	...	304	...	594	...	1,388	...	240	...
Not working at home	974	...	286	...	563	...	1,340	...	227	...
Workers using vehicles	948	100	278	100	543	100	1,288	100	210	100
Auto	733	77	233	84	425	78	1,071	83	188	90
Truck	168	18	29	10	65	12	170	13	17	8
Auto or truck[2]	901	95	262	94	490	90	1,240	96	205	98
Drives alone	686	72	206	74	389	72	992	77	160	76
Carpool	210	22	54	19	99	18	241	19	44	21
Shares driving	80	8	16	6	42	8	87	7	14	7
Drives others	49	5	16	6	23	4	57	4	10	5
Rides with someone	81	9	23	8	34	6	98	8	20	9
Public transportation[3]	36	4	14	5	45	8	20	2	4	2
Bus or streetcar	34	4	13	5	45	8	20	2	3	2
Subway or elevated	-	-	-	-	-	-	-	-	-	-
Railroad	-	-	-	-	-	-	-	-	-	-
Other means[4]	12	1	3	1	8	1	28	2	1	1
Bicycle	5	-	1	-	3	1	17	1	-	-
Walks only	26	[2]	7	[2]	19	[3]	52	[4]	18	[7]
Works at home	15	[1]	4	[1]	14	[2]	29	[2]	7	[3]
Not reported	38	[4]	15	[5]	18	[3]	20	[1]	6	[2]

	Grand Rapids		Las Vegas		Oklahoma City		Raleigh		Sacramento	
All workers	235	...	149	...	296	...	114	...	354	...
Not working at home	227	...	145	...	288	...	111	...	343	...
Workers using vehicles	216	100	141	100	280	100	108	100	334	100
Auto	187	87	114	81	226	81	93	86	263	79
Truck	21	10	21	15	48	17	12	11	50	15
Auto or truck[2]	209	97	135	96	274	98	105	97	313	94
Drives alone	170	79	110	78	220	79	78	73	254	76
Carpool	37	17	25	18	52	19	26	24	58	17
Shares driving	16	7	8	5	19	7	11	10	20	6
Drives others	7	3	6	4	13	5	6	5	15	4
Rides with someone	14	6	11	8	20	7	10	9	23	7
Public transportation[3]	3	1	3	2	2	1	2	1	8	2
Bus or streetcar	3	1	3	2	2	1	1	1	7	2
Subway or elevated	-	-	-	-	-	-	-	-	-	-
Railroad	-	-	-	-	-	-	-	-	-	-
Other means[4]	5	2	3	2	4	2	1	1	14	4
Bicycle	3	1	1	1	2	1	1	1	11	3
Walks only	11	[5]	4	[3]	8	[3]	3	[3]	8	[2]
Works at home	5	[2]	2	[1]	5	[2]	2	[2]	9	[2]
Not reported	3	[1]	2	[1]	4	[1]	2	[2]	2	[1]

[1]Percent of all workers using vehicles, except percents in square brackets [ ], which are of all workers.
[2]Includes a small number of workers using an auto or truck but not specifying type of riding arrangement.
[3]Includes workers using taxicabs.
[4]Includes workers using motorcycles and all other means not listed.

Table 2. MEDIAN DISTANCE FROM HOME TO WORK BY MAJOR MODE OF TRANSPORTATION, FOR 20 SMSA's AND SMSA TRANSPORTATION GROUPS: 1976

(Workers in thousands. SMSA's as of 1970 census. For explanation of transportation groups and meaning of symbols, see text)

Median distance by mode	Total, 20 SMSA's		New York (Group A)		Total, Group B		Baltimore		Cleveland	
	Median[1]	Standard error	Median[1]	Standard error	Median[1]	Standard error	Median[1]	Standard error	Median[1]	Standard error
All workers not working at home	7.6	0.1	7.9	0.2	8.3	0.1	8.8	0.3	7.8	0.3
Workers using vehicles	8.2	0.1	9.0	0.2	8.8	0.1	9.4	0.3	8.2	0.3
Auto	8.1	0.1	8.6	0.3	9.0	0.2	9.9	0.4	8.2	0.3
Truck	9.3	0.3	6.0	3.6	9.6	0.7	10.9	1.3	7.5	1.2
Auto or truck[2]	8.2	0.1	8.6	0.3	9.1	0.2	10.0	0.4	8.2	0.3
Drives alone	7.9	0.1	8.3	0.4	8.6	0.2	9.4	0.4	8.1	0.4
Carpool	9.5	0.2	9.5	0.8	11.0	0.4	12.0	0.8	8.8	0.7
Shares driving	13.2	0.4	13.3	2.6	16.1	0.9	19.2	1.4	11.5	1.2
Drives others	9.5	0.3	9.7	2.4	10.1	0.7	10.9	1.3	8.9	1.0
Rides with someone	6.8	0.3	7.4	1.2	7.8	0.4	8.4	0.8	6.4	1.1
Public transportation[3]	8.8	0.2	9.4	0.3	7.1	0.4	6.5	0.6	8.2	1.0
Bus or streetcar	5.0	0.3	4.1	0.2	7.2	0.4	6.8	0.6	7.7	1.1
Subway or elevated	10.2	0.2	10.2	0.4	10.1	2.3	-	-	10.1	2.7
Railroad	36.0	1.1	36.0	1.9	-	-	-	-	-	-
Other means[4]	3.5	0.3	3.8	1.9	3.6	0.7	3.3	0.9	6.2	1.9
Walks only	0.6	0.1	0.6	0.1	0.6	0.1	0.6	0.1	0.7	0.1
Not reported	6.6	0.3	7.1	0.9	6.8	0.5	7.6	1.4	6.6	0.9

	St. Louis		Total, Group C-North		Buffalo		Indianapolis		Omaha	
All workers not working at home	8.4	0.2	6.0	0.2	5.5	0.3	7.3	0.3	5.4	0.2
Workers using vehicles	8.8	0.2	6.4	0.2	6.1	0.3	7.6	0.3	5.7	0.2
Auto	8.9	0.2	6.5	0.2	6.3	0.3	7.5	0.3	5.8	0.2
Truck	9.9	1.1	8.7	0.6	8.3	1.4	10.4	0.9	6.7	0.8
Auto or truck[2]	9.0	0.2	6.6	0.2	6.4	0.3	7.7	0.3	5.9	0.2
Drives alone	8.3	0.2	6.6	0.2	6.3	0.3	7.5	0.3	5.9	0.2
Carpool	11.4	0.4	6.9	0.4	6.8	0.8	8.9	0.8	5.6	0.6
Shares driving	16.4	0.9	11.5	0.8	11.3	1.4	13.9	1.1	7.0	0.8
Drives others	10.7	0.9	7.3	0.8	7.3	1.3	9.4	1.3	6.5	1.0
Rides with someone	7.8	0.6	4.5	0.2	4.4	0.6	5.7	1.0	4.5	0.4
Public transportation[3]	7.2	0.7	4.6	0.2	4.5	0.3	4.8	0.9	5.0	0.8
Bus or streetcar	7.3	0.6	4.6	0.2	4.7	0.3	4.8	0.9	5.1	0.8
Subway or elevated	-	-	-	-	-	-	-	-	-	-
Railroad	-	-	(B)	...	-	-	-	-	-	-
Other means[4]	2.8	0.8	3.2	0.5	3.1	0.9	3.5	0.7	3.0	0.9
Walks only	0.6	0.1	0.6	0.1	0.8	0.1	0.6	0.1	0.6	0.1
Not reported	6.8	0.8	4.8	0.5	4.8	1.2	5.9	1.4	3.9	0.7

	Providence		Total, Group C-South and West		Birmingham		Denver		Honolulu	
All workers not working at home	5.2	0.4	8.3	0.1	8.4	0.3	7.4	0.3	6.5	0.3
Workers using vehicles	5.9	0.4	8.7	0.1	8.7	0.3	8.0	0.3	7.0	0.3
Auto	6.0	0.4	8.7	0.1	8.3	0.3	8.1	0.3	7.2	0.3
Truck	8.0	1.7	10.4	0.4	11.9	1.2	8.8	0.8	12.6	1.5
Auto or truck[2]	6.1	0.4	8.9	0.1	8.7	0.3	8.2	0.3	7.4	0.3
Drives alone	6.4	0.4	8.5	0.1	8.4	0.3	7.9	0.4	7.3	0.3
Carpool	5.1	0.9	10.3	0.3	9.9	0.8	9.4	0.7	7.7	0.6
Shares driving	13.5	1.7	13.2	0.4	15.2	2.2	11.6	1.2	11.2	1.6
Drives others	4.7	0.6	10.4	0.4	11.5	1.7	8.4	1.7	8.5	0.8
Rides with someone	3.9	0.3	7.5	0.4	7.3	0.9	6.1	1.3	5.5	0.8
Public transportation[3]	3.8	0.6	7.6	0.4	9.5	1.4	7.8	1.2	4.8	0.3
Bus or streetcar	3.6	0.5	7.7	0.4	9.7	1.5	7.8	1.2	4.9	0.3
Subway or elevated	-	-	-	-	-	-	-	-	-	-
Railroad	(B)	...	-	-	-	-	-	-	-	-
Other means[4]	3.6	2.7	3.8	0.4	3.8	2.8	4.0	0.8	3.3	1.0
Walks only	0.6	0.1	0.6	0.1	0.6	0.1	0.6	0.1	0.6	0.1
Not reported	4.3	0.5	7.2	0.6	8.1	1.9	4.7	1.5	5.5	2.1

See footnotes at end of table.

Table 2. MEDIAN DISTANCE FROM HOME TO WORK BY MAJOR MODE OF TRANSPORTATION, FOR 20 SMSA's AND SMSA TRANSPORTATION GROUPS: 1976—Continued

(Workers in thousands. SMSA's as of 1970 census. For explanation of transportation groups and meaning of symbols, see text)

Median distance by mode	Houston		Louisville		Seattle-Everett		Total, Group D		Allentown	
	Median[1]	Standard error	Median[1]	Standard error	Median[1]	Standard error	Median[1]	Standard error	Median[1]	Standard error
All workers not working at home	9.2	0.2	7.7	0.3	8.9	0.2	6.4	0.1	4.8	0.1
Workers using vehicles	9.5	0.2	8.0	0.3	9.3	0.2	6.8	0.1	5.3	0.3
Auto	9.4	0.2	8.0	0.3	9.5	0.2	6.7	0.1	5.3	0.3
Truck	11.0	0.5	10.0	1.3	9.9	0.7	8.2	0.3	6.3	1.1
Auto or truck[2]	9.6	0.2	8.1	0.3	9.5	0.2	6.9	0.1	5.4	0.3
Drives alone	9.1	0.2	7.9	0.4	9.1	0.2	6.6	0.1	5.4	0.3
Carpool	11.7	0.4	8.8	0.6	11.4	0.5	8.0	0.3	5.3	0.6
Shares driving	13.6	0.6	12.8	1.2	14.7	0.9	10.6	0.6	9.3	1.5
Drives others	12.0	0.6	9.0	1.0	11.3	0.8	8.6	0.6	4.9	1.4
Rides with someone	9.5	0.6	6.1	0.9	7.8	0.8	5.8	0.4	3.9	0.4
Public transportation[3]	9.5	0.8	7.0	0.9	7.9	0.5	7.0	0.9	4.0	0.8
Bus or streetcar	10.1	0.7	7.2	1.0	7.9	0.5	7.1	1.0	4.0	0.7
Subway or elevated	-	-	-	-	-	-	-	-	-	-
Railroad	-	-	-	-	-	-	(B)	...	(B)	...
Other means[4]	3.5	0.6	4.4	1.3	3.9	0.7	3.0	0.3	2.2	0.7
Walks only	0.6	0.1	0.6	0.1	0.6	0.1	0.6	0.1	0.6	0.1
Not reported	10.0	0.7	4.9	1.1	7.3	1.2	4.4	0.4	3.8	0.4
	Grand Rapids		Las Vegas		Oklahoma City		Raleigh		Sacramento	
All workers not working at home	6.1	0.3	5.8	0.2	7.0	0.3	6.8	0.2	7.3	0.3
Workers using vehicles	6.5	0.3	6.1	0.2	7.3	0.3	7.0	0.2	7.6	0.3
Auto	6.6	0.3	5.9	0.2	7.0	0.3	7.0	0.3	7.8	0.3
Truck	7.8	0.9	6.8	0.5	9.6	0.7	8.9	1.0	8.2	0.8
Auto or truck[2]	6.7	0.3	6.1	0.2	7.3	0.3	7.2	0.2	7.8	0.3
Drives alone	6.3	0.3	5.9	0.2	6.9	0.3	6.7	0.3	7.5	0.3
Carpool	8.1	0.6	6.8	0.6	9.1	0.6	8.2	0.4	9.3	0.7
Shares driving	11.2	1.0	7.7	1.2	11.1	0.9	10.7	1.1	11.3	1.1
Drives others	9.4	1.3	6.8	1.2	10.5	1.1	9.3	0.8	9.6	1.6
Rides with someone	5.0	0.8	6.3	0.9	6.8	0.9	5.8	0.7	7.7	0.9
Public transportation[3]	4.7	1.5	13.8	4.6	8.5	2.8	4.0	0.4	10.3	1.5
Bus or streetcar	4.8	1.5	13.8	4.6	8.5	2.8	4.1	0.5	10.5	1.5
Subway or elevated	-	-	-	-	-	-	-	-	-	-
Railroad	-	-	-	-	-	-	-	-	-	-
Other means[4]	3.4	0.8	4.4	0.5	2.8	1.2	3.3	1.6	2.7	0.3
Walks only	0.6	0.1	0.6	0.1	0.6	0.1	0.6	0.1	0.5	0.1
Not reported	3.9	1.5	4.9	3.3	6.1	4.5	4.3	1.2	7.5	7.2

[1] A median is significant if it is twice as large as its standard error.
[2] Includes a small number of workers using an auto or truck but not specifying type of riding arrangement.
[3] Includes workers using taxicabs.
[4] Bicycle, motorcycle, and all other means not listed.

Table 3. MEDIAN TIME TAKEN TO GET TO WORK BY MAJOR MODE OF TRANSPORTATION, FOR 20 SMSA's AND SMSA TRANSPORTATION GROUPS: 1976

(Workers in thousands. SMSA's as of 1970 census. For explanation of transportation groups and meaning of symbols, see text)

Median time by mode	Total, 20 SMSA's		New York (Group A)		Total, Group B		Baltimore		Cleveland	
	Median[1]	Standard error	Median[1]	Standard error	Median[1]	Standard error	Median[1]	Standard error	Median[1]	Standard error
All workers not working at home	21.8	0.1	28.7	0.5	21.9	0.2	23.5	0.5	21.9	0.5
Workers using vehicles	22.4	0.1	30.8	0.5	22.5	0.2	24.3	0.5	22.4	0.5
Auto	20.2	0.1	22.0	0.5	21.6	0.2	23.2	0.5	21.3	0.5
Truck	20.6	0.4	18.0	2.7	21.5	0.8	22.6	1.7	19.5	2.0
Auto or truck[2]	20.2	0.1	21.9	0.5	21.6	0.2	23.1	0.5	21.2	0.5
Drives alone	19.6	0.1	21.3	0.5	20.7	0.2	21.9	0.5	21.0	0.5
Carpool	22.7	0.3	24.4	1.3	25.1	0.6	27.4	1.2	23.3	1.3
Shares driving	26.7	0.5	28.6	2.0	29.9	0.8	32.9	1.6	25.5	2.1
Drives others	23.6	0.5	23.2	2.2	26.1	1.0	27.3	2.3	25.8	2.0
Rides with someone	19.1	0.4	21.4	2.1	20.8	0.7	22.4	1.3	19.6	1.9
Public transportation[3]	39.5	0.5	42.0	0.8	34.8	1.2	39.7	2.4	32.7	1.5
Bus or streetcar	31.1	0.4	29.8	0.9	35.4	1.4	41.4	2.4	32.2	1.5
Subway or elevated	43.4	0.5	43.5	0.9	35.7	3.0	-	-	35.7	3.7
Railroad	68.2	1.5	68.1	3.0	-	-	-	-	-	-
Other means[4]	15.5	0.9	17.2	4.7	15.8	2.8	15.8	3.9	29.8	6.2
Walks only	9.2	0.3	10.4	0.8	8.4	0.5	9.1	1.0	8.2	1.2
Not reported	19.7	0.5	23.1	1.8	19.3	0.8	20.1	3.1	18.6	1.3

	St. Louis		Total, Group C-North		Buffalo		Indianapolis		Omaha	
All workers not working at home	20.5	0.3	18.4	0.2	18.0	0.4	20.6	0.4	17.1	0.4
Workers using vehicles	20.9	0.3	18.8	0.2	18.4	0.4	21.0	0.4	17.4	0.4
Auto	20.5	0.3	18.3	0.2	17.8	0.4	20.5	0.4	17.0	0.4
Truck	21.7	1.1	20.5	0.8	19.9	2.2	23.0	1.2	17.2	1.0
Auto or truck[2]	20.6	0.3	18.4	0.2	17.9	0.4	20.8	0.4	17.0	0.4
Drives alone	19.5	0.3	18.2	0.2	17.8	0.5	20.1	0.5	16.8	0.4
Carpool	24.2	0.6	19.8	0.5	18.6	1.1	23.5	0.9	17.9	0.8
Shares driving	29.2	0.9	24.1	0.9	23.4	2.1	27.5	1.9	19.4	1.2
Drives others	25.3	1.2	21.7	1.0	19.6	2.0	26.3	2.0	20.5	1.6
Rides with someone	19.7	0.8	15.6	0.8	15.4	1.6	19.6	1.5	15.2	1.2
Public transportation[3]	32.1	1.3	27.3	1.2	27.3	1.6	29.7	2.9	32.0	3.3
Bus or streetcar	32.4	1.2	27.7	1.3	28.2	1.5	29.7	2.9	32.3	3.6
Subway or elevated	-	-	-	-	-	-	-	-	-	-
Railroad	-	-	(B)	...	-	-	-	-	-	-
Other means[4]	14.0	2.1	16.9	2.0	19.1	2.6	18.7	5.3	11.6	1.7
Walks only	7.7	0.7	8.3	0.6	9.0	1.4	7.4	1.1	8.5	1.1
Not reported	20.1	0.9	14.9	1.2	14.5	1.8	16.2	3.5	17.0	2.2

	Providence		Total, Group C-South and West		Birmingham		Denver		Honolulu	
All workers not working at home	16.8	0.4	20.7	0.1	20.6	0.4	19.3	0.4	21.6	0.4
Workers using vehicles	17.4	0.4	21.1	0.1	20.9	0.4	19.8	0.4	22.2	0.4
Auto	17.0	0.5	20.5	0.2	20.3	0.4	19.5	0.4	21.1	0.4
Truck	18.9	2.0	21.6	0.4	23.6	1.4	19.9	0.9	26.8	1.8
Auto or truck[2]	17.1	0.4	20.7	0.1	20.7	0.4	19.5	0.4	21.4	0.4
Drives alone	17.2	0.5	20.0	0.2	20.2	0.5	19.0	0.4	20.8	0.4
Carpool	17.0	1.2	23.2	0.3	23.0	1.0	21.6	0.8	23.3	0.8
Shares driving	25.7	2.1	26.4	0.6	31.1	2.3	23.6	1.1	26.9	1.7
Drives others	17.8	1.9	24.3	0.6	23.6	2.4	20.4	2.2	25.5	1.4
Rides with someone	12.8	0.7	19.7	0.5	19.8	1.3	18.1	1.8	19.8	1.2
Public transportation[3]	22.3	1.5	31.2	0.7	33.7	4.2	28.4	2.4	29.0	1.0
Bus or streetcar	21.7	1.5	31.5	0.7	34.8	4.7	28.4	2.3	29.1	1.0
Subway or elevated	-	-	-	-	-	-	-	-	-	-
Railroad	(B)	...	-	-	-	-	-	-	-	-
Other means[4]	13.9	13.6	15.7	1.1	12.0	7.4	16.1	2.3	16.4	3.6
Walks only	8.1	1.0	8.7	0.4	8.1	1.4	9.4	1.2	9.3	1.0
Not reported	13.7	1.7	19.2	0.8	19.4	2.9	12.5	2.3	18.2	3.8

See footnotes at end of table.

Table 3. MEDIAN TIME TAKEN TO GET TO WORK BY MAJOR MODE OF TRANSPORTATION, FOR 20 SMSA's AND SMSA TRANSPORTATION GROUPS: 1976—Continued

(Workers in thousands. SMSA's as of 1970 census. For explanation of transportation groups and meaning of symbols, see text)

Median time by mode	Houston		Louisville		Seattle-Everett		Total, Group D		Allentown	
	Median[1]	Standard error	Median[1]	Standard error	Median[1]	Standard error	Median[1]	Standard error	Median[1]	Standard error
All workers not working at home	21.6	0.3	20.5	0.4	20.6	0.2	17.0	0.2	16.0	0.4
Workers using vehicles	21.9	0.3	20.7	0.4	20.9	0.2	17.4	0.2	16.6	0.4
Auto	21.6	0.3	20.2	0.5	20.1	0.3	17.2	0.2	16.6	0.4
Truck	22.3	0.6	22.4	1.5	20.1	0.8	18.4	0.4	16.6	1.2
Auto or truck[2]	21.7	0.3	20.4	0.4	20.1	0.3	17.3	0.2	16.6	0.4
Drives alone	20.9	0.3	19.7	0.5	19.6	0.3	16.9	0.2	16.3	0.4
Carpool	24.5	0.6	22.9	0.9	22.6	0.6	19.4	0.4	17.7	0.9
Shares driving	27.3	1.1	28.4	1.8	26.6	0.9	21.9	0.6	23.9	1.8
Drives others	26.1	1.2	24.3	1.8	23.6	1.0	20.9	0.8	18.9	1.5
Rides with someone	21.4	0.8	19.0	1.4	18.2	0.9	16.2	0.6	14.1	0.7
Public transportation[3]	35.8	3.1	31.2	2.6	32.1	1.0	29.0	1.5	25.4	4.2
Bus or streetcar	37.9	3.0	32.1	2.6	32.1	1.0	29.4	1.5	25.2	4.3
Subway or elevated	-	-	-	-	-	-	-	-	-	-
Railroad	-	-	-	-	-	-	(B)	...	(B)	...
Other means[4]	14.1	1.9	17.8	2.3	16.2	1.8	14.0	0.7	13.1	1.8
Walks only	7.5	0.7	9.6	1.5	9.2	0.9	8.0	0.5	8.2	0.8
Not reported	21.5	1.0	17.2	1.6	18.5	1.3	15.6	1.2	14.0	1.4
	Grand Rapids		Las Vegas		Oklahoma City		Raleigh		Sacramento	
All workers not working at home	15.7	0.4	16.5	0.3	18.2	0.4	17.5	0.4	17.8	0.4
Workers using vehicles	16.1	0.4	16.8	0.3	18.5	0.4	17.7	0.4	18.0	0.4
Auto	15.9	0.4	16.6	0.3	18.1	0.4	17.6	0.4	17.9	0.4
Truck	16.8	1.2	16.9	1.0	20.2	0.8	18.6	1.4	18.6	1.1
Auto or truck[2]	16.0	0.4	16.6	0.3	18.5	0.4	17.6	0.4	18.0	0.4
Drives alone	15.5	0.4	16.4	0.4	17.7	0.4	17.0	0.4	17.6	0.4
Carpool	18.3	0.9	17.6	0.8	21.7	0.8	19.6	0.7	19.9	0.9
Shares driving	21.1	1.1	19.3	1.5	23.6	1.4	21.3	1.0	21.4	1.4
Drives others	19.3	2.3	17.6	2.0	23.3	1.7	22.6	1.7	21.6	1.9
Rides with someone	13.9	1.2	16.6	1.1	19.0	1.4	16.3	1.1	17.3	1.7
Public transportation[3]	23.2	2.5	90.0	2.2	35.7	16.9	21.7	2.6	30.3	2.0
Bus or streetcar	23.6	2.5	90.0	2.2	35.7	16.9	23.1	3.0	30.6	2.0
Subway or elevated	-	-	-	-	-	-	-	-	-	-
Railroad	-	-	-	-	-	-	-	-	-	-
Other means[4]	14.4	3.2	16.5	2.4	13.2	1.6	17.1	5.1	13.8	1.0
Walks only	7.6	0.9	8.3	1.5	7.6	1.2	8.7	2.0	8.1	1.5
Not reported	13.8	1.9	17.4	1.8	19.4	2.2	16.3	1.8	15.2	5.6

[1] A median is significant if it is twice as large as its standard error.
[2] Includes a small number of workers using an auto or truck but not specifying type of riding arrangement.
[3] Includes workers using taxicabs.
[4] Bicycle, motorcycle, and all other means not listed.

Appendix A

SOURCE AND RELIABILITY OF THE ESTIMATES

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 deviation of a sample estimate from the average of all possible samples is defined as the sampling error. The standard error of a survey estimate attempts to provide a measure of this variation among the estimates from the possible samples and, thus, is a measure of the precision with which an estimate from a sample approximates the average result of all possible samples. Because estimates from the preliminary tabulation are based on roughly one-third the number of cases in the entire sample, the data presented in this report are more susceptible to sampling error than the final data will be.

As calculated for this survey, the standard error also partially measures the variation in the estimates due to response and enumerator errors (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 error, 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 the user to construct interval estimates in which the interval includes the average result of all possible samples with a known probability. For example, if all possible samples were selected, each of these surveyed under essentially the same general conditions, and an estimate and its estimated standard error were calculated from 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. All comparisons made in the text of the current report are significant within two standard errors.

The figures presented in the tables below are approximations to the standard errors of various estimates for SMSA's in Survey Group III. 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 precise standard errors for any specific item.

Tables A-1 through A-10 present the standard errors applicable to estimates of travel-to-work characteristics of persons 14 years and older who were employed at the time of the 1976-77 AHS-SMSA survey. Included in these tables are estimates of standard errors for estimates of zero and zero percent. These estimates of standard errors are considered as 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 for estimates of medians shown in the text of the current report are displayed with the median.

For ratios, 100 x/y, where x is not a subclass of y, tables A-3 through A-10 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. The results of the DOT Supplement indicate that in 1976, in the 20 SMSA's surveyed, 11,347,000 workers used vehicles to travel to work. Interpolation in table A-2 shows that the standard error of an estimate of this size is approximately 49,020. Consequently, the 68-percent confidence interval, as shown by these data, is from 11,297,980 to 11,396,020 workers. Therefore, a conclusion that the average estimate, derived from all possible samples, of 1976 workers who used vehicles to travel to work lies within a range computed in this way would be correct for roughly 68-percent of all possible samples. Similarly, we could conclude that the average estimate, derived from all possible samples, lies within the interval from 11,268,570 to 11,425,430 workers with 90-percent confidence and within the interval from 11,248,960 to 11,445,040 workers with 95-percent confidence.

Also, of the 11,347,000 workers who used vehicles to travel to work, 7,066,000, or 62.3 percent, drove alone. Interpolation in table A-8 shows that the standard error of the percent is approximately 0.3 percentage points.

Consequently, the 68-percent confidence interval, as shown by these data, is from 62.0 to 62.6 percent; the 90-percent confidence interval is from 61.8 to 62.8 percent and the 95-percent confidence interval is from 61.7 to 62.9 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 error of each estimate considered separately. This formula is quite accurate for the difference between estimates of the same characteristic in two different SMSA's or the difference between separate and uncorrelated characteristics in the same SMSA. However, if there is a high positive correlation between the two characteristics, the formula will overestimate the true standard error; whereas, if there is a high negative correlation, the formula will underestimate the true standard error, this is likely to occur when comparing percentages calculated on the same base.

Illustration of the computation of the standard error of a difference. The results of the DOT Supplement show that in 1976 there were 1,957,000 workers who commuted by carpool in the 20 SMSA's. Thus, the apparent difference, as shown by these data, between commuters who carpooled and commuters who drove alone in 1976 is 5,109,000. Interpolation in table A-2 shows the standard error of 7,066,000 is approximately 44,680, and the standard error of 1,957,000 is approximately 26,930. Therefore, the standard error of the estimated difference of 5,109,000 is about 52,170.

$$52{,}170 = \sqrt{(44{,}680)^2 + (26{,}930)^2}$$

Consequently, the 68 percent confidence interval for the 5,109,000 difference is from 5,056,830 to 5,161,170 workers. 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 interval is from 5,025,530 to 5,192,470 workers, and the 95-percent confidence interval is from 5,004,660 to 5,213,340. Thus, we can conclude with 95-percent confidence that the number of commuters who drove alone in 1976 is greater than the number of commuters who carpooled in 1976, since the 95-percent confidence interval does not include zero or negative values.

In addition to sampling error, the data presented in this report may vary somewhat from the final results for several other reasons. First, the use of four reference months may introduce a seasonal bias into transportation use characteristics or a bias due to possible temporary disruptions in one or more modes. Second, the weighting procedure used for the data is not as complex as that which will be reflected in the final data, thus introducing the possibility of additional variation between the two tabulations. Third, these tabulations were prepared before the data had received a final edit. They may, therefore, be somewhat more affected by such factors as response inconsistency and other errors of collection than the final results.

Reliability of the data on length and duration of the commuting trip may also have been affected by response accuracy. Where the respondent for a particular household provided information on time and distance to work for other workers residing in the household, he or she may have only been able to provide estimates based on limited knowledge. Similarly, while most repondents could be expected to know approximately how many minutes it usually takes to get to work, many workers, especially those using public transportation, may not know the exact number of miles their commuting trip covers.

Finally, care must be taken in comparing data on major mode of transportation from the Travel-to-Work Supplement with 1970 census data on the same topic. Whereas the census asked workers to specify the principal means of transportation they used to get to work on the last day of the reference week prior to the census date (April 1, 1970), the Travel-to-Work Supplement asks respondents to specify their usual mode of transportation to work, regardless of any possible deviation from that pattern which may have occurred during the week prior to interview.

The Travel-to-Work Supplement and the 1970 census are also based on different universes. While the 1970 census refers to the entire population, the Travel-to-Work Supplement is based on the population in households (including the military population in households) and excludes persons living in group quarters such as college dormitories and military barracks. Since it is believed that workers who live in group quarters typically exhibit a high rate of walking to work, comparisons of percentage distributions of mode use in 1970 and 1976 in this report are made on the basis of workers using vehicles, rather than on a worker total. To the extent that workers living in group quarters have a higher rate of use of certain types of vehicles than workers living in households, their exclusion from the survey universe may

result in an underestimate of the use of those modes in the total sample. This may be particularly true for public transportation, thereby affecting the percentage point differences in the use of public transportation between 1970 and 1976 reported in table E.

Because only persons who were actually working are included in the survey, 1970-76 comparisons of worker totals are affected not only by the inclusion of group quarters residents in 1970, but also by the increase in unemployment in nearly all SMSA's between 1970 and 1976. For these reasons, it is probably more valid to compare the proportion of workers using a particular mode in 1976 with the corresponding proportion in 1970, rather than the 1970-76 numeric change. There are also basic differences between the Travel-to-Work Supplement and the 1970 census in terms of interviewing procedures which can affect comparability.

Although no reinterview program was undertaken for the DOT Travel-to-Work Supplement, a study was designed to obtain a measurement of some of the components of the nonsampling error associated with the AHS estimates in the AHS-SMSA sample. Results of this study may be a useful indicator of the accuracy to be expected in the travel-to-work data which was collected as a supplement to the AHS-SMSA data. For a more detailed description of the 1975 AHS-SMSA reinterview program refer to AHS Series H-170 reports for 1975.

Table A-1. Standard Errors of Estimated Number of Workers in the 20 SMSA's

(68 chances out of 100. For meaning of symbols, see text)

Size of estimate	Allentown-Bethlehem-Easton, Pa.-N.J.	Baltimore, Md.	Birmingham, Ala.	Buffalo, N.Y.	Cleveland, Ohio	Denver, Colo.	Grand Rapids, Mich.	Honolulu, Hawaii	Houston, Texas	Indianapolis, Ind.
0	150	540	200	340	530	400	140	150	210	300
25	150	540	200	340	530	400	140	150	210	300
50	150	540	200	340	530	400	140	150	210	300
100	150	540	200	340	530	400	140	150	210	300
200	170	540	200	340	530	400	170	180	210	300
500	270	540	320	410	530	450	260	280	320	390
700	320	620	380	490	610	530	310	330	380	460
1,000	380	740	450	590	730	630	370	390	460	550
2,500	600	1,170	710	920	1,150	1,000	590	620	720	870
5,000	850	1,650	1,000	1,310	1,620	1,410	830	870	1,020	1,230
10,000	1,200	2,330	1,410	1,840	2,290	1,990	1,170	1,230	1,440	1,730
25,000	1,860	3,660	2,210	2,890	3,610	3,130	1,820	1,910	2,260	2,710
50,000	2,550	5,140	3,050	4,040	5,060	4,370	2,490	2,640	3,180	3,780
75,000	3,020	6,250	3,650	4,880	6,140	5,280	2,950	3,140	3,860	4,550
100,000	3,370	7,150	4,110	5,560	7,030	6,020	3,280	3,530	4,420	5,170
150,000	3,820	8,620	4,770	6,620	8,460	7,180	3,700	4,060	5,340	6,120
200,000	4,020	9,780	5,190	7,420	9,590	8,060	3,870	4,360	6,060	6,820
250,000	4,010	10,740	5,420	8,040	10,510	8,750	3,820	4,470	6,670	7,330
300,000	3,790	11,550	5,490	8,520	11,280	9,290	3,550	4,420	7,180	7,700
400,000	2,450	12,830	5,150	9,130	12,480	10,000	1,930	3,780	8,000	8,070
500,000	-	13,740	4,010	9,360	13,310	10,310	-	1,740	8,600	7,990
600,000	-	14,370	-	9,220	13,840	10,240	-	-	9,040	7,460
700,000	-	14,750	-	8,700	14,110	9,800	-	-	9,320	6,360
800,000	-	14,890	-	7,720	14,120	8,930	-	-	9,470	4,270
900,000	-	14,810	-	6,080	13,890	7,470	-	-	9,500	-
1,000,000	-	14,500	-	2,740	13,390	4,940	-	-	9,400	-
1,500,000	-	8,020	-	-	2,490	-	-	-	6,560	-
1,600,000	-	3,880	-	-	-	-	-	-	5,170	-
1,700,000	-	-	-	-	-	-	-	-	2,850	-

Size of estimate	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.	Seattle-Everett, Wash.	St. Louis, Mo.-Ill.
0	90	230	1,120	210	150	240	70	240	140	230
25	90	230	1,120	210	150	240	70	240	140	230
50	90	230	1,120	210	150	240	70	240	140	230
100	100	230	1,120	210	150	240	80	240	140	230
200	140	230	1,120	210	170	240	120	240	170	230
500	220	340	1,120	320	270	350	180	350	270	340
700	250	400	1,120	380	320	410	220	410	320	400
1,000	300	480	1,120	460	390	490	260	490	380	470
2,500	480	760	1,670	720	610	780	410	780	600	750
5,000	670	1,070	2,360	1,020	860	1,090	580	1,090	850	1,060
10,000	940	1,510	3,340	1,430	1,210	1,540	800	1,540	1,190	1,500
25,000	1,450	2,350	5,280	2,230	1,870	2,410	1,220	2,410	1,880	2,360
50,000	1,940	3,260	7,460	3,080	2,560	3,350	1,590	3,350	2,620	3,310
75,000	2,220	3,910	9,120	3,670	3,030	4,020	1,770	4,020	3,170	4,020
100,000	2,390	4,410	10,520	4,120	3,370	4,550	1,810	4,540	3,620	4,610
150,000	2,420	5,140	12,840	4,730	3,800	5,330	1,520	5,320	4,320	5,560
200,000	2,060	5,630	14,790	5,080	3,970	5,870	-	5,850	4,850	6,310
250,000	890	5,920	16,480	5,220	3,900	6,220	-	6,200	5,270	6,940
300,000	-	6,050	18,000	5,160	3,610	6,420	-	6,390	5,600	7,480
400,000	-	5,850	20,670	4,400	1,790	6,400	-	6,360	6,050	8,330
500,000	-	4,970	22,970	2,000	-	5,820	-	5,740	6,260	8,960
600,000	-	2,810	25,000	-	-	4,450	-	4,300	6,260	9,410
700,000	-	-	26,840	-	-	-	-	-	6,040	9,710
800,000	-	-	28,520	-	-	-	-	-	5,580	9,870
900,000	-	-	30,060	-	-	-	-	-	4,820	9,900
1,000,000	-	-	31,480	-	-	-	-	-	3,570	9,800
1,500,000	-	-	37,290	-	-	-	-	-	-	6,860
1,600,000	-	-	38,250	-	-	-	-	-	-	5,430
1,700,000	-	-	39,150	-	-	-	-	-	-	3,060

Table A-2. Standard Errors of Estimated Number of Workers in 20 SMSA's and in the Transportation Groups: 1976

(68 chances out of 100. For meaning of symbols, see text)

Size of estimate	Standard error					
	Total, 20 SMSA's	Group A	Group B	Group C-North	Group C-South and West	Group D
0	400	1,120	360	280	230	160
25	400	1,120	360	280	230	160
50	400	1,120	360	280	230	160
100	400	1,120	360	280	230	160
200	400	1,120	360	280	230	180
500	450	1,120	430	370	340	290
700	530	1,120	510	440	400	340
1,000	630	1,120	600	530	480	410
2,500	1,000	1,670	950	830	760	640
5,000	1,420	2,360	1,350	1,180	1,070	910
10,000	2,010	3,340	1,910	1,670	1,510	1,280
25,000	3,170	5,280	3,010	2,630	2,390	2,020
50,000	4,480	7,460	4,250	3,700	3,370	2,840
75,000	5,490	9,120	5,190	4,520	4,120	3,460
100,000	6,330	10,520	5,980	5,190	4,750	3,980
150,000	7,750	12,840	7,280	6,310	5,790	4,820
200,000	8,940	14,790	8,360	7,220	6,650	5,510
250,000	9,990	16,480	9,300	8,000	7,400	6,090
300,000	10,930	18,000	10,130	8,680	8,070	6,600
400,000	12,590	20,670	11,570	9,840	9,230	7,450
500,000	14,050	22,970	12,790	10,790	10,220	8,130
600,000	15,360	25,000	13,850	11,580	11,090	8,680
700,000	16,550	26,840	14,790	12,240	11,860	9,130
800,000	17,660	28,520	15,620	12,800	12,550	9,490
900,000	18,690	30,060	16,360	13,270	13,170	9,780
1,000,000	19,660	31,480	17,030	13,650	13,740	9,980
1,500,000	23,830	37,290	19,460	14,480	15,900	10,040
2,000,000	27,220	41,550	20,750	13,670	17,220	8,340
3,000,000	32,600	46,980	20,540	1,230	17,970	-
4,000,000	36,770	49,320	16,240	-	16,380	-
5,000,000	40,110	49,010	-	-	11,510	-
8,000,000	46,740	27,910	-	-	-	-
10,000,000	49,060	-	-	-	-	-
15,000,000	48,930	-	-	-	-	-
20,000,000	39,620	-	-	-	-	-
24,000,000	18,070	-	-	-	-	-

Standard Errors for Estimated Percentage of Workers

Table A-3. Raleigh, N.C.

Base of percentage	Estimated percentage[1]					
	0 or 100	1 or 99	5 or 95	10 or 90	25 or 75	50
100	40.4	40.4	40.4	40.4	40.4	41.2
200	25.3	25.3	25.3	25.3	25.3	29.1
500	12.0	12.0	12.0	12.0	16.0	18.4
700	8.8	8.8	8.8	9.3	13.5	15.6
1,000	6.4	6.4	6.4	7.8	11.3	13.0
2,500	2.6	2.6	3.6	4.9	7.1	8.2
5,000	1.3	1.3	2.5	3.5	5.0	5.8
10,000	0.7	0.8	1.8	2.5	3.6	4.1
25,000	0.3	0.5	1.1	1.6	2.3	2.6
50,000	0.14	0.4	0.8	1.1	1.6	1.8
75,000	0.09	0.3	0.7	0.9	1.3	1.5
100,000	0.07	0.3	0.6	0.8	1.1	1.3
150,000	0.05	0.2	0.5	0.6	0.9	1.1

[1] Standard errors are presented to the nearest one-tenth of 1 percentage point except when the standard error is less than or equal to fifteen-hundredths of 1 percentage point; in those cases, the standard error is shown to the nearest one-hundredth of 1 percent.

Table A-4. Las Vegas, Nev.

Base of percentage	Estimated percentage[1]					
	0 or 100	1 or 99	5 or 95	10 or 90	25 or 75	50
100	48.1	48.1	48.1	48.1	48.1	48.2
200	31.7	31.7	31.7	31.7	31.7	34.1
500	15.7	15.7	15.7	15.7	18.7	21.5
700	11.7	11.7	11.7	11.7	15.8	18.2
1,000	8.5	8.5	8.5	9.1	13.2	15.2
2,500	3.6	3.6	4.2	5.8	8.3	9.6
5,000	1.8	1.8	3.0	4.1	5.9	6.8
10,000	0.9	1.0	2.1	2.9	4.2	4.8
25,000	0.4	0.6	1.3	1.8	2.6	3.0
50,000	0.2	0.4	0.9	1.3	1.9	2.2
75,000	0.12	0.4	0.8	1.1	1.5	1.8
100,000	0.09	0.3	0.7	0.9	1.3	1.5
150,000	0.06	0.2	0.5	0.7	1.1	1.2
200,000	0.05	0.2	0.5	0.6	0.9	1.1
250,000	0.04	0.2	0.4	0.6	0.8	1.0

[1] Standard errors are presented to the nearest one-tenth of 1 percentage point except when the standard error is less than or equal to fifteen-hundredths of 1 percentage point; in those cases, the standard error is shown to the nearest one-hundredth of 1 percent.

Standard Errors for Estimated Percentage of Workers

Table A-5. Allentown-Bethlehem-Easton, Pa.-N.J.; Grand Rapids, Mich.; Group D; Honolulu, Hawaii; Omaha, Nebr.-Iowa; and Seattle-Everett, Wash.

Base of percentage	Estimated percentage[1]					
	0 or 100	1 or 99	5 or 95	10 or 90	25 or 75	50
100	62.2	62.2	62.2	62.2	62.2	64.2
200	45.2	45.2	45.2	45.2	45.2	45.4
500	24.8	24.8	24.8	24.8	24.8	28.7
700	19.0	19.0	19.0	19.0	21.0	24.3
1,000	14.1	14.1	14.1	14.1	17.6	20.3
2,500	6.2	6.2	6.2	7.7	11.1	12.8
5,000	3.2	3.2	4.0	5.4	7.9	9.1
10,000	1.6	1.6	2.8	3.8	5.6	6.4
25,000	0.7	0.8	1.8	2.4	3.5	4.1
50,000	0.3	0.6	1.3	1.7	2.5	2.9
75,000	0.2	0.5	1.0	1.4	2.0	2.3
100,000	0.2	0.4	0.9	1.2	1.8	2.0
150,000	0.11	0.3	0.7	1.0	1.4	1.7
200,000	0.08	0.3	0.6	0.9	1.2	1.4
250,000	0.07	0.3	0.6	0.8	1.1	1.3
300,000	0.05	0.2	0.5	0.7	1.0	1.2
400,000	0.04	0.2	0.4	0.6	0.9	1.0
500,000	0.03	0.2	0.4	0.5	0.8	0.9
600,000	0.03	0.2	0.4	0.5	0.7	0.8
700,000	0.02	0.15	0.3	0.5	0.7	0.8
800,000	0.02	0.14	0.3	0.4	0.6	0.7
900,000	0.02	0.13	0.3	0.4	0.6	0.7
1,000,000	0.02	0.13	0.3	0.4	0.6	0.6
1,500,000	0.01	0.10	0.2	0.3	0.5	0.5
2,000,000	0.01	0.09	0.2	0.3	0.4	0.5

[1] Standard errors are presented to the nearest one-tenth of 1 percentage point except when the standard error is less than or equal to fifteen-hundredths of 1 percentage point; in those cases, the standard error is shown to the nearest one-hundredth of 1 percent.

Table A-6. Birmingham, Ala.; Group C-South and West; Houston, Tex.; Louisville, Ky.-Ind.; Oklahoma City, Okla.; Providence-Pawtucket-Warwick, R.I.-Mass.; Sacramento, Calif.; and St. Louis, Mo.-Ill.

Base of percentage	Estimated percentage[1]					
	0 or 100	1 or 99	5 or 95	10 or 90	25 or 75	50
200	54.7	54.7	54.7	54.7	54.7	54.9
500	32.6	32.6	32.6	32.6	32.6	34.7
700	25.7	25.7	25.7	25.7	25.7	29.4
1,000	19.5	19.5	19.5	19.5	21.3	24.6
2,500	8.8	8.8	8.8	9.3	13.5	15.5
5,000	4.6	4.6	4.8	6.6	9.5	11.0
10,000	2.4	2.4	3.4	4.7	6.7	7.8
25,000	1.0	1.0	2.1	2.9	4.3	4.9
50,000	0.5	0.7	1.5	2.1	3.0	3.5
75,000	0.3	0.6	1.2	1.7	2.5	2.8
100,000	0.2	0.5	1.1	1.5	2.1	2.5
150,000	0.2	0.4	0.9	1.2	1.7	2.0
200,000	0.12	0.3	0.8	1.0	1.5	1.7
250,000	0.10	0.3	0.7	0.9	1.3	1.6
300,000	0.08	0.3	0.6	0.9	1.2	1.4
400,000	0.06	0.2	0.5	0.7	1.1	1.2
500,000	0.05	0.2	0.5	0.7	1.0	1.1
600,000	0.04	0.2	0.4	0.6	0.9	1.0
700,000	0.03	0.2	0.4	0.6	0.8	0.9
800,000	0.03	0.2	0.4	0.5	0.8	0.9
900,000	0.03	0.2	0.4	0.5	0.7	0.8
1,000,000	0.02	0.15	0.3	0.5	0.7	0.8
1,500,000	0.02	0.13	0.3	0.4	0.5	0.6
1,600,000	0.02	0.12	0.3	0.4	0.5	0.6
1,700,000	0.01	0.12	0.3	0.4	0.5	0.6

[1] Standard errors are presented to the nearest one-tenth of 1 percentage point except when the standard error is less than or equal to fifteen-hundredths of 1 percentage point; in those cases, the standard error is shown to the nearest one-hundredth of 1 percent.

Standard Errors for Estimated Percentage of Workers

Table A-7. Group C-North and Indianapolis, Ind.

Base of percentage	Estimated percentage[1]					
	0 or 100	1 or 99	5 or 95	10 or 90	25 or 75	50
200	60.2	60.2	60.2	60.2	60.2	61.5
500	37.7	37.7	37.7	37.7	37.7	38.9
700	30.2	30.2	30.2	30.2	30.2	32.9
1,000	23.2	23.2	23.2	23.2	23.8	27.5
2,500	10.8	10.8	10.8	10.8	15.1	17.4
5,000	5.7	5.7	5.7	7.4	10.7	12.3
10,000	2.9	2.9	3.8	5.2	7.5	8.7
25,000	1.2	1.2	2.4	3.3	4.8	5.5
50,000	0.6	0.8	1.7	2.3	3.4	3.9
75,000	0.4	0.6	1.4	1.9	2.8	3.2
100,000	0.3	0.5	1.2	1.7	2.4	2.8
150,000	0.2	0.4	1.0	1.3	1.9	2.2
200,000	0.15	0.4	0.8	1.2	1.7	1.9
250,000	0.12	0.3	0.8	1.0	1.5	1.7
300,000	0.10	0.3	0.7	1.0	1.4	1.6
400,000	0.08	0.3	0.6	0.8	1.2	1.4
500,000	0.06	0.2	0.5	0.7	1.1	1.2
600,000	0.05	0.2	0.5	0.7	1.0	1.1
700,000	0.04	0.2	0.5	0.6	0.9	1.0
800,000	0.04	0.2	0.4	0.6	0.8	1.0
1,000,000	0.03	0.2	0.4	0.5	0.8	0.9
1,500,000	0.02	0.14	0.3	0.4	0.6	0.7
2,000,000	0.02	0.12	0.3	0.4	0.5	0.6
3,000,000	0.01	0.10	0.2	0.3	0.4	0.5

[1] Standard errors are presented to the nearest one-tenth of 1 percentage point except when the standard error is less than or equal to fifteen-hundredths of 1 percentage point; in those cases, the standard error is shown to the nearest one-hundredth of 1 percent.

Table A-8. Buffalo, N.Y.; Denver, Colo.; Group B; and the Group Consisting of All 20 SMSA'S

Base of percentage	Estimated percentage[1]					
	0 or 100	1 or 99	5 or 95	10 or 90	25 or 75	50
500	44.6	44.6	44.6	44.6	44.6	44.9
700	36.5	36.5	36.5	36.5	36.5	37.9
1,000	28.7	28.7	28.7	28.7	28.7	31.7
2,500	13.9	13.9	13.9	13.9	17.4	20.1
5,000	7.5	7.5	7.5	8.5	12.3	14.2
10,000	3.9	3.9	4.4	6.0	8.7	10.0
25,000	1.6	1.6	2.8	3.8	5.5	6.3
50,000	0.8	0.9	2.0	2.7	3.9	4.5
75,000	0.5	0.7	1.6	2.2	3.2	3.7
100,000	0.4	0.6	1.4	1.9	2.7	3.2
150,000	0.3	0.5	1.1	1.6	2.2	2.6
200,000	0.2	0.4	1.0	1.3	1.9	2.2
250,000	0.2	0.4	0.9	1.2	1.7	2.0
300,000	0.13	0.4	0.8	1.1	1.6	1.8
400,000	0.10	0.3	0.7	1.0	1.4	1.6
500,000	0.08	0.3	0.6	0.9	1.2	1.4
600,000	0.07	0.3	0.6	0.8	1.1	1.3
700,000	0.06	0.2	0.5	0.7	1.0	1.2
800,000	0.05	0.2	0.5	0.7	1.0	1.1
900,000	0.04	0.2	0.5	0.6	0.9	1.1
1,000,000	0.04	0.2	0.4	0.6	0.9	1.0
1,500,000	0.03	0.2	0.4	0.5	0.7	0.8
2,000,000	0.02	0.14	0.3	0.4	0.6	0.7
3,000,000	0.01	0.12	0.3	0.3	0.5	0.6
4,000,000	0.01	0.10	0.2	0.3	0.4	0.5
5,000,000	0.01	0.09	0.2	0.3	0.4	0.4
8,000,000	0.01	0.07	0.15	0.2	0.3	0.4
10,000,000	0.01	0.06	0.14	0.2	0.3	0.3
15,000,000	0.01	0.05	0.11	0.2	0.2	0.3
20,000,000	0.01	0.04	0.10	0.13	0.2	0.2
24,000,000	0.01	0.04	0.09	0.12	0.2	0.2

[1] Standard errors are presented to the nearest one-tenth of 1 percentage point except when the standard error is less than or equal to fifteen-hundredths of 1 percentage point; in those cases, the standard error is shown to the nearest one-hundredth of 1 percent.

Standard Errors for Estimated Percentage of Workers

Table A-9. Cleveland, Ohio and Baltimore, Md.

Base of percentage	Estimated percentage[1]					
	0 or 100	1 or 99	5 or 95	10 or 90	25 or 75	50
500	52.2	52.2	52.2	52.2	52.2	52.2
700	43.8	43.8	43.8	43.8	43.8	44.1
1,000	35.3	35.3	35.3	35.3	35.3	36.9
2,500	17.9	17.9	17.9	17.9	20.2	23.3
5,000	9.8	9.8	9.8	9.9	14.3	16.5
10,000	5.2	5.2	5.2	7.0	10.1	11.7
25,000	2.1	2.1	3.2	4.4	6.4	7.4
50,000	1.1	1.1	2.3	3.1	4.5	5.2
75,000	0.7	0.8	1.9	2.6	3.7	4.3
100,000	0.5	0.7	1.6	2.2	3.2	3.7
150,000	0.4	0.6	1.3	1.8	2.6	3.0
200,000	0.3	0.5	1.1	1.6	2.3	2.6
250,000	0.2	0.5	1.0	1.4	2.0	2.3
300,000	0.2	0.4	0.9	1.3	1.8	2.1
400,000	0.14	0.4	0.8	1.1	1.6	1.8
500,000	0.11	0.3	0.7	1.0	1.4	1.7
600,000	0.09	0.3	0.7	0.9	1.3	1.5
700,000	0.08	0.3	0.6	0.8	1.2	1.4
800,000	0.07	0.3	0.6	0.8	1.1	1.3
900,000	0.06	0.2	0.5	0.7	1.1	1.2
1,000,000	0.05	0.2	0.5	0.7	1.0	1.2
1,500,000	0.04	0.2	0.4	0.6	0.8	1.0
1,600,000	0.03	0.2	0.4	0.6	0.8	0.9

[1] Standard errors are presented to the nearest one-tenth of 1 percentage point except when the standard error is less than or equal to fifteen-hundredths of 1 percentage point; in those cases, the standard error is shown to the nearest one-hundredth of 1 percent.

Table A-10. New York, N.Y.

Base of percentage	Estimated percentage[1]					
	0 or 100	1 or 99	5 or 95	10 or 90	25 or 75	50
1,000	52.8	52.8	52.8	52.8	52.8	52.9
2,500	30.9	30.9	30.9	30.9	30.9	33.4
5,000	18.3	18.3	18.3	18.3	20.5	23.7
10,000	10.1	10.1	10.1	10.1	14.5	16.7
25,000	4.3	4.3	4.6	6.3	9.2	10.6
50,000	2.2	2.2	3.3	4.5	6.5	7.5
75,000	1.5	1.5	2.7	3.7	5.3	6.1
100,000	1.1	1.1	2.3	3.2	4.6	5.3
150,000	0.7	0.9	1.9	2.6	3.7	4.3
200,000	0.6	0.7	1.6	2.2	3.2	3.7
250,000	0.4	0.7	1.5	2.0	2.9	3.3
300,000	0.4	0.6	1.3	1.8	2.6	3.1
400,000	0.3	0.5	1.2	1.6	2.3	2.6
500,000	0.2	0.5	1.0	1.4	2.0	2.4
600,000	0.2	0.4	0.9	1.3	1.9	2.2
700,000	0.2	0.4	0.9	1.2	1.7	2.0
800,000	0.14	0.4	0.8	1.1	1.6	1.9
900,000	0.12	0.4	0.8	1.1	1.5	1.8
1,000,000	0.11	0.3	0.7	1.0	1.4	1.7
1,500,000	0.07	0.3	0.6	0.8	1.2	1.4
2,000,000	0.06	0.2	0.5	0.7	1.0	1.2
3,000,000	0.04	0.2	0.4	0.6	0.8	1.0
4,000,000	0.03	0.2	0.4	0.5	0.7	0.8
5,000,000	0.02	0.15	0.3	0.4	0.6	0.7
8,000,000	0.01	0.12	0.3	0.4	0.5	0.6

[1] Standard errors are presented to the nearest one-tenth of 1 percentage point except when the standard error is less than or equal to fifteen-hundredths of 1 percentage point; in those cases, the standard error is shown to the nearest one-hundredth of 1 percent.

Appendix B. Facsimile of the Travel-to-Work Supplement

↓ ~ PGM 8

Line number of worker (388) | Line number of respondent (389)

If last worker in this household, mark this box →

3a. What is . . .'s principal means of transportation to work?

(390)
1 Truck
2 Car or carpool

(391)
1 Drives alone – *Skip to 4a*
2 Shares driving
3 Drives others
4 Rides with someone else
Skip to 3c
5 Walks only – *Skip to 4a*
6 Works at home – *Skip to 8a*
7 Railroad
8 Subway or elevated
9 Bus or streetcar
10 Taxicab
11 Motorcycle
13 Bicycle
12 Other means – *Specify* _____

b. Does . . . usually ALSO use a car for part of the trip to work?

(392) 1 Yes 2 No – *Skip to 4a*

c. How many people, including . . . , usually ride in the car to work?

(393) _____ Number

4a. Does . . . usually WORK at the same location each day?

(394) 1 Yes – *Skip to 4c* 2 No

b. Does . . . usually REPORT to the same location to begin work each day?

(395) 3 Yes 4 No – *Skip to 8a*

c. (1) What is the street address at that location?
Note – If address (number and street name) are not known, enter building name, shopping center name, or other physical location description.

(2) What are the nearest intersecting streets?

(3) In what city, town, village, borough, is this located?

Place type →

(4) What is the county, State, and ZIP code?
County

State | ZIP code

(5) For whom does . . . work?
Company or business establishment name

4d. Is . . .'s place of work inside the incorporated (legal) limits of (name of city, town, village, etc., listed in 4c(3)?

(396) 1 Yes 2 No 3 Don't know

5. What time does . . . usually leave for work?

(397) _____ Time

(398) 1 a.m. 2 p.m.

6. How many minutes does it usually take . . . to get from home to work?

(399) _____ Minutes

7. How many miles does . . . usually travel from home to work?

(400) _____ Miles OR 0 Less than 1 mile

8a. In the last year, has . . . changed his principal means of transportation to work?

(401) 1 Yes 2 No – *Skip to 9*

b. What was . . .'s principal means of transportation to work (prior to the change)?

(402)
1 Truck
2 Car or carpool

(403)
1 Drove alone
2 Shared driving
3 Drove others
4 Rode with someone else
5 Walked only
6 Worked at home
7 Railroad
8 Subway or elevated
9 Bus or streetcar
10 Taxicab
11 Motorcycle
13 Bicycle
12 Other means – *Specify* _____

9. If "Yes" marked in 8a – *ASK* Compared to . . .'s previous means of transportation to work (Given in 8b), how satisfied is . . . with his present means of transportation to work – much more, more, about the same, less or much less satisfied?

If "No" marked in 8a – *ASK* Compared to a year ago, how satisfied is . . . now with his principal means of transportation to work – much more, more, about the same, less or much less satisfied?

(404)
1 Much more satisfied
2 More satisfied
3 About the same satisfaction
4 Less satisfied
5 Much less satisfied
6 Don't know
7 Did not work last year

INTERVIEWER

Go to Check Item A, page 39 for the HEAD.
OR
If last worker, go to item I, Section IV.

FORM AHS-52 (10-31-75)

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Official Business
Penalty for Private Use, $300

FIRST-CLASS MAIL
POSTAGE & FEES PAID
CENSUS
PERMIT No. G–58