

Work, Automobility, and Commuting

Differences by Race and Ethnic Background

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Prepared by

Nancy McGuckin

for

Battelle Memorial Institute
505 King Avenue
Columbus, OH 43201
Preliminary Outline

In Collaboration with
Elaine Murakami
Federal Highway Administration

and
Mary Ann Keyes
Keyes Consulting

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EXECUTIVE SUMMARY

In many ways the travel characteristics of African-Americans and Hispanics have yet to experience some of the shifts that have occurred for the white majority. The trends may be converging in some important measures of mobility. But the speed of convergence is slow. Some of the delay in catch-up is caused by the wide range of incomes, education, and travel choices within the African-American, Hispanic, and immigrant communities.

As our understanding of the interactions between culture, gender, wealth and opportunity become more astute, we hear a greater demand for more sophisticated analysis within broad demographic groups. In our analysis we have focused on the impact of race/ethnicity combined with income, gender, and geography in analyzing travel to work.

Our analysis focuses on workers making work trips on a single travel day; data obtained from the 1995 Nationwide Personal Transportation Survey. As we first try to discern who are the workers, we see telling differences in labor force participation. For example:

- There has been a shift over the last thirty years to dual-income households, with many more women working.
- African-American and Hispanic workers experience poverty rates twice as high as white workers.
- 30 percent of the working poor are employed in service occupations and 15 percent work in sales.
- African-Americans and Hispanics are much more likely to be low-paid service workers

Overall, working women, especially women of color, are more likely than men to be in low-paid service jobs. Combined with larger family size and the incidence of single motherhood, women of color are held back from full participation in the economic and social benefits by chains of poverty. Working women who are the sole supporters of their families have the highest poverty rates. Improving access to jobs, job flexibility, and providing childcare options that are affordable and flexible are important parts of the public policy debate.

American mobility in the last part of the 20th century has increasingly depended on the auto. A large portion of all Americans are auto dependent for their most basic everyday mobility. The shift of population to the suburbs, and the jobs that followed, means more trips take place in pedestrian- and transit-unfriendly environments. However, although many people in the country are dependent on their cars, not everyone has a car. When we look at vehicle ownership characteristics, and find that:

- African-American and Hispanics are much more likely to be without a vehicle—nearly 25 percent of African-American households and 15 percent of Hispanic households do not have a car.
- African-American and Hispanic women ride the bus to work more often than other groups.
- Recent immigrants ride the bus to get to work, but over time immigrants acquire a vehicle, and increasingly commute by private vehicle.

Historically, people in the U.S. have shown a preference for faster modes of travel. Newer

immigrants are a large portion of transit users—people who have moved to the U.S. within the last ten years have more than twice as many no-vehicle households as immigrants who have lived here longer. A much higher proportion of immigrants live in the largest metropolitan areas—53 percent live in the eight metro areas with 5 million or more people. And a much higher proportion of African-American and Hispanic workers reside in larger metro areas.

Overall, the proportion of workers driving alone to work has continued to increase. Traveling on transit is takes nearly twice as long for the same length trip, from the NPTS travel data. This relates back to the locational characteristics of people of color and immigrants. One theory speculates that inner-city residents have less access to jobs because of the suburbanization of economic growth. This lack of access leads to high rates of unemployment, and for those who find work, long commutes.

One finding of this research is the greater amount of time spent traveling to work by African-Americans—Black men travel longer than other men and Black women travel longer than other women. Spending more time to travel the same distance to work amounts to a time burden that is not shared equally between whites and people of color.

Our research identifies differences in commute characteristics by racial and ethnic groups when compared to the white majority. A more difficult question is why do these differences exist—are they a product of demographic factors, such as income and geography, or are more enduring cultural factors at work? If trends in travel characteristics are converging, then it is only a matter of time before the disparities between whites and people of color are resolved, and these groups will be the dominant source of travel growth in the coming years. But many social and economic factors combine to make equity in travel to work difficult to achieve.

INTRODUCTION

Major trends in commuting, such as the increase in the size of the American workforce, and the increase in the number of women workers in particular, the suburbanization of housing and jobs, and the ever-increasing use of the private auto are well-documented. These trends in travel have become part of the common understanding of changes in travel patterns in the last three decades, as well as describing the personal experience of many people.

We have seen a tremendous economic boom in the last part of the century, and by many measures the nation's material well-being is extraordinary. Since 1970 average living space has nearly doubled in size to more than 800 square feet per person; the number of households with two or more vehicles has climbed from 29 percent to 62 percent; air travel has quadrupled. Some economists see the advent of the information age, mirroring the changes brought by the industrial age, as bringing a pattern of steep and possibly rising inequality for a long time to come. (Lardner, 2000)

There are disparities in travel between the white majority and people of color. Some researchers see African-American, Hispanic, and whites converging in many travel measures, such as women's employment, driver's licensing rates, and person-hours of travel. If so we can project the changes in travel for people of color by looking at the recent path of the white majority.

For some commuters travel speeds have increased, their car is a comfortable haven as they travel in solitude from a suburban home to a suburban workplace. The white majority almost entirely have private vehicles available, and many live and work in low-density suburban areas that make a car a necessity for every trip. But there is another picture, describing the everyday commuting experience of another group of Americans—families in poverty, in the core of the older cities and older suburbs, who are stuck in low-paid service jobs, without a car, and fewer travel options. This group is primarily composed of African-Americans, Hispanics, and newer immigrants.

There has been a shift in the origin of U.S. immigrants in the last decades—until 1970, Latin America and Asia contributed only 28 percent of the immigrants whereas by 1997 together they contributed 78 percent. Population forecasters expect large increases in the number of Hispanics and immigrants in the U.S., but trends in purchasing power and economics are harder to predict. There is a deep inter-relation between participation in the economy, both as producers and consumers, and the amount and type of trips that an individual or a family makes.

The trip to work is a major element of travel—many times it is the longest trip of the day and most of us must arrive at a designated time. Some commuters make stops on the way to and from work—dropping passengers or conducting errands. Others seek out the most direct and efficient mode and route to shorten their commute time to a minimum. In this research we use the data from the Nationwide Personal Transportation Survey (NPTS) to examine how people commute to work, and we look specifically at workers of different racial and ethnic backgrounds. The major groups are identified by the race/ethnic origin of the head of the household in the NPTS, and include non-Hispanic African-Americans, non-Hispanic whites and Asians as racial categories and Hispanics, who can be of any race.

WORK

Overview

Americans continue to travel more and drive more—and the one of the major reason for the increase in driving in the last thirty years has been the increase in labor force participation, especially for women. In 1950 only one-third of women worked outside the home, fifty years later 60 percent of women are in the labor force. Since 1969, the proportion of women who were drivers grew almost 20 percent (from 61 percent of women to 80 percent of women) and the number of household vehicles grew by 143 percent. The number of households with three or more vehicles went from 3 million households in 1969 to 19 million households in 1995—a six-fold increase. So it is not simply the added work trip, but the greater availability of autos to women, the greater household income provided by working women, and the need to purchase goods and services to sustain the household that has fueled the increase in travel.

African-American women have had higher labor force participation rates than white women for many years. In 1970, African-American women had a rate of nearly 50 percent, compared to 42.6 percent for white women, in 1995 white women were at 58.5 percent participation compared to African-American women at 60.5 percent participation, and by 2006 the participation rates are projected to converge. The biggest increase for white women was in the 1970's, when the rate for women in the workforce increased from 43 percent to 51 percent. Hispanic women have the lowest labor participation at only about 52 percent of women working in 1995, and although their labor force participation is increasing rapidly, it lags behind both African-American and white women.

Table 2 - Labor Force Participation Rates for African American and Whites, Men and Women

	African-American		White		Hispanics	
	1970	2006	1970	2006	1980*	2006
All Civilian	61.8%	63.1%	60.2%	67.8%	64.0%	65.8%
Men	76.5%	65.4%	80.0%	74.3%	81.4%	77.1%
Women	49.5%	61.3%	42.6%	61.7%	47.4%	54.3%

Source: 1999 Statistical Abstract of the U.S. Table No. 650

* 1970 Not Available

Contrary to the trends in women's labor force participation, men's labor force participation is declining. White and Hispanic men have the highest participation rates, with small declines since 1970. African-American men have lagged behind whites, and are projected to decline even faster. African-American teens still suffer unemployment rates of nearly 30 percent—a number that hasn't changed much in 20 years.

Future trends may already be apparent as we look out over the next quarter century, especially at the projections in growth of the population and the characteristics of the labor force. Most of the

workers of the future will be older versions of the workers of today whether living in the U.S. or elsewhere. Of the people who will be working in 2006 in the U.S., 80 percent are already in today's labor force.

The differences between employment rates for men and women are likely to continue into the future. While women's rates are rising and men's are falling, women are still expected to periodically leave the labor market to assume child-rearing roles. Future trends in workforce composition are hard to predict, especially in the wake of the baby boom. Between 2011 and 2029 the baby boomers will be reaching the traditional retirement age of 65, and economists are wondering whether they will retire from the workforce or continue to work. To fulfill the workforce requirements we may depend on increased immigration as well as full participation by women and men.

Comparisons

At the end of the century we are in an era of work—the unemployment rate dropped from 6.3 (December 1990) to 4.1 percent (Dec 1999) in the last decade. The NPTS data shows that the percent of households with no workers dropped for all racial/ethnic groups in just the five years between 1990 and 1995, and the average number of workers per household increased. Almost ten percent more Hispanic households had at least one person in the family working in 1995 than in 1990. For African-American and white families the increase was closer to five percent. There was also a significant shift for all racial/ethnic groups to dual income households with two employed members, and a drop in the number of families where just one person worked. The percent of households with no workers, one worker, two workers, or three or more are shown in Table 3.

Table 3 - Percent of Households By Number of Workers

	African-American		Hispanic		White		Other	
	1990	1995	1990	1995	1990	1995	1990	1995
No Workers	27.9	26.0	17.6	15.9	27.6	23.3	20.7	19.3
One Worker	43.9	36.7	40.9	37.7	36.1	33.7	42.4	38.0
Two Workers	22.8	29.8	31.8	36.8	30.9	35.3	28.5	32.2
Three or more	5.4	7.5	9.7	9.6	5.5	7.8	8.4	10.6
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: NPTS

Households with no workers range from those who are comfortably retired, to those who are struggling and unemployed. Even having a job does not guarantee financial security for all households. Although nearly three-fourths of the working poor were white workers, African-American and Hispanic workers experience poverty rates twice as high. Nine million American

workers in 1998 made incomes that fell below the official poverty level of \$16,700 for a family of four¹. In addition:

- 12 Percent of working African-Americans earn below poverty and 23 percent earn below 150% of poverty (about \$25,000 a year)
- 14 percent of working Hispanics earned less than poverty and 29 percent less than 150% of poverty level
- 15 percent of immigrants (non-citizens) live below poverty, and 30 percent below 150% of poverty level (Kim, 1999.)

The working poor are highly concentrated in a few job sectors—30 percent of the working poor are employed in service occupations and 15 percent work in sales. These jobs are some of the lowest paying and most unstable. Workers with the highest rates of poverty work as child care providers and cleaners in private households. Services such as waitress, food service worker, janitors, and Licensed Vocational Nurses have the next highest rate of poverty.

Table 4 - Poverty Status by Occupation of Workers, 1996

Occupation	Percent of Workforce	Percent of Those Workers in Households Below Poverty
Service Occupations	13.4%	29.9%
Technical, Sales, and Administrative Support	29.4%	23.0%
Operators, Fabricators, and laborers	14.5%	20.6%
Other Occupations	42.7%	26.5%

Source: Bureau of Labor Statistics, Report 918, Table B

Men and women have different levels of poverty, especially within race and ethnic groups. Whereas white working women and men were about equally likely to be poor, black working women had a poverty rate of 14.2 percent—almost twice that of black working men (8.6 percent). (Dept. Of Labor, 1996) Education levels make a tremendous difference for this group: the poverty rate for black women who did not graduate high school was 30.6 percent compared to 18.1 percent for black men. With a high school diploma, black women still had almost twice the poverty rate of black men (18.0 percent vs. 9.3 percent). Among college graduates, the differences between men and women disappear.

¹ The 'Working Poor' are defined by the Bureau of Labor Statistics as individuals who spent at least 27 weeks in the labor force, but whose income fell below the official poverty threshold

Figure __

Source: Statistical Abstract of the U.S. 1999, Table No. 757

Although the pay gap has been shrinking as occupational segregation decreases and women's educational attainment and work experience becomes comparable to men's, women have yet to achieve full parity with men. The ratio of African-American women to men's earning is the closest overall, but they still earn the second-lowest median income of all workers. Only Hispanics earn lower overall wages, which may reflect the high concentration of immigrants.

In general, working women are over-represented in low-paid service jobs. Even though women of color are about as likely to work full-time as white women, they are more likely to have low-wage service jobs. Service and retail trade sectors are projected to account for the most job growth in the next decade. Table 5 shows the percent of women in service jobs in Metro areas and in central cities.

Table 5 - Employment Characteristics of Women by Race and Ethnicity (1990 Census)

	White	African-American	Hispanic	Asian	Native American
US Metro Areas					
Percent in Labor Force	57.8	60.7	56.5	60.2	59.4
Pct. In Service Occupations	14.2	24.3	23.0	15.8	21.6
Pct. Employed Female Head of Household	63.0	54.2	50.1	63.1	53.3
Pct. Working w/ Child(ren) under 6 yrs.	59.5	63.6	51.8	57.6	54.5
Central Cities					
Percent in Labor Force	56.7	58.1	54.7	58.5	59.0
Pct. In Service Occupations	14.7	25.8	24.4	16.4	22.3
Pct. Employed Female Head of Household	59.2	51.1	46.3	58.9	49.7
Pct. Working w/ Child(ren) under 6 yrs.	59.3	60.3	49.7	54.6	53.0

Source: Excerpted from Table 1 of "Location, Race, and Labor Force Participation" Johnston, 1996

Whereas 25 percent of all households in 1998 were headed by married couples with children, eight percent of all households (7,693,000) were headed by single women with children. 46 percent of these households are headed by an African-American woman. In 1975, 16 percent of mothers with children under six did not have a spouse in the household, by 1998 the figure was 26 percent.

Working women who were the sole supporters of their families have the highest poverty rate—over one out of five earned less than poverty level. (BLS, Report 918, 1996) As employed mothers, women of color do not necessarily have the option to take a job closer to home, as many white women do, and they do not gain the financial pay-off longer commutes provide to white men, for instance. So, improving access to jobs and providing childcare options that extend beyond the traditional 7 AM to 6 PM time frame, are an important part of the public policy debate.

Technological change may increase the gap between skilled and unskilled workers. The premium paid to skilled workers offers opportunities for lower-income families to escape poverty. But the impacts of the rising cost of higher education, economically segregated

neighborhoods, and barriers to advancement set forth by discrimination and segregation into certain occupations and industries may be felt by people of color much more than whites.

In the next decades more workers will be needed to fill existing jobs left free through retirement, and to provide for continued labor force growth. Wage inequality between middle- and low-wage earners may also narrow if increases in the minimum wage are made. If a tight labor market persists all workers may benefit as employers hire from non-traditional sources and provide training. If baby-boomers remain in the labor force past the traditional retirement age of 65, whether in full or part-time jobs, the labor market may be more competitive. But employment equality between white workers and people of color, between men and women, will depend on policies to address a wide range of labor market and social barriers survive as artifacts in the current social and economic fabric.

AUTOMOBILITY

Households without vehicles are a rarity in today's society. In fact, there are currently more cars than licensed drivers in the U.S. While increasing vehicle ownership reflects not only our increasing reliance on private vehicles for our day-to-day travel, and the economic prosperity of the last part of the twentieth century, we can see that these changes are not benefitting all people equally.

Nearly 25 percent of African-American households do not have a car. In the last twenty years the proportion of African-American and Hispanic households without vehicles declined significantly. For African-Americans the proportion has declined from about one-third of households without a vehicle to just over a quarter of households. For Hispanic households, the proportion has declined from nearly 22 percent to about 15 percent.

Table 6 - Decline in Proportion of Households Without a Vehicle by Race, 1980 - 1997

	1980_	1990_	1995__	1997___
All	12.9%	11.5%	9.8%	9.5%
White	10.2%	8.7%	--	--
African-American	32.5%	30.4%	24.7%	24.1%
Hispanic	21.7%	19.0%	17.1%	15.3%

Source: _ Decennial Census
 __ 1995 American Housing Survey
 ___ 1997 American Housing Survey

Thirty percent of the U.S. households without a car are located in the New York or Philadelphia metropolitan areas, according to the 1995 NPTS. These two states account for only 12 percent of all households. This shows the dramatic effect of these older, centralized cities with fully developed transit service on the travel mode characteristics of the people who live there.

Figure 2 -

Although there are some people in large cities who live without a car by choice, when the

household income grows above \$25,000 (150% of the poverty rate for a family of four) and the residence is in a suburban area, most families acquire at least one car. Figure 2 shows the percentage of zero-vehicle households by racial/ethnic group for urban and suburban area types

where the family income is less than \$25,000 or \$25,000 a year or more. African-American and Hispanic families lag behind whites in vehicle ownership, but the differences are negligible in the suburbs for households at income levels of 150% of poverty or above.

The acquisition of vehicles is especially interesting in the immigrant community. Newer immigrants have more than twice as many no-vehicle households than immigrants who have lived in the U.S. for ten years or more. The longer the immigrant family has been residing in the States, the more like U.S. born families their vehicle ownership characteristics are, but even immigrants who have been in the U.S. over a decade are twice as likely to continue to be without a car than U.S. born. Hispanic families that have been here that long still have 70 percent more households with no vehicle. Table 7 shows the proportion of zero-vehicle households for all immigrants compared to U.S. born, and for Hispanic immigrants (1990 Census PUMS data). In 1997, Hispanics (of any race) accounted for 11.4 million, or 44 percent, of the foreign-born population.

Table 7 - The Proportion of Households without Vehicles by Number of Years Resident in U.S.

	3 years or less	4-5 years	6-8 years	9-10 years	Over ten years resident	US Born
Hispanic	23.3	17.7	15.4	14.2	10.8	6.2
All	20.7	15.7	12.7	12.0	8.0	3.9

Source: 1990 Census PUMS data

A much higher proportion of immigrants live in the largest metropolitan areas—53 percent live in the eight metro areas with 5 million or more people compared to just one-quarter of the native born population. In areas with between one and five million people, the proportions were not significantly different, and foreign born people were proportionately less likely to live in areas with less than a million population or in non-metropolitan areas. (Current Population Reports, P23-195, U.S. Census)

In large cities, the cost of purchasing a vehicle may not be as much of an impediment as the cost of insurance, parking, and vehicle repairs. One out of five poor households own a vehicle fourteen years old or more (pre-1981 vehicles from the 1995 NPTS), and these older vehicles are less dependable, require more repairs, and may be used sparingly. Even people in households with no cars still make almost half of their trips in a private vehicle, about a quarter of their trips are by walking, and one in six trips are by transit.

But as more workplaces locate in suburban areas, it becomes clear that lack of access presents a barrier to urban residents in a complex way. It is more difficult to learn about job opportunities in far-flung suburban locations, and it is difficult to commute to these workplaces without a vehicle. It is hard to make the decision to move to suburban locations, to leave known services and support systems and face neighbors that are different, and neighborhoods with poor transit service. In isolation from family and friends it is more difficult to get family support and informal childcare. People of color who move to traditionally white neighborhoods may face overt or covert racism. (Washington Post, 2000)

COMMUTING

Trips made to and from work account for only 18 percent of the person trips and 22 percent of the person miles traveled in an average year. But commute trips have a tremendous impact on local traffic—especially during peak periods.

One of the values of the NPTS is that it supplies more frequent data than the decennial Census which asks only about the journey to work. NPTS obtains all trips, not just the work trip, so we can examine the journey to work trip in context of all travel made throughout the day. This allows us to look at the activities and trips chained to the work trip, such as dropping children at school or day care, stops for shopping, and other errands people do on the way to and from work.

What is a “Usual” Day?

The decennial Census has historically asked about the journey to work by referring to the travel mode for the “usual” day. The question (from the Census 2000 long form) asks:

“How did you/this person **usually** get to work LAST WEEK? If you/this person usually used more than one method of transportation during the trip, mark the box of the one used for most of the distance.”

The boxes listed modes of transportation, such as car, truck, van, bus, bike, walk, etc.

The same reference to a ‘usual’ day is made for estimates of travel time, and the number of people in the vehicle. For a large majority of people who get up and go to work everyday, there is little difference between the usual day and any randomly assigned day. On the other hand, a usual day is harder to describe for people who work part-time, have multiple jobs, or who have a lot of travel mode choices (such as a bus or subway stop nearby, an auto, the possibility to catch a ride with a friend or spouse, and/or who work close enough to walk or bike).

The Nationwide Personal Transportation Survey (NPTS) asks workers both about their ‘usual’ mode to work, and obtains information about work trips made on the specific day respondents report their travel. The question on ‘usual’ mode is made so that comparisons to decennial Census long form data can be made. However, if we compare ‘usual’ to a specific travel day we can see some patterns.

Table 8 - Mode of Travel on Travel Day for Workers Making a Commute Trip Compared to “Usual Mode”

	On Travel Day Took:
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“Usually” Take:	Single Occupant Vehicle	Carpool	Transit	Walk	Bike	No Report/ Other
Private Vehicle	81.8%	15.3%	0.3%	0.5%	0.1%	2.0%
Transit	11.5%	10.8%	65.6%	7.4%	0.2%	4.5%
Walk	13.5%	9.0%	3.2%	50.8%	0.3%	23.3%
Bike	9.4%	11.9%	0.3%	4.9%	68.7%	4.9%

Overall, people who usually commute by private vehicle are very likely to use a private vehicle to commute on their assigned travel day. However, for those who usually use transit or walk to work, over twenty percent are likely to use a private vehicle to commute on any particular day. This shows that using transit for work trips reflects an increasing proportion of workers for whom transit is used as a choice, and they are not captive to it.

Differences can also be seen in commute times when comparing actual reported times for a single day compared to what respondents say about their usual commute. Respondents of all types over-estimated their usual commute time to work, but only by a few minutes. That is, on any given day the actual travel time to work ranges from between 7 and 11 percent less than what respondents report is their ‘usual’ commute time. Distances were similarly over-estimated for the ‘usual’ distance to work.

The analysis presented here focuses on the description of travel by workers going to work on a single, assigned travel day.

Mode Choice

Table 9 and Figure 3 show the changes in choice of mode to work between 1990 and 1995 for whites, African-Americans and Hispanics. Even in that short time frame, the proportion of commuters walking or taking the bus to work declined. Nearly 80 percent of whites drive alone, and 95 percent use an auto on their commute trip. African-American commuters showed very little change in drive alone and car pooling to work, but had 3 percent decline in travel by bus and a slight shift to rail. Walking to work by African-Americans declined from almost five percent to 2.8. Hispanic commuters shifted from carpools to drive alone, and away from both bus and rail transit.

Table 9 - Percent of Trips by Mode for Travel to Work by Race/Ethnicity in 1990 and 1995

Mode to	1990 NPTS	1995 NPTS
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Work:	African-American	Hispanic	White	African-American	Hispanic	White
Drive Alone	62.5	65.3	79.5	61.9	67.5	79.2
Carpool	19.9	22.7	13.8	20.1	19.6	14.0
Transit-bus	8.7	3.8	1.2	7.7	3.3	0.8
Transit-rail	2.6	3.3	1.1	3.6	2.7	1.1
Walk	5.1	3.8	3.6	2.8	3.9	1.8

There are significant differences in mode choices made by workers of different race and ethnicity, with African Americans and Hispanic recent and not-so-recent immigrants forming a large share of the transit using market. But all commuters are leaving the bus as a choice of commute mode. Figure 3 shows the actual percentage point change in mode from 1990 to 1995. Hispanics are shifting dramatically to drive alone from carpools, which may be related to the continued growth in vehicle ownership. The decline in walking as a choice for work trips for African-Americans and white workers may reflect the continuing effect of suburbanized work and residence locations for these groups.

Slow modes of travel are constantly giving way to faster modes. Transit-use and car-pooling have declined as the century progressed as more and more people chose to drive alone to work. This is true not just for the white majority, but for people of color as well. Still, while the pattern may be the same, African Americans and Hispanic Americans continue to show much higher proportions using transit and walk than the white majority. Although African-Americans and Hispanics, and especially new immigrants comprise the broad base of transit users in many areas, when a car becomes available many workers shift to commuting by car.

Figure 3 - Percentage Point Change in Modal Shares between 1990 and 1995

Overall there has been a remarkable shift to driving alone, especially for work travel. The average American worker now spend more time commuting than many other common daily tasks, on average about three hours a week. Table 10 shows the comparison of hours spent per

week driving (from the NPTS) compared to hours per week for childcare, hobbies, reading and working (shaded columns are from Robinson, et. al. 1996).

The commute times from NPTS (first column) are estimated by workers who make stops and those who travel directly to work, although dwell-times at the stops are not included. The respondent may work five days a week, but the average commute times are spread over all seven days. The number of hours worked (last column) by workers includes full and part-time workers, may seem low because it includes full-time and part-time, retirees and homemakers.

Table 10 - Hours per Week Spent on Driving Compared to Other Daily Activities

	Commuting (NPTS)*	American's Use of Time Diary Data				
		Total Travel	Hobbies	Childcare	Reading	Working (Workers Only)
African-American	3.3	9.7	1.6	1.9	1.6	22.4
Hispanic	3.1	9.6	2.5	2.8	2.5	21.8
White	2.9	9.3	2.9	2.0	3.3	22.7
Asian	3.2	9.9	2.8	1.4	3.5	23.4

* Average Commute Times of Workers Making Work Trips on Travel Day times 5 days a week.

Another way to look at the choice of travel mode for commuting is to compare how people get to work with how they travel for other purposes throughout the day. Table 11 shows the percent of trips by all modes compared to the mode of travel to work on the travel day for travelers of different races and ethnic backgrounds. This table shows that people who drive to work are really auto captives—people who use vehicles for all trips during the day, regardless of their race or ethnicity. For respondents who drove alone on their trip to work, 96 percent of all other trips in the travel day are by auto. People who car pooled to work are slightly more likely to walk or use another mode (such as taxi), but still make 92.3 percent of all other trips by auto. People who walk or take transit to work are many times more likely to walk for other purposes during the travel day.

African-American transit commuters are much more likely to use transit for other trips during the day--almost 40 percent of non-work trips during the travel day are by transit. Whites are much more likely to use transit as a choice of work mode compared to African-Americans or Hispanics, whites indicate that nearly 37 percent of non-work trips are by private vehicle. White commuters who use transit for commuting use transit the least for non-work trips—28 percent of white commuters vs. 38 percent of African-Americans. Hispanics use transit for one-third of other trips if they commute by transit. Hispanic transit commuters are more likely than African-Americans or whites to carpool or walk for other trips on the travel day.

Table 11 - Percent of Trips by Mode for All Purposes Compared to Commute Mode

AFRICAN-AMERICANS	Mode Used on Other Trips On Travel Day:						
Mode to work:	Private Vehicle		Transit-Bus	Transit-Rail	Walk	Other	Total
	Drive Alone	Carpool					
Drive Alone	64.5	31.2	0.2	0.1	2.6	1.4	100.0
Carpool	26.9	65.2	0.7	0.2	4.4	2.6	100.0
Transit-bus	7.4	18.2	38.3	4.5	21.1	10.6	100.0
Transit-rail	6.7	9.3	5.2	40.7	24.6	13.6	100.0
Walk	5.4	29.2	8.4	1.6	48.0	7.4	100.0
HISPANIC	Mode Used on Other Trips On Travel Day:						
Mode to work:	Private Vehicle		Transit-Bus	Transit-Rail	Walk	Other	Total
	Drive Alone	Carpool					
Drive Alone	66.0	29.2	0.0	0.0	2.1	2.8	100.0
Carpool	24.9	67.5	0.8	0.4	5.1	1.4	100.0
Transit-bus	6.0	26.9	32.0	3.7	28.9	2.4	100.0
Transit-rail	3.7	18.1	4.5	35.4	24.5	13.8	100.0
Walk	11.1	20.9	3.4	1.5	58.0	5.1	100.0
WHITE	Mode Used on Other Trips On Travel Day:						
Mode to work:	Private Vehicle		Transit-Bus	Transit-Rail	Walk	Other	Total
	Drive Alone	Carpool					
Drive Alone	68.3	28.0	0.1	0.1	1.9	1.8	100.0
Carpool	27.7	64.5	0.4	0.2	4.0	3.2	100.0
Transit-bus	13.4	23.2	27.7	1.5	26.8	7.6	100.0
Transit-rail	12.8	13.7	2.0	28.2	33.5	9.8	100.0

Walk	16.8	19.1	2.7	2.7	50.7	8.0	100.0
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Nationwide, over 90 percent of workers use a private vehicle to get to work, and over three-quarters of workers drive alone. In larger metropolitan areas, there are greater shares of workers using transit and walking to work.

Table 12 - Percent of Trips by Mode for Travel to Work

Mode	Percent of Work Trips		
	All	Metro Areas <1 Million	Metro Areas 1 Million and more
Drive Alone	76.9	79.4	75.0
Carpool	13.6	14.8	12.7
Bus Transit	2.0	0.75	3.0
Rail Transit	1.7	.01	3.1
Walk	2.3	1.5	3.0

However, in spite of recent reports of increasing transit ridership (APTA and FTA figures for 1999), bus ridership accounts for only 3 percent of work trips in large metro areas, about the same as rail/subway and walk. Some of the apparent increase in transit use may reflect the growth in metropolitan areas of one million or more, where transit accounts for 6.1 percent of all work trips compared to the smaller metro areas where transit is used for less than one percent of commute trips. Another dimension is the distribution of (resident) workers by race by metro area size. For instance, whites comprise nearly three-quarters of the U.S. workforce (73.3 percent), but account for only two-thirds of the workers living in metro areas of one million or more (67.2 percent). Hispanic and African-American workers are much more likely to be residents of larger metro areas, and much more likely to be transit users.

Table 12 - Percent of Workers by Race and Metro Area Size

Mode	Workers by Race		
	All Metro	Metro Areas <1 Million	Metro Areas 1 Million and more
African-American	11.4	8.1	13.8
Hispanic	10.1	6.9	12.5
White	73.3	81.6	67.2
Other	5.2	3.4	6.6

Travel Time

There is research to indicate that people have a travel time ‘budget’, that is a set amount of time each day that the average person will spend on travel. The implication is that those who spend time traveling for one purpose, such as commuting, will spend less time traveling for other trip purposes. In the NPTS data there seems to be a relationship between the number of daily trips and the distance workers travel to work—those who work closer to home (often women) make more daily trips overall than those who work farther from home. Table 15 shows the number of recorded trips **for all purposes** by the distance of the worker’s daily commute.

Table 15 - Number of Annual Trips by Distance to Work

If the workplace is:	The commuter makes:
Less than 10 miles	1825 annual trips (for all purposes)
10 - 20 miles from home	1679 annual trips
More than 20 miles from home	1642.5 annual trips

Table 16 shows the amount of time spent in commuting by men and women in different racial/ethnic groups and the total time spent traveling on the reporting day. Figure 4 shows the commute time in minutes for commuters who stop and do not stop on the way to or from work. For the commuters who made stops the travel time was summed for the segments from home to the stop location and then to the workplace, and from work to the stop location and back to home. Dwell times at the stops were not included in the time estimates. For trips for other purposes, travel times were summed for the trips made from home to non-work locations for all other trips made on the travel day. Remember, these are trips by workers who made work trips on the randomly assigned travel day, and these estimates do not include non-workers making other trips.

Table 16 - Total Minutes Reported for Trips to and From Work and for Non-Work Travel

	Total Commute	Other Travel	Total
African-American Men	43.3	44.1	88.3
African-American Women	37.0	50.3	87.4
Hispanic Men	39.8	50.4	91.4
Hispanic Women	34.6	49.4	84.4
White Men	39.0	54.6	94.2
White Women	29.2	51.0	80.3

A consistent observation in travel research is that women travel shorter times to work than men. While this is true for all three racial/ethnic groups shown in Table 16, the difference between men and women is larger for whites (10 minutes more for men) and less for African-American (6

minutes more for men).

When comparing within gender, the longest commutes are made by African-American men, who spend three and one-half minutes a day longer in commuting than Hispanic men, and almost four and a half minutes longer than white men. African-American women spend more time traveling to work than other women, almost eight minutes longer per day than white women. This is a remarkable difference, although a few minutes a day may seem small, over a year of working (240 work days per year) African-American men spend over 17 hours more in traveling to work than white men, and African-American women spend over 31 hours more in commute time than white women.

Figure 4 - Minutes Spent Commuting to and from Work

A number of ramifications of the inequity in travel to work are noted by Johnston (Johnston 1996) that concern people of color in particular and society on general. Spending more time to cover the same distance amounts to a time burden (cost) that is paid by non-whites. Johnston says that it could lead to lower motivation to seek employment, and for those with jobs, it could mean more tardiness and absenteeism at work. She also notes that it could lead to poorer job performance, poorer promotion prospects, and less economic gains in the lifetime earnings of women of color.

Doyle and Taylor (1999) report that traveling via public transit contributes far more to increasing commute time than any demographic, location, or wealth variable. African-American women have the highest rates of transit use and have commute times longer than all other women. In addition to the effect of using transit, some researchers hypothesize a 'spatial mismatch' theory,

first expressed by John Kain (Kain, 1992). According to this theory, African-American inner-city residents have less access to jobs because of the suburbanization of economic growth. Lack of access leads to high rates of unemployment, and for those who find work, long commutes.

More recent research into this hypothesis (Ihlanfeldt, et. al. 1998) has suggested complicated factors, such as worker skill levels, differences of age and gender of workers, mobility barriers to suburban jobs (e.g. inadequate public transportation), lack of information about job opportunities, as well as discriminatory practices contribute to this phenomenon. The complexity of the interaction of these economic and social contributing factors reveals a need for more research into the spatial mismatch theory.

However, the time spent commuting is closely linked to the choice of travel mode and the residence and work locations, as well as the need to stop on the way to or from (which might take the commuter out of his or her way). Tables 17 and 18 show the reported distance and the calculated speed of the commute to work by mode and race/ethnic origin.

Table 17 - Distance in Miles Traveled to Work by Mode and Race

	Drive Alone	Carpool	Transit	Rail	Walk
African-American	10.6	10.9	10.0	14.1	1.2
Hispanic	11.7	10.6	9.6	11.0	0.7
White	11.8	13.2	12.1	17.3	0.7
Asian	11.4	8.9	10.7*	16.6*	0.5

* Small sample size

Table 18 - Calculated Travel Speeds by Mode and Race (MPH)

	Drive Alone	Carpool	Transit	Rail	Walk
African-American	30.3	28.8	14.8	22.4	3.8
Hispanic	30.6	29.6	15.6	15.5	3.2
White	31.1	31.0	16.0	22.1	3.8
Asian	30.1	26.6	16.3*	21.9*	3.5

* Small sample size

People walk less than a mile to work, on average, but African Americans walk nearly twice as far (1.2 miles), compared to other groups. Driving alone and car pooling are the next shortest times, averaging between 18 to 22 minutes for one-way travel for all race and ethnicity group, with average trip lengths of 9 to 12 miles. Trips to work using rail take the longest, with average one-way commutes of over 40 minutes for all groups. Not surprisingly, rail trips are long, with average distances of 12 to 17 miles for all groups.

Transit trips to work are typically similar in distance to those made by driving alone or carpooling, however, the travel times are nearly double. Another way to look at it, is that the travel speed of transit trips is only half that of private vehicle travel (16 miles an hour compared to 31 miles an hour).

Given these differences in travel speeds, and total travel time for those using transit to work, it makes sense that at the individual decision-making level, many people will acquire a vehicle and either drive alone or carpool to work. As the adage goes, “time is money,” and so under current conditions, in most cases, it is faster to get to work using a private vehicle.

Immigrants are now a key component of transit users. Recent immigrants are much more likely to ride public transit than other workers, and make up significant proportion of total transit commuters—for example 45 percent of bus riders in Southern California are immigrants. (Myer, 1997) Recent immigrants (less than ten years) per capita transit use shares are four times greater than those of their native-born counterparts.

Transit use for native-born Americans is increasingly by choice rather than because no vehicle is available to the traveler. To preserve transit markets planners need to understand and serve the needs of customers and make it attractive for people to continue to ride the bus, even if a vehicle is available.

FUTURE TRENDS

Technology will be the greatest element of societal change in the next decade, and advances will continue to change our daily lives--both in a personal way, such as in how we communicate, and through larger economic and social impacts. The changes will be multi-faceted and hard to predict.

The social/economic impacts can already be seen in the landscape of new suburban development. For example, over the last decade the formula for new development has included rapid population growth scattered across the suburban fringe and clusters of high-tech businesses in ‘technology corridors’ along interstates. As a result, many of us have already changed the way we work, how we shop, where we go and when.

White households are more likely to be early adopters of technological change. Close to half of white households (46.6 percent in 1998) had a computer, and 21.5 percent had e-mail. At the same time, African American and Hispanic households were about half as likely to have a computer (23.2 percent and 25.5 percent, respectively); and very unlikely to have e-mail—less than 8 percent for both. The acquisition of communication technology in the home is fast growing—but faster for white families, which increases the differences. (Department of Commerce 1999)

This digital divide separates some households from information and opportunities, such as job postings, apartment and real estate listings, financial information, as well as adversely affecting the ease with which children in families without computers adapt to such a powerful information

source. As technology becomes more instrumental to economic and community participation, the differences between white families and people of color will become more problematic.

Large numbers of immigrants, especially from Latin America and Asia, are expected to continue to come to the U.S. We will need to open the borders to help fill jobs vacated by retiring baby-boomers, and to fuel the job growth that has rocketed the last three decades of the 20th century. The immigrants will mirror the affluence and high education of the workers they replace, but will also include large numbers of low-skilled workers to work at low-wages in the service and retail sectors.

During the end of the Industrial Revolution, especially in the last decades of the 19th century, we saw the massive migration to the cities to work in the new industries, and immigration of staggering proportions in the early decades of the 20th century followed. We may be seeing a nascent transformation which will bring along the same magnitude of change. The technology revolution is changing the face of America's suburbs, drawing immigrants from Latin America and Asia to fill the demand for highly qualified technicians as well as low-skilled service workers.

During the 1900's American cities were melting pots, way-sides to assimilation and upward mobility. The defining myth of the industrial revolution was Horatio Alger, lowly born and poor but hard-working, he was able to raise himself from rags to riches. Immigrants arriving today are sharply polarized according to educational attainment—at one end Ph.D's working as mathematicians and engineers, and at the other end those with less than a high-school education working as cooks and cleaners. Manufacturing provided a middle-class with middle-incomes during the 19th century. In the new economy, lack of education and language skills could provide an impenetrable barrier to prosperity.

CONCLUSIONS

“Basic demographic data can reveal hidden truths about complex social questions. The data have this power because demographic trends explain how society changes on the deepest level. When income distributions or immigration patterns change, for example, the behavior of individuals often change in response, on a mass scale.” (Edmonson, 1999)

The U.S. saw an added 25 million people every decade from 1950 to the year 2000. Immigrants were one third of that increase in population. Census forecasts for 2020 show an on-going trend of adding 8-10 million population in net immigration for 2000-2010, and 2010-2020. Some economists project that the at least half of the labor force of the future will be provided by immigrants, both with very low and very high education levels. The growth in the service sector of employment will add to both high-skilled niches and lower-skilled and support jobs.

The trough in working-age population following the baby-boomer's retirement will require greater participation in the labor force by those over 60 years of age, African-American men (who are currently under-represented), and new immigrants (Pisarski, 1999). Policies will have to focus on loosening of traditional retirement age, getting African-American teenagers into the

work force, and on the evolving diversity of the workplace.

Commuting will be very different as the work-force changes and as the characteristics of work and workplaces change. More part-time and temporary jobs will result from the flexible workforce. Longer commutes on a more sporadic basis, and more midday trips can be expected. Although some see the growth of telecommuting as the answer to congestion, we could easily predict that less work travel means more travel for other purposes.

Land-use has been linked to transportation choices in traditional models, but the linkage may be weakening because of the impact of technology. New patterns will emerge, and we may begin to look at spatial and temporal flows in an entirely new way—as part of a matrix which includes transportation, land-use and telecommunications. (Wachs, 1999). For example, as people are freed from downtown workplaces as the destination of their daily commutes, they may live further and further from the economic center. Commuters may be willing to travel 30 to 100 miles to work, if they commute only once a week.

And equity will continue to be a major concern. Transportation and the civil rights movement have always had links—from the bus boycotts of the 1950s to the demands for environmental justice and a fair share of transportation investments in our own time. Inequality in transportation may continue to affect people of color and low-income communities, but progress is being made to include such considerations in the decision-making process. The USDOT has new guidance to encourage transportation agencies to examine the cumulative effect of transportation investments, and to focus on how to promote equitable access (The President's Order on Environmental Justice). There has been Presidential attention to reducing the digital divide because of the impact on access to jobs, information, and opportunity.

As we progress into the century, we should remember that transportation has always, and will continue to be, integrated with information exchange and technology. As the labor force changes, so will the characteristics of travel. Throughout history greater communication has led to greater travel.

Some researchers believe that the differences between the white majority and people of color will lessen in the future: “commute patterns of white and minorities are converging rather than diverging over time, even among low-skilled workers.” (Taylor, 1995). However, there is evidence for deeply ingrained residential and industrial segregation, and such a structural disadvantage requires persistence and time to change. Convergence may be on the far horizon.

One of the aftermaths of the vast divergence in wealth in the early industrial age was the violent worker riots of the early part of the last century. As we enter the “information age” we must deal with inequalities in mobility in a constructive manner, or we will continue to have groups that are disenfranchised from the social, political, and economic benefits of the society. These groups are the working poor, newer immigrants, and to some extent African-Americans. Both the Census 2000 and the 2000 NPTS will help us determine if there is a trend toward convergence in travel to work, and vehicle availability, for people of different races and ethnic backgrounds.

Researchers always want **more** data, but to understand these trends **better** data is needed. We

need to include enough people of each segment of the population to be able to look at the niche markets, for transit, for example. The next NPTS will include questions on whether the respondent was born in the U.S. and when he or she immigrated to this country. Previous NPTS have had poor representation of Hispanics because the forms and materials were in English, whereas the next NPTS will include Spanish-language forms and Spanish-speaking interviewers. There is also serious attention to improving response rates of low income households.

One lesson has been underlined in many studies, and that is for transit to stay viable it needs to focus on keeping riders who have access to other modes, especially a vehicle. For instance, travel speeds by transit need to be more comparable to speeds by private vehicle. Because of access and egress times, and wait times for transfers, the actual time spent traveling must indeed be fast. Los Angeles MTA will be experimenting with new bus system modeled after Curitiba, which are more like rail—one mile distance between stops. In less densely developed areas it makes sense to disperse the stop points.

If transit as a mode cannot compete in travel speed, much of the transit market is going to be limited to immigrant households who have yet to acquire a private vehicle. Transit planners should be attentive to the residential choices made by immigrant households, as well as the locations of low skilled service jobs, and to provide service which will make it more enticing for continued ridership, even after a private vehicle is acquired, or can delay the acquisition and use of private vehicles.

Bibliography

Bureau of Labor Statistics. "A Profile of the Working Poor," U.S. Department of Labor, Report 918, 1996

Department of Commerce. "Falling through the Net: Defining the Digital Divide," National Telecommunications and Information Administration, Washington, DC, 1999

Doyle, D. Gregg and Brian Taylor. "Variation in Metropolitan Travel Behavior by Sex and Ethnicity," Travel Patterns by People of Color, May 2000

Edmonson, Brad. Keynote address for the TRB Conference on "Personal Travel: The Long and Short of It," 1999, author's notes

Fletcher, Michael. "Latinos See Bias in Elgin's Fight Against Blight," Washington Post, May 26, 2000

Ihlanfeldt, Keith and Sjoquist, David. "The Spatial Mismatch Hypothesis: a Review of Recent Studies and their Implications for Welfare Reform," Housing Policy Debate 9(4):849-92, 1998

Johnston, Ibipo. "Location, Race, and Labor Force Participation: Implications for Women of Color," Women's Travel Issues: Proceedings from the Second National Conference, October, 1996, FHWA-PL-97-024

Kain, John. "The Spatial Mismatch Hypothesis: Three Decades Later," Housing Policy Debate 3(2):371-460, 1992

Kim, Marlene. "The Problems Facing the Working Poor," Department of Labor Studies and Employment Relations, 1999

Lardner, James. "The Rich Get Richer," U.S. News and World Report, Feb 21, 2000

Myer, Dowell. "Changes over Time in Transportation Mode for Journey to Work: Effects of Aging and Immigration," TRB Conference Proceedings "Decennial Census Data for Transportation Planning: Case Studies and Strategies for 2000," Transportation Research Board, Washington, DC 1997

Pisarski, Alan. Address at the TRB Conference on "Personal Travel: The Long and Short of Personal Travel," 1999, author's notes

Robinson, John, Bart Landry, and Ronica Rooks. "Time and the Melting Pot," American Demographics, 1998

Taylor, Brian and Paul Ong. "Spatial Mismatch or Automobile Mismatch? An Examination of Race, Residence, and Commuting in US Metropolitan Areas," Urban Studies, Vol. 32, No. 9, 1995, 1453-1473

Wachs, M. "New Expectations for Transportation Data," TR News No. 206, Jan-Feb 2000.
Transportation Research Board, Washington, D.C. pp. 13-17