

# Public Transportation: Solving the Commuting Problem?

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In this paper journey-to-work data from the 1980 census are used to provide a perspective on how well public transportation is coping with the increasing spatial complexity of metropolitan communities. The data show that about 6 percent of all workers in the United States used some form of public transportation to commute to work. Most commuter use of public transit occurred in the Northeast. Transit use among workers was lowest in the South. About 67 percent of all workers who used public transportation lived in the central city of a metropolitan area. The number of workers who use public transportation to commute to work in the United States dropped by about 487,000 between 1970 and 1980—a decline of approximately 7 percent. Significant declines in transit use occurred in each region except the West. The Northeast experienced the most drastic decline—about 596,000 workers or 17 percent. In contrast, about 378,000 more workers used public transportation in the West in 1980 than in 1970, an increase of 67 percent. The decline in commuter use of public transportation is closely associated with the movement of people and jobs to places where public transportation is not available or easily accessible. The continued shift of the population from the North to the South and West means that the public transportation market is moving from regions that have the most transit service to regions that have the least. Furthermore, the nonmetropolitan sector of the country, where public transit is virtually nonexistent, is growing faster than metropolitan areas. Finally, in recent years within metropolitan areas, the suburbs have far surpassed the central cities in population growth. Many large central cities, where transit is concentrated, have experienced losses of population. In addition, increasing suburbanization of employment and population has resulted in a predominance of lateral commuting in large metropolitan areas—intersuburban work trips for which public transportation is not well acclimated.

Advances in transportation technology have played an integral part in the growth of U.S. cities. During the last half of the 19th century, the horse-drawn street railway allowed dense industrial cities to expand their radius of urban settlement into previously inaccessible territory. The spatial growth of urban centers was further accelerated by the appearance of the electric street railway in the 1890s. The streetcar increased the commuting distance from the commercial and industrial core of the city dramatically. More and more new residences were built in outlying areas, and industries cramped for space in the central business district found relocation to the city's periphery to be an attractive alternative to the congestion that surrounded them.

The appearance of the automobile around the turn of the century marked the evolution from city growth to metropolitan development. In 1900 about 8,000 cars were registered in the United States. By 1925 that number had risen to more than 17 million. The speed and flexibility of the automobile, coupled with the construction of roads and highways to accommodate it, dramatically altered the spatial scale of urban regions through increased accessibility. Deconcentration, both in terms of suburban population growth and the relocation of industries outside the urban center, has typified most of this century, especially the period since World War II. Today the benefits of close urban association no longer depend on proximity but on the automobile, the telephone, and the computer. Advances in personal transportation and communication technology have given rise to the sprawling, postindustrial metropolitan community.

Data from the 1980 census are used to provide a perspective on how well mass transit is coping with the complexity of large metropolitan areas. Trends in commuting patterns are examined and analyzed in the context of changes in population distribution and the location of employment.

Data from the decennial census on means of transportation to work refer to the principal mode of travel that the respondent usually used to get from

home to work during the week before enumeration. Persons who used different means of transportation on different days of the week were asked to specify the one they used most often. Persons who used more than one means of transportation to get to work each day were asked to report the one used for the longest distance during the work trip. Census data do not reflect total transit ridership or total trips.

## COMMUTER USE OF PUBLIC TRANSPORTATION IN UNITED STATES

Final results from the decennial census indicate that 6 million people, (about 6 percent of all workers in the United States) used some form of public transportation to get to work in 1980 [Table 1 (1)]. The majority of Americans (about 84 percent) used a car, truck, or van. Almost two-thirds of all workers drove to work alone and approximately 20 percent rode in carpools.

Most commuter use of public transportation occurred in the Northeast, where transit is most widely available [Table 2 (1)]. About 14 percent of all workers in that region in 1980 used public transportation compared with about 5 percent of the workers in both the North Central region and the West and about 3 percent of the workers living in the South.

The extent to which public transportation is concentrated in the Northeast is further emphasized by examining the proportion of the nation's transit use that is attributable to each region. Table 2 demonstrates that nearly half of all commuter use of public transportation occurred in the Northeast. Actually the Northeast accounted for more than twice as much transit use as the North Central States and the South and about three times that of the West. Although the West accounted for a smaller proportion of the nation's public transportation users than the South, the rate of transit use was significantly higher in the West. The ratio of the South's share of all public transit riders to its share of the total work force (0.51) indicates that it had the lowest rate of transit use among the four regions.

Public transportation is also used predominantly by workers who live in the central cities of metropolitan areas [Table 3 (1)]. About 67 percent of the workers who used public transit in 1980 lived in a central city of a standard metropolitan statistical area (SMSA), 30 percent of all transit users lived in the suburbs of an SMSA, and only about 3 percent of the workers who used public transporta-

Table 1. Principal means of transportation to work, 1980.

Means of Transportation	Number (000s)	Percent
All workers	96,617	100.0
Car, truck, or van	81,258	84.1
Drive alone	62,193	64.4
Carpool	19,065	19.7
Public transportation <sup>a</sup>	6,175	6.4
Walked only	5,413	5.6
Other means	1,591	1.6
Worked at home	2,180	2.3

Note: Column totals may differ due to rounding. Workers are 16 years and older.

<sup>a</sup>Category includes bus or streetcar, subway or elevated, railroad, and taxicab.

Table 2. Workers using public transportation by region, 1980.

Region	All Workers in United States		Workers Using Public Transportation <sup>a</sup>			Ratio of Percentage of U.S. Public Transportation Users to Percentage of U.S. Workers
	Number (000s)	Percent	Number (000s)	Percentage of All Workers	Percentage of U.S. Total	
Northeast	20,922	21.7	2,973	14.2	48.1	2.22
North Central	24,936	25.8	1,222	4.9	19.8	0.77
South	31,742	32.9	1,036	3.3	16.8	0.51
West	19,018	19.7	945	5.0	15.3	0.78
United States	96,618	100.0	6,176	6.4	100.0	1.00

Note: Column totals may differ due to rounding. Workers are 16 years and older.

<sup>a</sup>Category includes bus or streetcar, subway or elevated, railroad, and taxicab.

Table 3. Workers using public transportation by type of residence, 1980.

Region	All Workers Using Public Transportation <sup>a</sup>		Inside SMSAs							
			Total		Inside Central Cities		Outside Central Cities		Outside SMSAs	
	Number (000s)	Percent	Number (000s)	Percent	Number (000s)	Percent	Number (000s)	Percent	Number (000s)	Percent
Northeast	2,973	100.0	2,936	98.8	2,133	71.8	803	27.0	36	1.2
North Central	1,222	100.0	1,189	97.3	818	66.9	372	30.4	33	2.7
South	1,036	100.0	963	93.0	643	62.1	320	30.9	73	7.0
West	945	100.0	909	96.2	563	59.6	345	36.6	36	3.8
United States	6,175	100.0	5,997	97.1	4,157	67.3	1,840	29.8	178	2.9

Note: Column totals may differ due to rounding. Workers are 16 years and older.

<sup>a</sup>Category includes bus or streetcar, subway or elevated, railroad, and taxicab.

tion lived in nonmetropolitan territory. Transit use was notably higher than the national average in the central cities of the Northeast (72 percent), in the suburbs of the West (37 percent), and in the nonmetropolitan sector of the South (7 percent).

#### CHANGE IN COMMUTER USE OF PUBLIC TRANSPORTATION: 1970 TO 1980

Table 4 (1-4) presents changes in the use of public transportation that have taken place between 1970 and 1980 in the United States, the four regions, and in each SMSA that has a population of 1 million or more. The number of workers using public transportation to get to work dropped by about 487,000 between 1970 and 1980--a decline of approximately 7 percent. In 1970 about 9 percent of all workers used public transit compared with about 6 percent in 1980.

Significant declines in transit use occurred in each region except the West. The Northeast had the most drastic decline--about 596,000 workers or 17 percent. Use of public transportation declined by about 13 percent in the North Central region and by 7 percent in the South. In marked contrast with the other regions, commuter use of transit increased substantially in the West during the decade. About 378,000 more workers used public transportation in the West in 1980 than in 1970--an increase of 67 percent.

Public transit use in all of the large metropolitan areas in the Northeast declined between 1970 and 1980; in most cases quite substantially. The largest absolute decline (about 355,000 workers) occurred in the New York SMSA. Each of the large SMSAs in the North Central region also experienced an absolute decline, with the exception of Minneapolis-St. Paul. The number of workers using public transportation in the Twin Cities area grew by about 24,000--an increase of 36 percent. Furthermore,

transit maintained its share of the region's commuter travel market at about 8.5 percent.

Transit use in the South increased in all but three of the large SMSAs (Baltimore, Tampa-St. Petersburg, and New Orleans). Washington, D.C., and Atlanta showed the largest gains of 38,000 and 17,000 riders, respectively. Yet, in every metropolitan area that experienced a numerical increase in public transportation use, the share of the labor force using transit actually decreased. Commuter use of public transit declined by 21,000 workers in the New Orleans SMSA and by about 13,000 workers in the Baltimore SMSA.

Dramatic increases in public transportation ridership occurred in all the large SMSAs in the West except San Diego. In San Diego the number of workers using transit increased by 21 percent, but transit's share of the market declined from 4.3 percent to 3.3 percent. The two most populous areas, Los Angeles-Long Beach and San Francisco-Oakland, both showed healthy increases in transit use, and in six other areas the number of workers using public transportation more than doubled during the decade.

The nation's large SMSAs, taken as a group, accounted for about 81 percent of all commuter use of public transportation in the United States in 1980 [Table 5 (1)]. New York alone accounted for about 28 percent of the national total; Chicago was a distant second at about 9 percent. Chicago, in turn, had more than twice as many commuters using public transit as the Philadelphia SMSA, the third-ranked area. The top six SMSAs, ranked on the basis of the number of workers that use mass transit to get to work, contained more than half of all transit commuters in the United States.

If New York is excluded from the analysis, the census results show that the number of workers using public transportation elsewhere in the country dropped by about 132,000 workers between 1970 and 1980--a decline of approximately 3 percent. Exclud-

Table 4. Workers using public transportation for regions and SMSAs of 1 million or more, 1980 and 1970.

SMSA by Region	Number of Workers Using Public Transportation <sup>a</sup> (000s)		Change, 1970 to 1980		Percentage of Workers Using Public Transportation <sup>a</sup>	
	1980	1970	Number (000s)	Percent	1980	1970
Northeast	2,973	3,569	-596	-16.7	14.2	19.1
New York, N.Y.-N.J.	1,711	2,067	-355	-17.2	45.1	52.5
Philadelphia, Pa.-N.J.	275	383	-108	-28.1	14.0	20.7
Boston, Mass.	204	224	-19	-8.7	15.6	19.7
Nassau-Suffolk, N.Y.	142	145	-3	-1.7	12.5	15.5
Pittsburgh, Pa.	105	123	-18	-14.9	11.5	14.6
Newark, N.J.	94	143	-49	-34.4	10.7	17.4
Buffalo, N.Y.	33	52	-19	-36.3	6.6	10.5
North Central	1,222	1,409	-187	-13.3	4.9	6.7
Chicago, Ill.	568	650	-82	-12.6	18.0	23.3
Detroit, Mich.	64	125	-61	-49.0	3.7	7.9
St. Louis, Mo.-Ill.	57	71	-14	-19.5	5.7	8.0
Minneapolis-St. Paul, Minn.-Wis.	91	67	24	35.8	8.7	8.5
Cleveland, Ohio	87	107	-20	-18.9	10.6	13.4
Cincinnati, Ohio-Ky.-Ind.	38	42	-4	-8.8	6.5	8.3
Milwaukee, Wis.	49	67	-18	-26.2	7.7	12.0
Kansas City, Mo.-Kans.	25	28	-3	-10.1	4.1	5.4
Indianapolis, Ind.	17	25	-8	-32.9	3.2	5.8
Columbus, Ohio	23	29	-6	-21.9	4.6	7.4
South	1,036	1,117	-82	-7.3	3.3	5.0
Washington, D.C.-Md.-Va.	241	203	38	18.5	15.5	16.3
Dallas-Fort Worth, Tex.	50	50	1	1.4	3.4	5.1
Houston, Tex.	43	42	1	2.4	3.0	5.4
Baltimore, Md.	99	113	-13	-11.8	10.3	13.8
Atlanta, Ga.	72	55	17	30.4	7.6	8.4
Miami, Fla.	48	46	3	5.9	6.6	9.1
Tampa-St. Petersburg, Fla.	11	11	<sup>b</sup>	-1.9	1.8	3.0
New Orleans, La.	53	74	-21	-28.4	10.9	20.4
San Antonio, Tex.	21	18	2	11.6	4.6	5.6
Ft. Lauderdale-Hollywood, Fla.	8	5	4	84.7	2.0	2.1
West	945	567	378	66.6	5.0	4.6
Los Angeles-Long Beach, Calif.	235	154	81	52.5	7.0	5.6
San Francisco-Oakland, Calif.	256	194	63	32.3	16.4	15.5
Anaheim-Santa Ana-Garden Grove, Calif.	20	2	18	764.6	2.1	0.4
San Diego, Calif.	28	23	5	20.8	3.3	4.3
Denver-Boulder, Colo.	50	22	28	129.2	6.1	4.4
Seattle-Everett, Wash.	74	38	36	94.4	9.6	7.1
Riverside-San Bernardino-Ontario, Calif.	6	3	2	64.5	0.9	0.9
Phoenix, Ariz.	13	5	9	188.8	2.0	1.3
San Jose, Calif.	20	9	11	118.0	3.1	2.3
Portland, Oreg.-Wash.	48	23	24	104.3	8.4	6.0
Sacramento, Calif.	15	7	9	124.8	3.5	2.3
United States	6,175	6,662	-487	-7.3	6.4	9.0

Note: Column totals may differ due to rounding. Workers are 16 years and older.

<sup>a</sup>Category includes bus or streetcar, subway or elevated, railroad, and taxicab.

<sup>b</sup>Less than 500.

ing New York, Philadelphia, and Chicago (SMSAs that lost a combined total of 545,000 transit commuters during the decade), the number of workers using public transit elsewhere increased by about 57,000 workers from 1970 to 1980--an increase of only about 2 percent. Transit's overall share of the commuter market with these three SMSAs omitted declined from 5.4 percent in 1970 to 4.1 percent in 1980.

Analysis

The changes that occurred during the decade 1970 to 1980 in the use of public transportation for commuting to work appear to be closely associated with changes in population distribution, shifts in the location of employment, and the types of commuting patterns that result from these spatial modifications. People and jobs are moving to places where, historically, public transportation has either not been available or has not been accessible. Trends in transit use, in large measure, reflect the extent to which transit service has adapted to these changes.

Changes in Population Distribution

The continuing shift of the population from the

North to the South and West means that, as a whole, the public transportation market is moving from regions of the country that have the most transit service to those that have the least [Table 6 (5)]. The population in the West and South grew between 1970 and 1980 by about 24 percent and 20 percent, respectively; however, in the North Central States the population grew by only 4 percent and in the Northeast the population grew by a mere 0.2 percent. Also, from 1970 to 1980 population in the nonmetropolitan sector of the nation, where public transit is virtually nonexistent, grew at the expense of metropolitan areas. The population outside SMSAs grew by about 15 percent, compared with a 10 percent growth rate within SMSAs. Moreover, large SMSAs in the South and West, which typically have less-developed transit systems, grew much faster than those in the Northeast and North Central regions, where many transit-oriented SMSAs actually suffered a decrease in their populations.

Changes in population distribution at the local level appear to have the greatest effect on public transportation ridership. Within SMSAs suburban population growth far surpassed that of the central cities. In the Northeast and North Central regions central cities lost population and the suburbs grew moderately. In the South and West rapid suburban

population growth outpaced that of the central cities. Thus, the population balance moved increasingly away from the metropolitan core, where the most mass transit service is available, and toward the suburban fringe, where less public transportation is provided. Table 7 (1-4) compares the population changes that occurred between 1970 and 1980 with changes in commuter use of public transportation for each SMSA of 1 million or more.

In the Northeast SMSAs public transportation use declined in both the central cities and suburbs of every large metropolitan area. Central cities lost

a greater proportion of their ridership than did the suburbs in each SMSA. These trends closely parallel the demographic shifts that occurred during the decade, with the central cities experiencing a substantial loss of population. Viewed in this context, the decline in transit ridership in these areas is not surprising.

Most of the large SMSAs in the North Central region exhibited the same pattern as those in the Northeast; i.e., a decline in public transportation use in both the central cities and the suburbs. Again, the decline in transit use in the central

Table 5. Rank of SMSAs of 1 million or more population by number of workers that use public transportation, 1980.

SMSA	All Workers (000s)	Workers Using Public Transportation <sup>a</sup>			Rank
		Number (000s)	Percentage of All Workers	Percentage of U.S. Total	
New York, N.Y.-N.J.	3,792	1,711	45.1	27.7	1
Chicago, Ill.	3,163	568	18.0	9.2	2
Philadelphia, Pa.-N.J.	1,959	275	14.0	4.5	3
San Francisco-Oakland, Calif.	1,562	256	16.4	4.2	4
Washington, D.C.-Md.-Va.	1,553	241	15.5	3.9	5
Los Angeles-Long Beach, Calif.	3,374	235	7.0	3.8	6
Boston, Mass.	1,308	204	15.6	3.3	7
Nassau-Suffolk, N.Y.	1,140	142	12.5	2.3	8
Pittsburgh, Pa.	912	105	11.5	1.7	9
Baltimore, Md.	967	99	10.3	1.6	10
Newark, N.J.	879	94	10.7	1.5	11
Minneapolis-St. Paul, Minn.-Wis.	1,046	91	8.7	1.5	12
Cleveland, Ohio	820	87	10.6	1.4	13
Seattle-Everett, Wash.	776	74	9.6	1.2	14
Atlanta, Ga.	948	72	7.6	1.2	15
Detroit, Mich.	1,710	64	3.7	1.0	16
St. Louis, Mo.-Ill.	1,004	57	5.7	0.9	17
New Orleans, La.	485	53	10.9	0.9	18
Dallas-Fort Worth, Tex.	1,465	50	3.4	0.8	19
Denver-Boulder, Colo.	809	50	6.1	0.8	20
Milwaukee, Wis.	642	49	7.7	0.8	21
Miami, Fla.	726	48	6.6	0.8	22
Portland, Oreg.-Wash.	568	48	8.4	0.8	23
Houston, Tex.	1,415	43	3.0	0.7	24
Cincinnati, Ohio-Ky.-Ind.	588	38	6.5	0.6	25
Buffalo, N.Y.	500	33	6.6	0.5	26
San Diego, Calif.	855	28	3.3	0.5	27
Kansas City, Mo.-Kans.	618	25	4.1	0.4	28
Columbus, Ohio	488	23	4.6	0.4	29
San Antonio, Tex.	450	21	4.6	0.3	30
San Jose, Calif.	650	20	3.1	0.3	31
Anaheim-Santa Ana-Garden Grove, Calif.	962	20	2.1	0.3	32
Indianapolis, Ind.	523	17	3.2	0.3	33
Sacramento, Calif.	435	15	3.5	0.2	34
Phoenix, Ariz.	659	13	2.0	0.2	35
Tampa-St. Petersburg, Fla.	606	11	1.8	0.2	36
Fort Lauderdale-Hollywood, Fla.	424	8	2.0	0.1	37
Riverside-San Bernardino-Ontario, Calif.	614	6	0.9	0.1	38
All SMSAs of 1 million or more	41,397	4,995	12.1	80.9	
Elsewhere	55,220	1,180	2.1	19.1	
U.S. Total	96,617	6,175	6.4	100.0	

Note: Column totals may differ due to rounding. Workers are 16 years and older.

<sup>a</sup>Category includes bus or streetcar, subway or elevated, railroad, and taxicab.

Table 6. Change in workers that use public transportation and change in population for regions by type of residence, 1970 to 1980.

Region	Percentage Change in Workers Using Public Transportation <sup>a</sup>	Percentage Change in Population, 1970 to 1980				
		Total	Inside SMSAs			Outside SMSAs
			Total	Inside Central Cities	Outside Central Cities	
Northeast	-16.7	0.2	-1.9	-10.5	4.3	13.5
North Central	-13.3	4.0	2.7	-9.2	12.0	7.4
South	-7.3	20.0	21.4	8.7	32.9	17.1
West	66.6	23.9	22.6	15.3	28.0	30.6
United States	-7.3	11.4	10.2	0.1	18.2	15.1

<sup>a</sup>Includes bus or streetcar, subway or elevated, railroad, and taxicab.

Table 7. Change in workers that use public transportation and change in population for SMSAs of 1 million or more by region and type of residence, 1970 to 1980.

SMSA	Number of Workers Using Public Transportation <sup>a</sup> (000s)		Change in Workers Using Public Transportation, 1970 to 1980		Percentage Change in Population, 1970 to 1980	SMSA	Number of Workers Using Public Transportation <sup>a</sup> (000s)		Change in Workers Using Public Transportation, 1970 to 1980		Percentage Change in Population, 1970 to 1980
	1980	1970	Number (000s)	Percent			1980	1970	Number (000s)	Percent	
<b>Northeast</b>						<b>South (continued)</b>					
New York, N.Y.-N.J.	1,711	2,067	-355	-17.2	-8.6	Houston, Tex.	43	42	1	2.4	45.3
Inside central city	1,597	1,915	-338	-17.6	-10.4	Inside central city	38	39	-1	-2.4	29.2
Outside central city	134	152	-18	-11.7	-1.4	Outside central city	5	3	2	72.5	71.2
Philadelphia, Pa.-N.J.	275	383	-108	-28.1	-2.2	Baltimore, Md.	99	113	-13	-11.8	5.0
Inside central city	183	274	-91	-33.0	-13.4	Inside central city	75	92	-17	-18.5	-13.1
Outside central city	92	109	-17	-15.8	5.4	Outside central city	24	20	4	18.4	19.1
Boston, Mass.	204	224	-19	-8.7	-4.7	Atlanta, Ga.	72	55	17	30.4	27.2
Inside central city	84	102	-17	-17.1	-12.2	Inside central city	42	43	-2	-3.7	-14.1
Outside central city	120	122	-2	-1.7	-2.6	Outside central city	30	12	18	156.4	45.8
Nassau-Suffolk, N.Y.	142	145	-3	-1.7	2.0	Miami, Fla.	48	46	3	5.9	28.3
Inside central city	...	...	...	...	...	Inside central city	21	25	-4	-14.4	3.6
Outside central city	142	145	-3	-1.7	2.0	Outside central city	27	21	6	29.8	37.1
Pittsburgh, Pa.	105	123	-18	-14.9	-5.7	Tampa-St. Petersburg, Fla.	11	11	<sup>b</sup>	-1.9	44.2
Inside central city	47	55	-9	-15.7	-18.5	Inside central city	7	9	-2	-20.6	2.9
Outside central city	58	68	-10	-14.3	-2.2	Outside central city	4	2	2	75.5	78.4
Newark, N.J.	94	143	-49	-34.4	-4.5	New Orleans, La.	53	74	-21	-28.4	13.4
Inside central city	28	49	-22	-43.9	-13.8	Inside central city	45	64	-19	-29.8	-6.1
Outside central city	66	94	-27	-29.4	-2.4	Outside central city	8	10	-2	-20.0	38.9
Buffalo, N.Y.	33	52	-19	-36.3	-7.9	San Antonio, Tex.	21	18	2	11.9	20.7
Inside central city	22	36	-14	-40.0	-22.7	Inside central city	19	17	2	10.5	20.1
Outside central city	11	16	-5	-28.6	-0.2	Outside central city	2	1	<sup>b</sup>	27.9	22.4
<b>North Central</b>						Fort Lauderdale-Hollywood, Fla.	8	5	4	84.7	63.5
Chicago, Ill.	568	650	-82	-12.6	1.8	Inside central city	4	3	1	47.8	9.7
Inside central city	386	484	-98	-20.2	-10.8	Outside central city	5	2	3	131.6	99.0
Outside central city	183	167	-16	-9.7	13.6	<b>West</b>					
Detroit, Mich.	64	125	-61	-49.0	-1.9	Los Angeles-Long Beach, Calif.	235	154	81	52.5	6.2
Inside central city	44	98	-54	-55.1	-20.5	Inside central city	156	111	45	40.0	5.0
Outside central city	20	27	-7	-26.3	7.8	Outside central city	79	43	36	85.0	7.2
St. Louis, Mo.-Ill.	57	71	-14	-19.5	-2.3	San Francisco-Oakland, Calif.	256	194	63	32.3	4.6
Inside central city	31	48	-16	-34.2	-27.2	Inside central city	160	137	23	16.8	-5.5
Outside central city	26	24	2	10.0	6.3	Outside central city	97	57	40	69.4	10.0
Minneapolis-St. Paul, Minn.-Wis.	91	67	24	35.8	7.6	Anaheim-Santa Ana-Garden Grove, Calif.	20	2	18	764.6	35.9
Inside central city	59	53	6	10.7	-13.9	Inside central city	7	1	6	738.9	23.8
Outside central city	32	13	18	134.7	20.6	Outside central city	13	1	12	778.6	41.4
Cleveland, Ohio	87	107	-20	-18.9	-8.0	San Diego, Calif.	28	23	5	20.8	37.1
Inside central city	40	61	-21	-34.3	-23.6	Inside central city	18	16	3	16.6	25.5
Outside central city	46	45	1	1.9	0.9	Outside central city	10	8	2	29.2	49.4
Cincinnati, Ohio-Ky.-Ind.	38	42	-4	-8.8	1.0	Denver-Boulder, Colo.	50	22	28	129.2	30.7
Inside central city	23	26	-3	-11.3	-15.0	Inside central city	29	18	11	62.5	-2.3
Outside central city	15	16	-1	-4.8	8.8	Outside central city	21	4	17	430.3	59.9
Milwaukee, Wis.	49	67	-18	-26.2	-0.5	Seattle-Everett, Wash.	74	38	36	94.4	12.8
Inside central city	39	56	-17	-29.6	-11.3	Inside central city	49	33	15	45.8	-6.2
Outside central city	10	11	-1	-8.9	10.8	Outside central city	26	5	21	421.3	26.0
Kansas City, Mo.-Kans.	25	28	-3	-10.1	4.2	Riverside-San Bernardino-Ontario, Calif.	6	3	2	64.5	36.7
Inside central city	19	22	-2	-11.2	-11.7	Inside central city	2	1	1	48.0	21.4
Outside central city	6	6	<sup>b</sup>	-6.4	14.6	Outside central city	3	2	1	77.4	42.4
Indianapolis, Ind.	17	25	-8	-32.9	5.0	Phoenix, Ariz.	13	5	9	188.8	55.3
Inside central city	16	23	-8	-32.7	-4.9	Inside central city	10	4	6	155.0	30.9
Outside central city	1	2	-1	-36.1	24.5	Outside central city	3	1	3	378.0	92.1
Columbus, Ohio	23	29	-6	-21.9	7.4	San Jose, Calif.	20	9	11	118.0	21.6
Inside central city	18	25	-6	-25.7	4.6	Inside central city	10	3	7	204.5	38.4
Outside central city	4	4	<sup>b</sup>	-0.4	10.6	Outside central city	10	6	4	69.8	8.8
<b>South</b>						Portland, Oreg.-Wash.	48	23	24	104.3	23.3
Washington, D.C.-Md.-Va.	241	203	38	18.5	5.2	Inside central city	27	17	10	59.1	-3.6
Inside central city	112	126	-14	-11.1	-15.7	Outside central city	21	6	14	222.4	39.6
Outside central city	129	77	52	66.9	12.5	Sacramento, Calif.	15	7	9	124.8	26.2
Dallas-Forth Worth, Tex.	50	50	1	1.4	25.1	Inside central city	6	5	1	14.4	7.2
Inside central city	44	45	-1	-2.9	4.1	Outside central city	9	2	8	464.1	35.0
Outside central city	6	4	2	50.2	47.9						

Note: Column totals may differ due to rounding. Workers are 16 years and older.  
<sup>a</sup>Includes bus or streetcar, subway or elevated, railroad, and taxicab.  
<sup>b</sup>Less than 500.

city appears to be closely associated with a significant loss of population. The striking exception to the rule among large SMSAs in the North Central region (and in the entire northern United States) is Minneapolis-St. Paul, where transit use increased by 36 percent between 1970 and 1980. Most of the growth took place in the suburbs, where the number of commuters using public transportation more than doubled (an increase of about 18,000 workers). The Twin Cities area experienced a sizable growth in its suburban population, which partly accounts for this increase in the number of transit users. In addition, according to planners in the region, the suburbanization was accompanied by an aggressive public transportation program in that sector. Frequency and coverage of transit service within the suburbs were expanded significantly to give commuters an alternative to their automobiles. Intersuburban express-bus service was developed, and special transit programs for the elderly and handicapped were introduced. Fares were also kept constant throughout most of the decade to encourage transit ridership; however, the subsidy levels required to maintain low fares increased markedly during the 10-year period.

In the South, with the exception of the San Antonio, Ft. Lauderdale-Hollywood, and New Orleans SMSAs, every large metropolitan area experienced a decline in transit use in the central city and a corresponding increase in transit use in the suburbs. These areas also showed a decline in their central city populations and growth in the population in the suburbs. In the Washington, D.C., area, where the new Metro rail system began operating during the decade, a substantial increase of almost 52,000 workers using transit in the suburbs offset what appears to have been a market-related decrease in central city ridership. This gave the area an overall 19 percent rise in use of mass transit by commuters. Similarly, in the Atlanta area, where the Metropolitan Atlanta Rapid Transit Authority (MARTA) brought a large influx of additional suburban bus routes coupled with rail service, suburban transit use increased more than twofold and commuting by public transportation increased by 30 percent.

In San Antonio, where population increased rapidly in both the central city and the suburbs, and in Ft. Lauderdale-Hollywood, where suburban population nearly doubled during the decade, only small increases in transit use occurred. Other rapidly growing areas with limited mass transit service--Dallas-Ft. Worth, Houston, and Tampa-St. Petersburg--also showed little or no growth in transit use. In the New Orleans area the population shifted from the central city to the suburbs, and a decline in transit use was experienced in both geographic sectors.

Finally, in the West, where commuter use of public transportation increased substantially, each of the large SMSAs (with the exception of San Jose) experienced a proportionately greater increase in transit use in the suburbs than in the central cities. San Jose, with central city growth due to population increase and annexation, had a higher rate of transit growth in the central city than in the suburbs. The changes in the other SMSAs generally appear to be associated with large increases in suburban population. Additional explanations offered by planners in the various localities include expansion of bus service in the suburbs in response to population shifts, modification of routes to accommodate changing commuting patterns, higher vehicle productivity, and readily available funding for system development and fare subsidies.

Although they each lost central city population during the decade, the Denver-Boulder, Seattle-

Everett, Portland, and San Francisco-Oakland SMSAs all showed substantial gains in transit use in the central city in addition to increases in the suburbs. Even the Los Angeles-Long Beach metropolitan area, so often maligned for its automobile orientation, had an increase of about 81,000 workers using public transportation, which represents an increase of 53 percent in regionwide transit use during the decade.

#### Changes in Location of Employment and Commuting Patterns

Another factor that is associated with the commuter use of public transportation is shifts in the location of employment. Deconcentration of industry into the suburbs has continued for most of this century, especially since World War II. Suburbanization of employment, coupled with an increasingly large proportion of the population residing outside central cities, is changing the nature of commuting patterns within the metropolitan areas of the United States.

The majority of workers are now lateral commuters; i.e., they both live and work in the suburbs. The Census Bureau's last national study of commuting (6) reported that about 18 million workers lived and worked in the suburbs, about 16 million lived and worked within central cities, and about 9 million lived in the suburbs and commuted to the city to work. Another 4 million workers were reverse commuters, living in the central city and commuting to a job in the suburbs. Why are these differentials important? Because most public transportation is not geared to intersuburban travel. The traditional function of public transportation has been to move people within the congestion of the city and to get suburban residents downtown and back. Table 8 (6) shows that in 1975 about 16 percent of all workers who lived and worked within an SMSA central city and about 10 percent of those who commuted from the suburbs to the city used public transportation to get to work. In contrast, only about 2 percent of the intersuburban commuters used transit.

Detailed place-of-work data from the 1980 census are not yet available, but findings from journey-to-work surveys conducted by the Census Bureau for the U.S. Department of Transportation during the 1970s provide evidence of the trends that have occurred in commuting patterns among the nation's large metropolitan areas (Tables 9-11). The first two columns of the tables show that the proportion of workers who live and work within the central city (those who have the highest rate of transit use) has decreased between 1970 and the most recent survey in every

Table 8. Workers in metropolitan commuting flows by public transportation use, 1975.

Commuting Flow	All Workers (000s)	Workers Using Public Transportation <sup>a</sup>	
		Number (000s)	Percent
Living in SMSA central cities			
Working in central city of same SMSA	16,338	2,674	16.4
Working in same SMSA, outside central cities	3,724	209	5.6
Living in SMSA outside central cities			
Working in central city of same SMSA	8,932	862	9.7
Working in same SMSA, outside central cities	18,001	318	1.8

Note: Column totals may differ due to rounding. Workers are 14 years and older.

<sup>a</sup>Includes bus or streetcar, subway or elevated, railroad, and taxicab.

**Table 9. Percentage of resident workers in selected commuting flows and percentage of resident workers working outside central cities for selected SMSAs, 1977 and 1970.**

Survey Group <sup>a</sup>	SMSA Resident Workers Who Live and Work Inside Central Cities (%)		SMSA Resident Workers Who Live and Work Outside Central Cities (%)		SMSA Resident Workers Who Work Outside Central Cities (%)	
	1977	1970	1977	1970	1977	1970
Los Angeles-Long Beach, Calif.	31.8	33.0	38.9	35.8	50.3	47.4
Detroit, Mich.	17.5	22.4	56.9	48.6	66.7	59.9
Dallas-Forth Worth, Tex. <sup>b</sup>	38.7	44.0	27.1	25.7	34.3	33.6
Boston, Mass.	16.1	17.1	56.3	54.3	61.4	59.1
Pittsburgh, Pa.	13.6	17.2	63.8	57.6	68.2	62.0
Minneapolis-St. Paul, Minn.	23.3	33.5	44.9	32.3	53.3	40.5
Newark, N.J.	6.6	9.7	59.1	55.8	63.0	60.6
Anaheim-Santa Ana-Garden Grove, Calif.	13.2	15.5	40.2	34.9	52.1	44.5
Phoenix, Ariz.	44.9	53.0	28.5	24.2	38.1	33.0

Notes: Workers 14 years and older.  
 SMSAs listed within survey group by population size.  
 SMSA definition is as of the 1970 census.  
 Data are from the Journey-to-Work Supplement to the Annual Housing Survey; various reports; the Census of Population and Housing, 1970; and Census Tracts series reports.

<sup>a</sup> Among the SMSAs of 1 million or more in 1980, Tampa-St. Petersburg, Ft. Lauderdale-Hollywood, and San Jose were not surveyed. Also, the Nassau-Suffolk SMSA was part of the New York SMSA in 1970, and other SMSAs have changed their definitions since 1970.  
<sup>b</sup> Data for the 1970 Dallas and Fort Worth SMSAs are combined.

**Table 10. Percentage of resident workers in selected commuting flows and percentage of resident workers working outside central cities for selected SMSAs, 1976 and 1970.**

Survey Group <sup>a</sup>	SMSA Resident Workers Who Live and Work Inside Central Cities (%)		SMSA Resident Workers Who Live and Work Outside Central Cities (%)		SMSA Resident Workers Who Work Outside Central Cities (%)	
	1976	1970	1976	1970	1976	1970
New York, N.Y.	60.1	62.7	25.8	21.9	28.0	24.3
Houston, Tex.	52.2	57.4	22.9	18.7	29.5	24.4
St. Louis, Mo.-Ill.	14.4	19.2	60.7	52.0	65.6	57.1
Baltimore, Md.	23.8	30.5	42.1	37.3	51.8	46.9
Cleveland, Ohio	18.4	24.7	45.0	36.5	53.1	44.0
Denver, Colo.	25.5	35.7	42.9	27.8	49.9	39.4
Seattle-Everett, Wash.	32.9	37.9	36.3	29.2	41.9	34.7
Buffalo, N.Y.	18.6	24.1	54.5	45.9	61.6	54.7
Indianapolis, Ind.	57.5	53.7	18.9	17.2	23.7	29.4
Sacramento, Calif.	19.9	25.3	47.0	35.3	54.5	40.8

Notes: Workers 14 years and older.  
 SMSAs listed within survey group by population size.  
 SMSA definition is as of the 1970 census.  
 Data are from the Journey-to-Work Supplement to the Annual Housing Survey; various reports; the Census of Population and Housing, 1970; and Census Tracts series reports.

<sup>a</sup> Among the SMSAs of 1 million or more in 1980, Tampa-St. Petersburg, Ft. Lauderdale-Hollywood, and San Jose were not surveyed. Also, the Nassau-Suffolk SMSA was part of the New York SMSA in 1970, and other SMSAs have changed their definitions since 1970.  
<sup>b</sup> Data for the 1970 Dallas and Fort Worth SMSAs are combined.

SMSA except Indianapolis. Conversely, the middle two columns show that the proportion of workers who live and work in the suburbs (those who have the lowest rate of transit use) has increased in each SMSA except San Bernardino-Riverside-Ontario. The last two columns of the tables show that in all the SMSAs except Indianapolis and San Bernardino the percentage of the area's commuting trips that ends in the suburbs has increased since 1970. The central cities in both of these SMSAs were active in annexation after 1970, which may affect the comparability of the census and survey data.

Availability Versus Consumer Choice

Preliminary results from the 1980 Annual Housing Survey add a further perspective on the decline in commuter use of public transportation. Respondents who used a car, truck, or van to get to work were asked to specify the main reason why they did not use public transportation instead. Their responses are given in Table 12 (7).

Almost half of those who used a car, truck, or

van said that they did not use public transportation because it was not available. Only about 13 percent said that they simply prefer to use their own private vehicle. Another group of reasons, including "Available transit does not go to place of work," "Takes too long to get to work," "Time schedule is not convenient," and "Transit stop is too far from residence," provides an indication that the available public transportation systems are not meeting the commuters' needs. Taken together, they represent about 25 percent of the respondents. Thus, in sum, about 75 percent of all the workers who commute in a private vehicle did not use public transportation because it was either not available or it could not get them to work conveniently. Less than 1 percent of the respondents said that they did not use public transportation because it was too expensive.

POLICY IMPLICATIONS

Transportation policies should be determined by the problems and circumstances that are unique to each locality. The results of the 1980 census highlight

**Table 11. Percentage of resident workers in selected commuting flows and percentage of resident workers working outside central cities for selected SMSAs, 1975 and 1970.**

Survey Group <sup>a</sup>	SMSA Resident Workers Who Live and Work Inside Central Cities (%)		SMSA Resident Workers Who Live and Work Outside Central Cities (%)		SMSA Resident Workers Who Work Outside Central Cities (%)	
	1975	1970	1975	1970	1975	1970
Chicago, Ill.	34.8	38.2	43.0	38.1	50.0	46.0
Philadelphia, Pa.-N.J.	29.4	33.0	51.0	43.9	55.5	48.6
San Francisco-Oakland, Calif.	26.0	29.9	46.6	43.0	51.3	47.9
Atlanta, Ga.	19.2	26.3	45.7	36.9	52.1	43.9
San Diego, Calif.	41.5	43.7	32.2	30.9	40.0	38.7
Miami, Fla.	13.7	16.0	54.1	46.6	66.5	58.1
San Bernardino-Riverside-Ontario, Calif.	17.6	17.8	49.7	51.0	56.7	58.8
Cincinnati, Ohio-Ky.-Ind.	20.8	23.8	44.6	38.0	52.1	46.1
Milwaukee, Wis.	34.2	38.7	34.8	30.2	47.2	42.2
Kansas City, Mo.-Kans.	29.7	30.8	38.0	34.8	45.9	42.7
Portland, Ore.-Wash.	27.2	30.5	39.1	34.9	45.7	42.2
New Orleans, La.	42.5	47.7	29.3	24.4	35.8	31.2
Columbus, Ohio	44.3	45.9	20.7	18.6	30.6	29.4
San Antonio, Tex.	54.5	62.6	15.1	10.5	30.5	18.3

Notes: Workers 14 years and older.

SMSAs listed within survey group by population size.

SMSA definition is as of the 1970 census.

Data are from the Journey-to-Work Supplement to the Annual Housing Survey; various reports; the Census of Population and Housing, 1970; and Census Tracts series reports.

<sup>a</sup>Among the SMSAs of 1 million or more in 1980, Tampa-St. Petersburg, Ft. Lauderdale-Hollywood, and San Jose were not surveyed. Also, the Nassau-Suffolk SMSA was part of the New York SMSA in 1970, and other SMSAs have changed their definitions since 1970.

<sup>b</sup>Data for the 1970 Dallas and Fort Worth SMSAs are combined.

**Table 12. Workers who use car, truck, or van to get to work by main reason for not using public transportation and type of residence, 1980.**

Reasons for Not Using Public Transportation	All Workers Using Car, Truck, or Van <sup>a</sup> (N=75,525 (000s))	Inside SMSAs			
		Total (N=51,900 (000s))	Inside Central Cities (N=18,200 (000s))	Outside Central Cities (N=33,702 (000s))	Outside SMSAs (N=23,623 (000s))
Rather use a car, truck, or van	12.7	16.4	24.8	11.9	4.4
Available transit does not go to place of work	10.4	13.3	13.3	13.4	4.0
Takes too long to get to work	5.1	7.2	10.9	5.2	0.6
Time schedule is not convenient	8.4	11.1	15.0	8.9	2.4
Public transportation is not available	49.4	34.7	15.9	44.9	81.7
Transit stop is too far from residence	1.2	1.6	1.6	1.6	0.3
Too expensive	0.6	0.6	0.9	0.5	0.4
Need car, truck, or van for work	8.9	10.9	11.9	10.3	4.5 <sup>b</sup>
Physical or mental impairment	0.2	0.2	0.4	0.1	
Other reason	3.2	4.0	5.3	3.2	1.5

Note: Workers are 14 years and older.

<sup>a</sup>Excludes workers who did not report their main reason for not using public transportation.

<sup>b</sup>Less than 0.1 percent.

differences in the demographic changes that mass transit must cope with in each large metropolitan area. At the same time, they also point to some striking similarities.

Areawide population losses during the past decade have resulted in an overall drop in the potential transit market in the older, traditionally more-transit-oriented SMSAs in the Northeast. These losses have been especially significant in the central cities, where most transit service is concentrated. Where the population declines have been smaller or, in some SMSAs, where population has increased slightly in the suburbs, the balance of the population is shifting outward into areas that have less transit service. This shift is even more distinct in large SMSAs of the North Central region, where more substantial suburban population growth has taken place.

Transit service in the South has not kept pace with the rapid population growth that has taken place in many of the metropolitan areas. Most of this growth has taken place in the suburbs. The

suburbs in large metropolitan areas of the West also accounted for most of the dramatic growth in population that has occurred in those areas since 1970. In the West, however, mass transit has also made dramatic strides to serve the booming suburban labor force.

The continuing shift of the population toward areas that have limited transit service, both at the regional and local levels, implies a greater reliance on the automobile as an increasingly smaller proportion of the population has access to conventional public transportation. In order for transit to maintain or increase its share of the commuter market, the census results indicate that the geographic coverage of transit service must be increased, particularly in the rapidly growing metropolitan areas in the South and West and in the suburbs of all large SMSAs.

Given the low-density dispersion of residences and work places, policymakers need to maintain realistic expectations of what public transportation can accomplish in the urban environment in which it ex-

ists. Public transportation policies should be formulated in coordination with and in anticipation of demographic trends instead of depending on the alteration of such trends to achieve success.

The results of the census underscore the deterministic effect that demographic changes have on the use of public transportation for commuting to work in the United States. Planners have long made the fundamental assumption that mass transit would provide the ultimate remedy to urban transportation problems by reshaping urban form and by modifying consumer behavior. On the contrary, the principal lesson to be learned from the census is that, for transit to retain its public, it must better adapt itself to the changes in urban form and consumer preference that are taking place around it.

## Discussion

Joel Markowitz\*

Fulton has done a service to the transportation planning community by carefully amassing the comparable 1970 and 1980 U.S. Census commuting data. Only someone close to the data can make all the needed adjustments for travel mode categories, worker age definitions, and metropolitan area boundaries that changed between the two surveys. Mr. Fulton has done the job meticulously so that we may now compare apples with apples. His interpretation of the data, however, warrants a closer look.

I would have preferred that the public transportation category be restricted to conventional transit and not include taxis and that the transit user share be taken of only those who travel by vehicle and not include those who walk to work or work at home. Those two changes would result in a more policy-relevant definition of the public transit market and market share, although the resulting statistics would not be substantially different.

My major objections have to do with the general approach of the analysis. Data rarely speak for themselves. They must always be placed in a context for interpretation, and that interpretation invariably introduces a particular point of view.

In the first place, trends are presented on the basis of only two points in time. The least likely case is that a straight line connects the two points. The true curve may be U-shaped, with a low-point at middecade and an upward trend at the end, it may be an inverted U that peaked during the energy crisis and now is accelerating downward, or it may vary in some inexplicable or cyclical way. The decennial census is not frequent enough to reflect such variation.

A more fundamental problem is that the analysis was only a sorting procedure that used the standard census categories of four regions, 38 SMSAs, and whether the data were for locations inside or outside of central cities. The use of standard census geography may obscure actual patterns of transit use. The analysis implies that transit service is spread relatively uniformly across the nation, yet transit is, was, and will remain a big-city phenomenon. The question, What portion of all workers in the nation uses transit? has the same answer as the question, What portion of the total U.S. land mass is occupied by urbanized areas. Regional and national aggregate summary measures are misleading

when the object of measurement is so spatially concentrated.

An illustration of this problem is the continued emphasis on the total decline in the number of transit commuters and the decrease in the overall transit share. Those numbers are indisputably correct, but not very helpful. Fortunately, Table 4 provides almost all the data needed to assemble a more useful picture. Table 13 was derived from Table 4 by dividing the number of workers who use public transportation by the percentage of workers who use public transportation to estimate the number of total workers in each year and each geographic division. The minor differences between Table 13 and other tables in Fulton's paper are due to rounding in my procedure.

The U.S. totals (bottom of Table 13) repeat the paper's main contention of general transit decline in the country. The top of Table 13 gives a high level of transit use in metropolitan areas that have greater than 1 million in population in 1980--81 percent of all transit users and double the national average of the percentage that use transit (12 versus 6 percent). More interesting is the breakdown of the greater than 1 million group in the center of Table 13. Five metropolitan areas (New York, Philadelphia, Newark, Chicago, and Detroit) accounted for more than 95 percent of the total losses in number of transit commuters nationwide from 1970 to 1980 (656,000 out of 691,000), which more than erases the 205,000 gain in transit commuters elsewhere in the country. Of the other 32 large metropolitan areas, 19 had increases in the number of transit commuters and 10 had increases in the share of transit commuters (one area had no change in the number of commuters, and one had no change in the share). Overall, these 33 areas had a 10 percent increase in the number of transit users, although their transit percentage share declined from 9 to 8 percent, and their share of the nation's transit commuters increased from 31 to 37 percent. Transit agencies rarely can do anything about metropolitan growth and development, so they cannot be expected to control the denominator of the percentage transit share. They can, however, work on the numerator (the size of their market) even if they cannot affect the share. The absolute increase in transit commuters in these 33 areas (as a group) shows that they are doing their jobs. In Table 13 the five areas that account for the greatest losses in transit commuters also had a growth rate for total workers during the decade only one-sixth as great as the national average (5 versus 29 percent) and accounted for only 2.5 percent of the actual growth in total workers.

Finally, we must look at Fulton's prescriptions. First, he recommends that the geographic coverage of transit service must be increased. One of the financial problems of transit was its past overextension into low-density areas where it cannot be operated efficiently. The transit industry has learned that lesson. The many forms of ride-sharing, such as vanpooling, club buses, and normal carpooling, are more effective in such areas than conventional, fixed-route transit.

Second, Fulton tells us that we must make policies in coordination with and in anticipation of demographic trends instead of depending on the alteration of such trends, and that the data underscore the deterministic effect that demographic changes have on the use of public transportation. To treat demographics as immutable natural forces ignores all other potent influences that shape urban areas and the provision and use of transit: local economic conditions, local fiscal capacity, transit support from other levels of government, politics, the price of automobile use (social and out-of-

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Table 13. Comparison of workers, transit users, and transit share, 1970-1980.

Area	1970		1980		Change from 1970 to 1980	
	Number (000s)	Percent	Number (000s)	Percent	Absolute (000s)	Percentage
Population Greater than 1 Million						
All workers	33,412	44.9	41,427	43.1	8,015	+24.0
Transit users	5,445	81.7	4,994	80.9	-451	-8.3
Transit share		16.3		12.1	<sup>a</sup>	-25.8
New York, Philadelphia, Newark, Chicago, and Detroit						
All workers	10,981	14.8	11,522	12.0	541	+4.9
Transit users	3,368	50.6	2,712	43.9	-656	-19.5
Transit share		30.7		23.5	<sup>b</sup>	-23.5
Population Greater than 1 Million, excluding New York, Philadelphia, Newark, Chicago, and Detroit						
All workers	22,431	30.2	29,905	31.1	7,474	+33.3
Transit users	2,077	31.2	2,282	36.9	205	+9.9
Transit share		9.3		7.6	<sup>c</sup>	-18.3
Population Less than 1 Million						
All workers	40,970	55.1	54,742	56.9	13,772	+33.6
Transit users	1,217	18.3	1,182	19.1	-35	-2.9
Transit share		3.0		2.2	<sup>d</sup>	-26.7
United States						
All workers	74,382	100.0	96,169	100.0	21,787	+29.3
Transit users	6,662	100.0	6,176	100.0	-486	-7.3
Transit share		9.0		6.4	<sup>e</sup>	-28.9

Note: All statistics are derived from Table 4. Differences from other tables are due to rounding.  
<sup>a</sup>-4.2 percent. <sup>b</sup>-7.2 percent. <sup>c</sup>-1.7 percent. <sup>d</sup>-0.8 percent. <sup>e</sup>-2.6 percent.

pocket costs), urban infrastructure investment policies, service standards, nontransportation objectives (social mobility, air quality, and energy conservation), and all other demand and supply variables that affect human choices. Surely, these must bear some weight against the juggernaut of demographic trends.

Third, Fulton argues that the census data do not support the planners' assumption that mass transit would provide the ultimate remedy to the urban transportation problem by reshaping urban form and modifying consumer behavior. The only instances of trying to affect urban form are the big rail projects, like the Bay Area Rapid Transit (BART) in San Francisco and Metro in Washington. These are not routinely prescribed for all urban areas, even by the most starry-eyed planners. As for modifying consumer behavior, I think most in the transit community would agree that their task is to deliver a service that gives people more choices for travel, not to restrict them.

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