



Trends in Women's Travel Patterns

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TRENDS IN WOMEN'S TRAVEL PATTERNS

INTRODUCTION

BACKGROUND

Women's travel has changed remarkably in the last three decades. Women are making more trips, more often in a car, covering more miles—all shown in Tables One through Three. Table One demonstrates that women under 65 make more trips daily than do men—and that the gap between the sexes is growing. Between 1983-90, men 16-64 increased their trip-making just over 2% while women's trip-making went up 8%. Women over 65 currently make fewer trips than men but some of this represents the disproportionate number of very old women among seniors. But between 1983-90 older women's tripmaking increased almost 15% while men's barely increased.

Table 1
Daily Person Trips

	1983	1990	83-90 % Change
Men 16-64	3.21	3.28	+2.2%
Women 16-64	3.25	3.51	+8.0%
Men 65+	2.23	2.25	+0.9%
Women 65+	1.56	1.79	+14.7%

Table Two shows that in 1990 women 16-64 made more of their trips in a private car than did men—although both sexes made almost nine out of ten trips by car. Between 1983-90 women's use of the car went up over 2% for those under 65 and almost 4% for those over 65. An interesting point is that women's use of public transit also went up very slightly while men's went down—although neither sex either under or over 65 made more than 3% of all their trips in a bus, subway, or train.

Table 2
Selected Modes for All Trips

	1983		1990		83-90 % Difference	
	%Car	%Transit	%Car	%Transit	%Car	%Transit
Men 16-64	87.5	2.6	89.1	2.3	+1.3	-0.3
Women 16-64	87.2	2.9	89.5	3.0	+2.3	+0.1
Men 65+	87.3	2.7	90.3	2.2	+3.0	-0.5
Women 65+	84.3	2.6	88.1	2.9	+3.8	+0.3

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Table Three shows one result of the growing dependance on the private car among women of all ages. Although women continue to drive fewer miles than men, women's driving has increased remarkably. Between 1983-90, women both over and under 65 increased their total annual mileage almost 52%—so while men also drove more the gap between men and women has narrowed. In 1983, for example, men 16-64 drove 129% more miles than comparable women; in 1990 they drove only 70% more.

Table 3
Average Annual Miles Driven

	1983	1990	83-90 % Change
Men 16-64	15,370	17,602	+14.5%
Women 16-64	6,722	10,184	+51.5%
Men 65+	7,200	9,414	+30.8%
Women 65+	3,308	5,020	+51.8%

These changes both result from and take place in the context of a number of major and even dramatic changes in society. All of the changing travel patterns of women must be seen in light of the complex interactions of these trends. This paper will first review these crucial factors, some of which may simply be context for the transportation changes we are seeing while others may be explanatory—and all seem inextricably linked. The paper will address three issues which arise from the nexus of many of these trends but which have been poorly or inadequately explored by most researchers: the impact of income, suburbanization, and race and ethnicity on women's travel patterns.

THE ENVIRONMENT

Among the most influential trends that affect or support or create the vast changes we have seen in women's travel behavior are:

- Increasing labor force participation of women, especially those with children
- Staggering growth in the automobility of society
- Suburbanization of homes and jobs
- De-industrialization of the economic base
- Aging of society
- Increasing single adult and single person households
- Growing diversity in the population, especially associated with migration from abroad

WOMEN'S LABOR FORCE PARTICIPATION

From 1970-1990 the labor force involvement of American women increased over 14%—while dropping almost 4% for men¹. In fact in each of the last three decades, the absolute growth of women in the labor force out paced that of men, sometimes substantially. For example, between 1980-90, almost 14 million women joined the labor force, compared to just under 10 million men.

The participation rate of women 35-44 grew the fastest; in 1992 over three-fourths of women in that age group were in the paid labor force². As a result, almost 60% of all women have paid employment; in 1992 women comprised 46% of the total civilian work force³—compared to 38% in 1970⁴. The Bureau of Labor Statistics estimates that by 2005, almost 64% of women but only 74% of men will be in the civilian labor force⁵.

Hidden within these figures is the major increase in the labor force participation of *women with children*. In 1986 over 61% of married women with children under 18 worked outside the home—compared to only 27% in 1960. Just as important is the substantial growth of employed married women with very young children. In 1960 only 18% of married women with children under 6 were in the paid labor force; the comparable number was 30% in 1970 and 33% in 1976. Today almost 60% of married women with young children have salaried employment (while almost 75% of married women with children from six to seventeen are in the paid work force)⁶.

DEPENDENCE ON THE PRIVATE VEHICLE

Between 1969-1990 the number of licensed drivers went up almost 60%—the largest component of that growth was licensing among women. In 1990 almost 96% of men and 90% of women 30-49 were licensed drivers⁷. Within twenty years there will be no more than a five percentage point difference in the licensing rates of any group of men and women under 70; as a result licensing is growing rapidly among elderly woman as younger drivers age.

The growth in drivers licensing is linked to growth in private vehicle ownership. In 1990 there were more cars than drivers in the US—20% of all households had three or more cars. And while some Americans were car-less, in 1990 only 6% of the entire population lived in households without a car and many of those households were headed by seniors⁸. As the number of cars has increased, the number of people in each car has fallen drastically, so that fewer than one in ten cars has an occupant other than the driver in it at any given time.

Given this backdrop, it isn't surprising that between 1980 and 1990 more people became drive- alone commuters than became workers.

About 19 million workers were added, and over 22 single-occupant vehicle drivers were added. Effectively, all new workers chose to drive alone, and a few million additional workers shifted from other modes to the single-occupant vehicle. Some alternatives, such as walking and carpooling, declined precipitously, while others, such as transit, declined less dramatically⁹.

SUBURBANIZATION

American metropolitan areas are becoming increasingly more suburban. In 1990 50% of all workers lived in the suburbs; between 1950 and 1992 the U.S. population rose 56.1%—but central cities only grew 49.9% while the suburban population grew almost 200%.¹⁰ While the rate of suburban growth slowed in the last decade (and that of central cities went up slightly—to .64% from .09% in the 1970-80 decade), suburban growth is still substantially faster than that of the central city. For example, in the high growth areas of the South and the West annual suburban growth rates exceed 2.2% a year¹¹. Not only are suburbs the home of more Americans, they are where the majority of Americans find their jobs. Between 1980-90, the number of suburban jobs grew 65% (and the number of rural jobs

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grew 17%) but central city jobs grew only 18%. As a result almost 70% of all new jobs created in the US economy between 1980 and 1990 were in the suburbs¹². The number of suburban workers grew over thirty percent between 1980-90 in metropolitan areas as disparate as Minneapolis and Norfolk (VA), Indianapolis and Houston, Columbus (OH) and Miami—with suburban job growth rates exceeding 50% in Dallas, Atlanta, San Antonio, and Sacramento¹³.

Even within suburban areas, jobs are de-concentrating, discussions of “Edge Cities” notwithstanding. A major study of six large metropolitan areas found that most office jobs were located in relatively small, low density clusters along highways or what the author termed “the net of beads”¹⁴. In the Los Angeles region Giuliano and Small found that while there were a few large suburban clusters, most suburban centers were small scale¹⁵.

In fact, a 1994 study found that from 1972-1992 substantial employment decentralization occurred almost everywhere in the US, with the outer suburbs reaching levels of employment previously achieved by inner suburbs¹⁶. Between 1982-87 metropolitan employment growth was the highest in the outer suburbs for all industrial sectors except manufacturing; for example it exceeded 3% in all metropolitan areas (except Milwaukee) and was over 5% in five large cities.

This outer suburban employment pattern was not a Sunbelt/Rustbelt phenomenon—the highest rate of outer suburban employment growth in the US was in four disparate communities: Houston, Detroit, Philadelphia, and Los Angeles¹⁷.

INDUSTRIAL RESTRUCTURING

The US economy is witnessing major remarkable shifts from production and agriculture to service industries, that is, from work in factories or farms or mines to jobs, for example, in retail sales, public administration, private household work, banking, or communications. In the U.S. the total number of service sector jobs grew 73% from 1970-90 while those in manufacturing grew only 2%—as jobs in agriculture actually fell 6%. As a result, in 1990, there were almost 85 million jobs in the service sector in the US—or 72% of total civilian employment¹⁸. In part, this growth in service jobs is related to the aging of the population and the substantial increase in salaried women, both of which have created a rapidly growing domestic demand for services in health care, day care, food, and leisure activities.

Women's employment patterns are inextricably bound with the growth of the service sector. For example, retail trade will soon replace manufacturing as the second largest source of total US employment; it is expected to generate over 5 million jobs by 2005. Women have traditionally been the dominant participants in this division accounting for 52% of the jobs in 1990—and holding 68% of the part-time jobs¹⁹. (Unfortunately this industry is dominated by part-time, low-skill, “demand little” jobs which offer little chance for advancement.)

A key component of the service sector is the flexible labor force, which contains roughly one fourth of all American workers—and a disproportionate share of women workers. So-called flexible workers are those with variable work schedules or those who work at different locations in a given time period, as well as people consistently holding more than one job either permanently or as contingency workers. Some analysts estimate that, by the turn of the century, almost half of the work force will be contingency or flexible workers²⁰.

A 1994 study of workers with two jobs, or “moonlighters,” found that the substantial growth in workers with multiple employers was largely due to increasing rates among women. In 1970 roughly 2% of women but 7% of men moonlighted; men’s rates continued to drop and women’s to increase slightly so that by 1994 they converged at 5.9%. The study noted,

Multiple-job holding by women has increased in recent years as a result of the increasing percentage of families headed by females, low relative wages, and stagnant male earnings²¹.

These remarkable changes in the economic patterns of the country affect not only where women work but when; most of the changes involve a variety of work schedules. Census data show that almost 40% of all women workers do not have a day shift job (defined as a work schedule where at least one-half of the hours fall between 8:00 AM and 4:00 PM). Twenty-three percent of all full time working mothers and almost 60% of those working part time not only don’t work the classic 9-to-5 day, they don’t even work most of their hours during that traditional period²².

THE DEMANDS OF AN AGING SOCIETY

American society is rapidly aging; in 1990 more than one fourth of the entire population was over 60. Indeed, the elderly are the fastest growing component of the US population; the number of those over 65 grew more than 20% between 1980 and 1990. Moreover, in 1990 there were 6.2 million Americans over 85, a number the Census expects to increase over 400% by 2050. By the first decade of the next Century almost half of all elderly people will be over 75—and almost 5% of the entire US population will be over 80²³.

Among the elderly, women outnumber men by 3 to 2 and are over represented among the very old²⁴. In 1991 almost 46% of women but only 37% of men over 65 were over 75 while more than one in four older women were over 80 (compared to less than one in five men). The Census Bureau predicts that by 2010 more than half of all women but only 41% of all men will be over 75. Partially because of the age gap between men and women, older women are substantially more likely to be unmarried or to live alone; in 1990 almost 54% of women but only 19% of men over 65 were widowed or divorced while 16% of men but over 42% of women over 65 were living alone.

Today, in contrast to twenty years ago, most older people are drivers; between 1983-1990 the increase in licensing among both older men and women was substantial—not, of course, because older people learned to drive but because younger drivers were aging. In 1992 almost 90% of men and 50% of women over 70 were licensed drivers; more importantly, almost 100% of men and 90% of those who will be over 70 in 2012 are currently licensed drivers.

While many elderly are wealthy, the poor elderly are largely single women, often minorities²⁵. A recent Census study concluded,

Growth in real income [in the ‘80’s] was weakest for elderly single householders, especially women, and those elderly households slightly above poverty. The situation was particularly acute for elderly Black women living alone—a group whose poverty rate changed very little in the decade. Elderly married couple households, on the other hand, appeared to have fared best during the decade²⁶.

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In general, elderly people living alone have the lowest median incomes but elderly women living alone were more likely to have low incomes than comparable men. In 1990, for example, 58% of women over 75 living alone but only 42% of comparable men had incomes under \$10,000 while 40% of women over 85 living alone were poor compared to 27% of comparable men. As a result, although women comprised 58% of those over 65, they accounted for almost three-fourths of the poor elderly.

The growing proportion of the population who are elderly has important implications for women of working age—who have been called the “sandwich generation” because they may have responsibilities to both their children and their parents at the same time. Today a 45 year old woman could easily have both a 15 year old child and an 80 year old parent. In fact, the ratio of those 50-64 to those over 85 has tripled since 1950 and will triple again over the coming sixty years²⁷.

This has created a situation without historical precedent; in 1940 only 1 in 3 fifty year old women had a living mother but that figure had doubled to 2 in 3 by 1980.

More people will face the concern and expense of caring for their very old, frail relatives since so many people now live long enough to experience multiple chronic illnesses...the oldest old [those over 85] are the most likely to have pressing needs for economic and physical support²⁸.

NEW HOUSEHOLDS AND HOUSEHOLD STRUCTURES

From 1974 to 1994 the total number of US families increased over 17% but the fastest growth was among single parent families. In fact in those two decades the proportion of all families who were headed by a married couple fell more than ten percentage points while families headed by a woman alone grew by almost the same amount—to account for almost one fourth of all American families²⁹.

As a result of those trend the percentage of children living with both parents dropped over 15 percentage points between 1960 and 1990 while the percentage of children living with just one parent tripled. In 1990 3% of all children lived only with their fathers while 22% of all children lived with only their mothers.

The Census Bureau recently reported,

In 1990, one-parent family groups accounted for 22.6% of all White, 60.6% of all Black, and 33.2% of all Hispanic family groups. For Black children, the one-parent family group is now the most common living arrangement. For White and Hispanic children, the one-parent family group is now a common arrangement, but not the most common one.³⁰

Families headed by a woman alone have considerably higher poverty rates than any other type of households—in 1994 44% were living below the poverty level³¹. In fact, the income of families maintained by a women with no spouse dropped 5% in real dollars between 1967-1991³². As a result, families headed by a woman alone constituted a substantial portion of all poor families—almost 60% in 1994³³. In order to raise themselves just over the poverty line, the average family headed by a woman alone would require an additional \$5,661 per year in 1990 dollars³⁴.

DIVERSITY IN AMERICAN SOCIETY

The U.S. population has been becoming more diverse for over three decades largely because of a sustained flow of immigrants from abroad³⁵. Large and growing numbers of the U.S. population are from different cultural, racial, or ethnic backgrounds. In 1993 approximately 15% of the population was Black, 11% Hispanic (of any race), 4% Asian and Pacific Islander, and just under 1% were American Indian, Eskimos, or Aleuts³⁶.

By the turn of the Century the U.S. Census predicts the White population will account for 84% of the total population—down from 87% in 1993—while roughly 13% will be Black, 4% Asian or Pacific Islander, and 11% would be of Hispanic origin (of any race). However, by 2050 Hispanics may well compose 23% of the population while the White proportion will drop to just over half.

Migration is one of the largest causes of this country's population growth and Latin America has been the major source of legal immigration to the US since 1969—the primary country of birth being Mexico. Over 43% of the current foreign born population came from Latin American countries; the bulk of the remainder of legal immigrants has shifted from those of European origin to those from Asia. Today those born in Asia account for 25% percent of the foreign born compared to 21% from European countries. In fact, in the last half of the decade of the 80's, the total number of Asian immigrants even outnumbered those from Latin America—1.32 million Asian immigrants arrived in the US compared to 1.02 million Latin Americans³⁷.

Most analysts believe that the growth of the Hispanic-origin population will be the major element in total population growth³⁸. In fact, much of the growth predicted for the West and South will come from the 8 million Hispanics that will be added to the population before the end of the Century. Almost 81% of that number will reside in those two regions, over half in just Texas and California³⁹. This trend explains why Texas in 1994 replaced New York as the nation's second most populous state.

SUMMARY

Overall the significant changes just described may have remarkable implications for aggregate travel and particularly for women's travel patterns. While there is general consensus on how overall societal changes may impact a small area of women's travel—for example, greater use of the car, more person trips—many of the implications of these trends have either largely been ignored by theorists and researchers, and/or they raise a host of questions which need to be addressed. I will focus attention on some of both types of issues in the following section of my paper.

TRAVEL IMPLICATIONS; THE NEED FOR FURTHER EXPLORATION

Unresolved Issues

The societal trends just described are linked both to greater travel by women and greater variation in the travel of different sub-sets of women. Many of these implications will be discussed at great length by a number of papers to be presented at this Conference; here I will touch on three:

- The role of income in women's growing reliance on the car
- The implications of suburbanization for women's travel
- Differences in travel patterns by race and ethnicity

Household Income and the Car

Traditional travel analyses place great reliance on **income** as a predictor of behavior and particularly the use of the car. Moreover, traditional analyses and research have focused on the **household** as the appropriate level of analysis—assuming, for example, that a man and woman in a comparable household will make the same travel decisions. Moreover it has always been assumed that the relationship between income and car use is a proportional one (and that the one between income and alternatives to the car is inverse). In short, theory leads us to expect that car use will increase (and transit use decrease) as household income goes up.

However, Figure one suggests that women's growing use of the car is not well explained by household income. In 1990 in all metropolitan areas, at household incomes below \$20,000 women drove alone to work more than men. For example, in households making between \$10-15,000 almost 72% of women but only 65% of men drove alone to work. In addition, while both men and women were more likely to drive alone as their incomes increased, women's dependence on the car actually dropped after income reached \$40,000—women in households making \$20-25,000 were as likely to drive as were women making \$60-70,000.

As a corollary, in spite of traditional expectations, women in lower income households were less likely to use alternatives to the car for the worktrip commute than comparable men. Figure two shows that women were less likely to carpool than are men with comparable incomes. In fact, men were more likely to carpool if they lived in households making under \$25,000. Even at higher household incomes women were only slightly more likely to carpool than men.

Finally Figure three shows that women in very poor households (with incomes less than \$10,000) were less likely to use transit than comparable men—but then are more likely to do so at incomes above \$20,000. At the same time, the Figure shows that transit use only drops with increasing income until roughly \$40,000—at which time it increases.

These statistics raise many questions about why women in comparable households do use the car more and transit less—is it household responsibility or the location of jobs? Do these findings vary by metropolitan area? We have little information on this.

Figure 1
Driving Alone to Work in Metropolitan Areas by Sex and Income

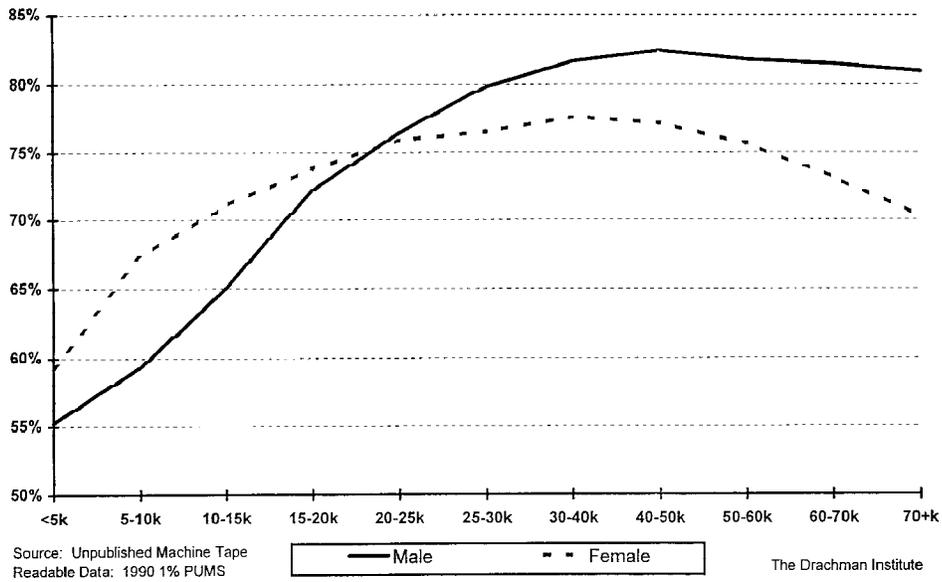


Figure 2
Carpool Use to Work in Metropolitan Areas by Sex and Income

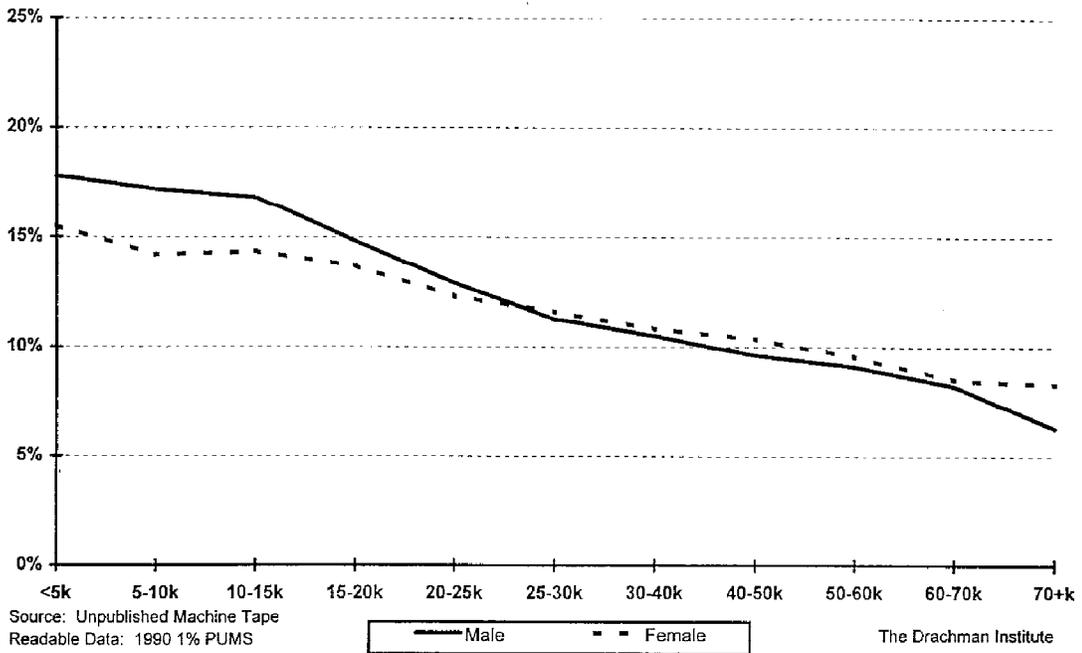
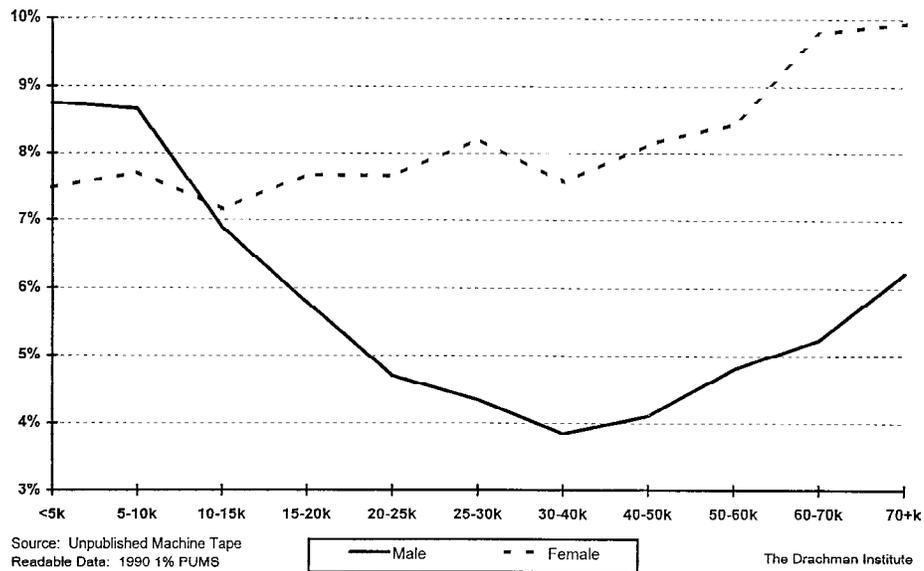


Figure 3
Transit Use by Income and Sex



Suburb, Age and the Car

The growing suburbanization of homes and jobs may have special implications for women's travel, and particularly for older women (who have fewer alternatives if they cannot drive). Table Four looks at both car and transit use for all trips, stressing the differences between central city and suburb⁴⁰. Even in 1983 women 16-64 traveling in the suburbs were more dependant on the car and less dependant on transit than a) women living elsewhere and b) than comparable men. In 1990 car use was highest among women in the suburbs—almost 93% of all trips were made in a car. At the same time transit use among suburban women increased slightly between 1983 and 1990 (while dropping in Central Cities where, presumably, transit services were better).

Table 4
Selected Modes for All Trips, People 16-64

	1983		1990		83-90 % Difference	
	% Car	% Transit	% Car	% Transit	% Car	% Transit
<u>Total U.S.</u>						
Men	87.8	2.6	89.1	2.3	+1.3	-0.3
Women	87.2	2.9	89.5	3.0	+2.3	+0.1
<u>Central City</u>						
Men	81.7	4.8	84.1	4.8	+2.4	0
Women	79.6	6.0	84.3	5.1	+4.7	-0.9
<u>Suburbs</u>						
Men	88.6	2.4	91.0	2.1	+2.4	-0.3
Women	90.1	2.2	92.7	2.4	+2.6	+0.2

Table Five looks at the same issues among those over 65. While there was no group of elderly women who were more dependant on the car than comparable men, auto use was highest in the suburbs for both elderly men and women. What is striking, however is that auto use 1983-90 went up far faster for women than men both in all areas, jumping faster in the Central City than in the suburb.

Table 5
Selected Modes for All Trips, People 65+

	1983		1990		83-90% Difference	
	%Car	%Transit	%Car	%Transit	%Car	%Transit
<u>Total U.S.</u>						
Men	87.3	2.7	90.3	2.2	+3.0	-0.5
Women	84.3	2.6	88.1	2.9	+3.8	+0.3
<u>Central City</u>						
Men	83.5	5.1	85.3	5.1	+1.8	0
Women	75.8	5.1	83.0	4.9	+7.2	-0.2
<u>Suburbs</u>						
Men	88.1	2.4	89.9	1.5	+1.8	-9.0
Women	85.2	1.9	88.1	3.0	+2.9	+1.1

Given the percentages of suburban trips made in a car, it not surprising that women who live in the suburbs have experienced the fastest growth rate in annual miles driven. Table Six shows that women 16-64 traveling in the suburbs drove 48% more miles in 1990 than they had in 1983—while comparable men drove “only” 12% more. This narrowed the gap between the sexes; in 1983 suburban men drove 124% more than comparable women; in 1990 the gap was roughly half that figure.

Table 6
Average Annual Miles Driven, People 16-64

	1983	1990	83-90 % Difference
<u>Total U.S.</u>			
Men	15,370	17,602	+14.5
Women	6,722	10,184	+51.5
<u>Central City</u>			
Men	13,007	15,730	+20.9
Women	6,380	9,272	+45.3
<u>Suburbs</u>			
Men	15,161	17,005	+12.2
Women	6,774	10,039	+48.2

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Table Seven shows that suburban women 65+ increased their annual miles substantially more than non-suburban older women and than younger suburban women, driving almost 75% more between 1983-90—compared to “only” 29% more among comparable men. As a result, the gap between men and women narrowed nationally as the gap narrowed in the suburbs. For example, in 1983, women in the suburbs drove 60% fewer miles than comparable men; in 1990 the gap had narrowed to 47%.

Table 7
Average Annual Miles Driven, People 65+

	1983	1990	83-90 % Difference
<u>Total U.S.</u>			
Men	7,200	9,414	+30.8
Women	3,308	5,020	+51.8
<u>Central City</u>			
Men	6,983	8,188	+17.3
Women	3,087	4,509	+46.1
<u>Suburbs</u>			
Men	7,453	9,681	+29.9
Women	2,950	5,121	+73.6

In addition, suburban women made more person trips than a) comparable men or b) than other women. For example in 1990 women 16-64 in the suburbs made an average of 3.53 trips per day—compared to 3.37 trips by comparable men or 3.43 by central city women. Suburban women also increased their trip-making faster than comparable men from 1983 to 1990—although the highest growth was among central city women (7.65 vs. 9.6%).

The extent to which these are real differences, as opposed to those created by the highly artificial definition of *suburban* used here, is open to debate. However it does seem logical that, to the extent these definitions cover expanded lower density employment opportunities and dispersed residential patterns, women are more likely be affected disproportionately by suburbanization. This may be because of household obligations, or the location or hours of jobs, or because suburban transit alternatives are not as good at serving the employment locations of women service workers as they are at serving those of men (a major manufacturing plant vs. fast food outlets). All of these issues require study and analysis.

Sex, Race, and Ethnicity in Travel

It has been traditional to assume that economic variables, like household income or employment status, or social variables like the assumption of household responsibilities, explain the travel behavior of different groups of people. So obvious differences in the travel patterns of 1) men and women, and 2) whites and blacks, for example, have usually been attributed to differences in income, occupation, and perhaps to residential location. More recently they have been attributed to differences in household structure or roles (i.e. single parent families or salaried women retaining childcare responsibilities).

Yet there is growing evidence of racial and ethnic differences in travel which are not fully explained or explained at all by income or residential location. Some may reflect discrimination in housing or employment opportunities but some differences may also be explained by variations in cultural and ethnic values and norms.

Table Eight shows that white women (and men) 16-64 make more daily trips than people from other backgrounds. White women, for example, made 3.66 trips per day in 1990, or 20% more than Black and 32% more than Hispanic women. At the same time, Black and Hispanic women experienced a much faster increase in their daily trip rates from 1983-90.

Table 8
Daily Person Trips, People 16-64

	1983	1990	83-90 % Change
<u>Men</u>			
White	3.27	3.38	+3.4
Black	2.68	2.92	+8.9
Hispanic	2.66	2.83	+6.3
<u>Women</u>			
White	3.37	3.66	+8.6
Black	2.45	3.04	+24.0
Hispanic	2.45	2.78	+13.4

Figure four shows that white women were substantially more likely to drive alone to work than women from other backgrounds in comparable households. For example, at household incomes between \$25-30,000, 80% of white women but only 68% of Hispanic women (of any race) and roughly 62% of Asian and Black women drove alone to work. Moreover, the tendency to drive to work dropped for white women after household incomes of \$40,000 while continuing to rise for those from other races and ethnicities. As a result, Black women making more than \$70,000 were more likely to drive alone to work than comparable white women.

Conversely, as Figure five indicates, white women were substantially less likely to carpool to work than women from other backgrounds with similar household incomes. For example, in households making between \$30-40,000, only 9.8% of white women, but almost 15% of Hispanic and Black women, carpooled to work. Asian women were more likely to carpool than all other women at almost all but the lowest income levels.

Differences among women were even more pronounced for transit use to work. Figure six shows that white women were much less likely to use transit than other women in households with comparable income and that Black women were substantially more likely to do so. While transit use tended to fall with increasing household income for most women, it was the opposite for white women—the higher their income the more likely they were to commute via transit. But even among Asian and Hispanic women the response to increasing income was not very profound; for example, Hispanic women living in households making \$50-60,000 were almost as likely to use public transit as Hispanic women in households making \$20-25,000.

Figure 4
 Women Driving Alone to Work

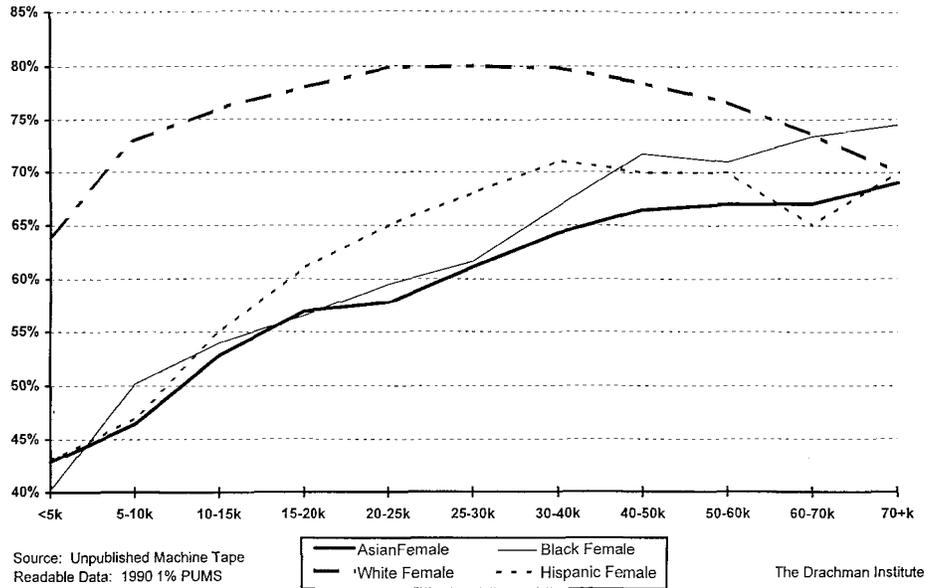


Figure 5
 Women Carpooling to Work

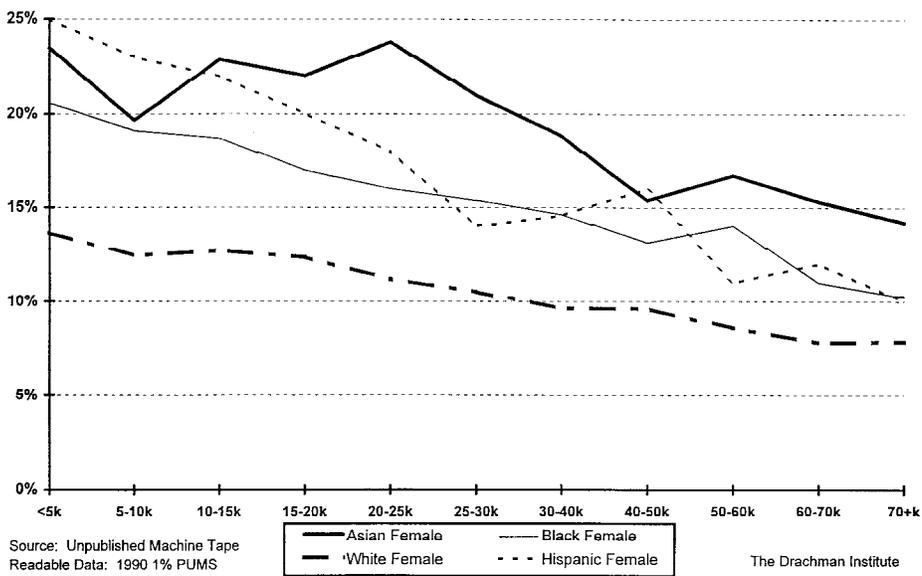
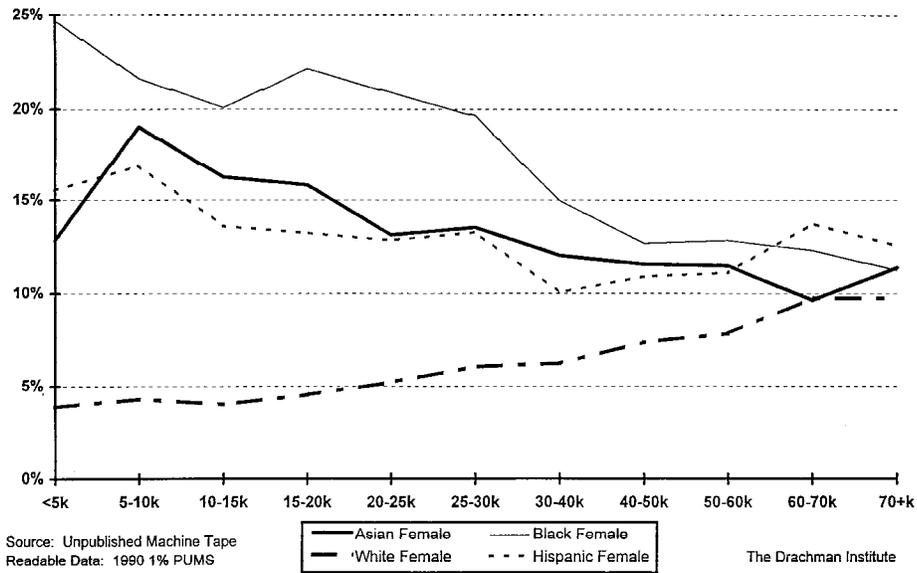


Figure 6
Women's Transit Use by Income and Race



Given these variations, it isn't surprising that there are major differences in the miles driven each year by women from various backgrounds. As Table Nine shows, white women drove more miles each year than Black or Hispanic women, although the rate of increase between 1983-1990 was roughly the same—around 50% in just seven years. There were slightly different patterns among older women as seen in Table Ten; in 1990 Hispanic older women drove substantially more miles than white or Black women. In addition the rates of increase between 1983-90 were very different (although there were some problems with the 1983 Hispanic data).

Table 9
Average Annual Miles Driven, People 16-64

	1983	1990	83-90 % Change
<u>Men</u>			
White	15,693	18,106	+15.4
Black	12,126	15,076	+24.3
Hispanic	12,455	15,141	+21.6
<u>Women</u>			
White	6,830	10,456	+53.1
Black	5,442	8,584	+57.7
Hispanic	6,391	9,416	+47.3

Table 10
Average Annual Miles Driven, People 65+

	1983	1990	83-90 % Change
<u>Men</u>			
White	7,341	9,418	+28.3
Black	4,996	9,022	+80.6
Hispanic	5,146	8,965	+74.2
<u>Women</u>			
White	3,337	4,931	+47.8
Black	2,751	4,689	+70.4
Hispanic	1,809	5,591	+209.1

Certainly both the Census and the NPTS hint that there are other than economic forces at work. If ethnicity or race create differences in the travel behavior of women and men, as the US becomes more diverse, an important issue is the extent to which any travel differences due to cultural values will continue.

CONCLUSIONS

We know a great deal more about the actual differences in the travel patterns of women and men than we do about the reasons for those differences. Women seem disproportionately more reliant on the private car and they do more tripmaking; at the same time they cover fewer miles, even when they have salaried employment. We also know that there are sometimes substantial differences in the travel patterns of subgroup of women; to the extent that these are due to economic circumstances they become the subject of policy discussions—in some ways it makes no difference if Black women travel less because they are poor—if that reduced travel reduces their quality of life or that of their children. But not all differences are bad anymore than all are likely to continue. Unfortunately, we know far less about these issue than we should.

While this Conference will address a body of transportation research questions that arise from women's changing roles in society, I suggest that must press to add to that list questions about the impact and long term implications of race and ethnicity as well as suburbanization and the changing economic structure of our society on the travel patterns of women of various ages and backgrounds.

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⁴⁰**Central City** is a Census term for the major jurisdiction in a metropolitan area; it is far larger than the traditional core of a city—the area is delineated solely by the legal boundaries of that city and not by density, etc. **Suburb** is not a Census term; here it is defined as that portion of the Urbanized Area which is not part of the Central City.