Aging Cars, Aging Drivers

Important Findings from the National Household Travel Survey

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Abstract

The National Personal Travel Survey (NPTS/NHTS data Series) has been conducted periodically by USDOT since 1969. In this article, trends and data the most recent survey in 2001 and the entire data series are used to highlight important patterns of travel and vehicle use in American households. The data indicates tremendous growth in the number and percent of households with more vehicles than drivers, and the availability of extra vehicles is shown to add miles to the average household's travel. In addition, Americans are keeping their cars longer, and as a result the vehicle fleet is aging.

As all Americans have increased mobility, older people are continuing to drive well into their 70s and 80s. However, older drivers are more likely to be driving older cars than younger age groups, especially older men. Older drivers are at a greater risk of being involved in a fatal accident per mile driven than other age group. As we move into the future, transportation planners and policy makers will be increasingly challenged to anticipate and meet the goals of a safe and efficient transportation system.

Keywords: vehicle fleet composition, older drivers, safety, household vehicles, driver to vehicle ratio, vehicle miles of travel, auto ownership characteristics

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Continuing a long-term trend seen since the first National Personal Travel Survey in 1969, households have fewer persons, yet have more vehicles, more drivers and generate more miles than ever. Overall, Americans are spending more time everyday traveling, and traveling farther for each trip. The number of daily trips per person remained about the same in the 2001 as in 1995 (just over 4 trips per person per day), but the average distance of daily trips increased. The data shows that the average length of a vehicle trip went from 8.8 miles in 1990 to 9.1 miles in 1995 to 9.8 miles in 2001.

Overall, people aged 16 and older are traveling over and hour and a half (95 minutes) by all modes and for all reasons each day—about ten minutes more a day than in 1995. For people who drove on the travel day, more than 81 minutes were spent behind the wheel in 2001, compared to 73 minutes in 1995. In 2001, U.S. drivers were behind the wheel nearly 14,000 miles a year, an increase of 60 percent since 1969. People ages 35-54 travel the most—those people most likely to be workers, drivers, and householders.

More Vehicles and More Miles

The continuing increase in personal travel raises important and complex issues of air quality, global climate changes, and associated energy policies. The impacts of transportation on the natural environment have been a topic of much public discussion and debate in recent years. The air quality issues associated with the use of private vehicles have been at the heart of the controversy.

The use of private vehicles has expanded over the last quarter century, particularly for single-occupant trips. In addition, two trends may have an impact on safety, air pollution, and energy consumption--the aging of the fleet and the substitution of vehicles classified as light duty trucks--pick-up trucks, vans, and sport/utility vehicles (SUVs)--for automobiles in household travel.

One of the most striking changes in the landscape of American travel over the last quarter century is the nearly doubling (181 percent increase) in household vehicles. The rate of increase in cars, vans, and SUVs for personal travel is six times the rate of population increase. In 1969 there were 72.5 million household vehicles serving 197.2 million people, in 2001 there were 203.9 million household vehicles serving 277.2 million people.

Much of this growth has been in households with multiple vehicles. Whereas the number of households with one car has remained about the same over the last thirty years or so (30.3 million in 1969 and 33.7 million in 2001), the number of households with three or more vehicles increased nearly nine times (from 2.9 million in 1969 to 25.3 million in 2001).

In concert with the growth in vehicles is a growth in vehicle miles of travel. The average vehicle miles traveled per household grew from 12,400 miles per year in 1969 to 21,250 in 2001. Since the vehicle travel by household members is spread over more vehicles, annual miles for each individual vehicle is declining slightly.

Households in the same income group that have a vehicle for each driver or more vehicles than drivers account for more trips and more miles of travel than households with fewer vehicles than drivers. However in the households with more vehicles than drivers the annual mileage accumulation for each vehicle in the household is considerably less than those households with the same number of drivers but fewer vehicles.

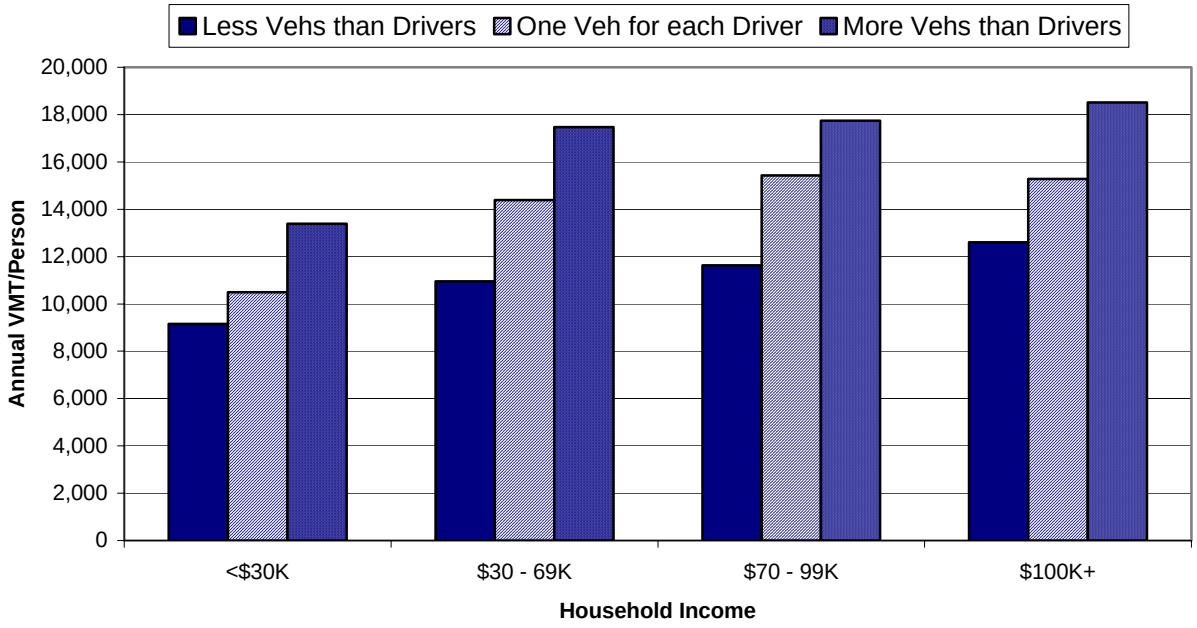
That is, within the same income group the average miles per household vehicle is less when the vehicles in the household outnumber the drivers. Overall, a vehicle in a household with fewer vehicles than drivers is driven 23 percent more miles than in households where there are more vehicles than drivers (13,500 miles per year versus 11,000).

Figure 1 shows the annual vehicle miles *per driver* for households with fewer vehicles than drivers, households with one vehicle for each driver, and households with more vehicles than drivers.

Even within the same income class, people in households with more vehicles available than drivers in the household travel substantially more miles per person than people in households where there are fewer vehicles than drivers.

Overall, individual drivers in high income households ($100K or more in annual income) with more vehicles than drivers travel 47 percent more miles than people in households with fewer vehicles than drivers (see Figure 1), an average annual miles per driver of 18,500 versus just 12,600 for drivers in high-income households with fewer vehicles available.

Figure 1 – Mean Annual Vehicle Miles PER DRIVER by Ratio of Vehicles to Drivers, 2001 NHTS



An Aging Vehicle Fleet

Overall the national survey shows that the vehicle fleet is aging; the average household car in 2001 was nearly 9 years old. The continued tendency to maintain older vehicles increases the time for market penetration by newer and cleaner cars. The average age of the vehicle fleet overall increased from 6.6 years in 1977 to 8.9 years in 2001 (see Table 1). Average ages for individual light truck classes (vans, SUVs, and pick-ups) are not available from earlier surveys.

Table 1 – Average Age of Household Vehicles by Type

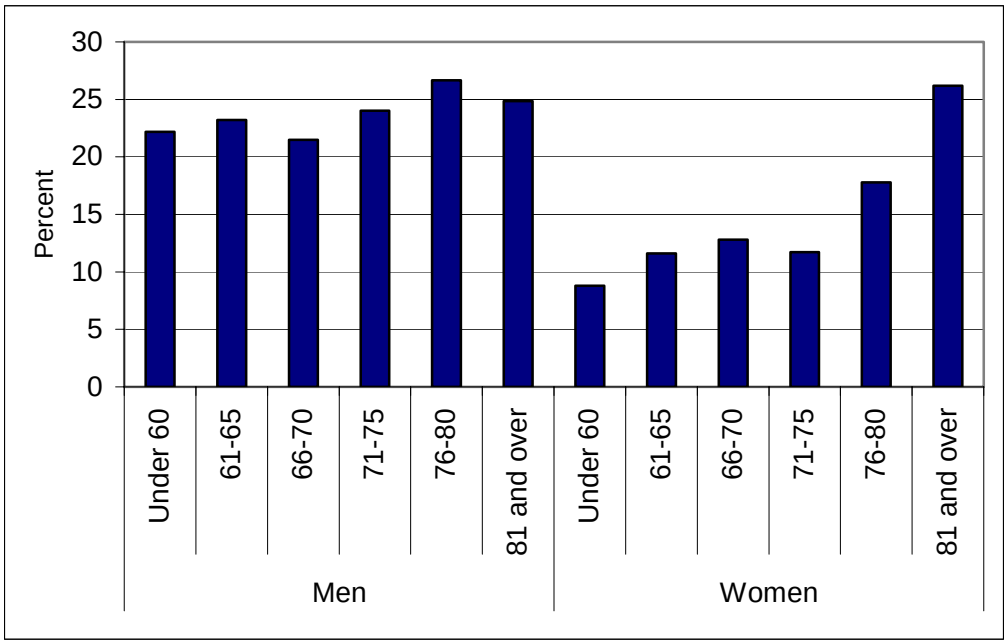
Vehicle Type	1977	1983	1990	1995	2001
All	6.6	7.6	7.7	8.3	8.9
Automobile	6.4	7.2	7.6	8.2	9.0
Van	5.5	8.5	5.9	6.7	7.6
Pick-up	7.3	8.5	8.4	9.7	10.1
SUV	--	--	--	6.7	6.5

The analysis of fleet composition and age of the fleet in conjunction with the demographics of the main driver of each household vehicle shows that older drivers may be driving older, less safety-equipped vehicles.

The age of the vehicle may indicate the types of safety features available. For example, in 1988 automatic seatbelts were made standard equipment, but 26 percent of drivers over the age of 80 are driving pre-1988 vehicles, compared to 16 percent of drivers under 60. In the 1990s airbags were required as standard equipment, and in 1998 passenger-side airbags were made standard. According to the national data, 85 percent of drivers over 80

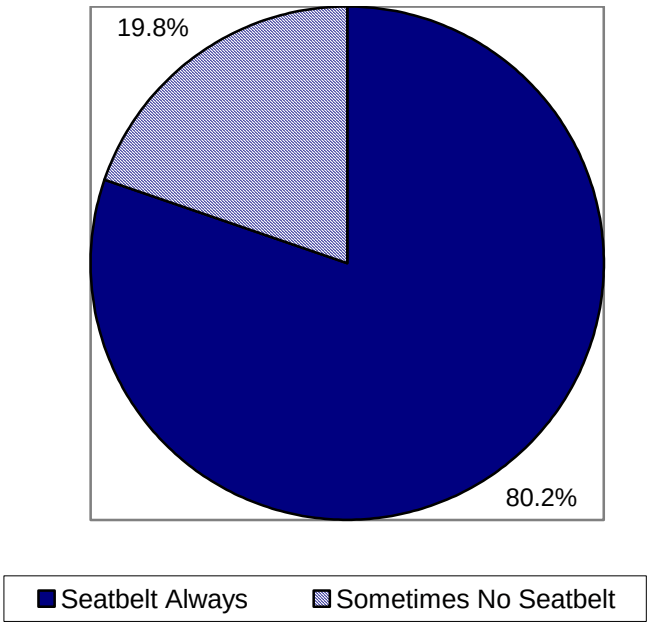
are in pre-1998 vehicles. Women are more likely than men to keep an older vehicle as they themselves get older, or to drive newer vehicles when younger.

Figure 2 – Percent of Drivers Driving Older (pre-1988) Vehicles



Most of the vehicles driven by older drivers will have at least a seatbelt available for use, but do older drivers use seatbelts? The 1995 NPTS asked a number of scenarios where a seatbelt might not be used ("When forgotten", "When on just a short trip", etc.). The good news is that older drivers were slightly more likely than drivers aged 15 – 65 to wear a seatbelt (see Figure 3). The bad news is that nearly one out of five older drivers sometime did not wear a seatbelt. (The 2001 NHTS did not include this question).

Figure 3 – Likelihood of Seatbelt Use by Older Drivers, Ages 65 and over

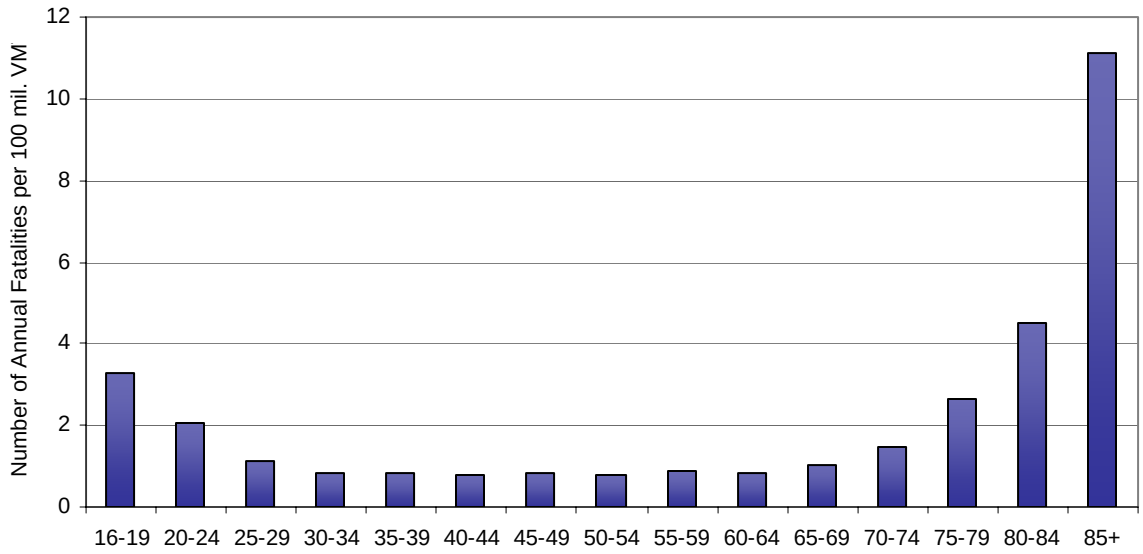


Older drivers are increasingly mobile, driving an average of 15.3 miles per day in 2001, compared to 12.7 miles daily in 1995. Most Americans also continue to drive as they age, with 75 percent of Americans aged 70 and above reporting they still drove in 2001, up from 73 percent in 1995, according to the survey. The aging of our population has profound implications on safety and travel. Most people retire in their own neighborhoods, therefore the majority of elderly people live in the suburbs and are more dependent on cars than previous generations. As driving skills decline with age, the vulnerability to injury in a collision increases.

Older Drivers at Risk

Per mile driven, elderly drivers (those over 80 years old) are more likely to die in a crash than any other age group. Figure 4 shows highway fatalities per 100 million vehicle miles of travel (VMT) by age of the driver. The importance of the calculating the crash rate by miles driven, rather than by population or percent of licensed drivers, is that it puts accidents and fatalities into the context of the amount of driving done. Older drivers drive far fewer miles than younger drivers, but in a crash of the same severity are more likely to be injured or die because of their frailty.

Figure 4 – Fatal Crash Rate: Fatalities per 100 Million Vehicle Miles of Travel



While many older drivers avoid peak-hour and night travel, improvements that help older drivers (those designed to reduce the consequences of driving mistakes, for instance) would make the roads safer for all drivers. Some of the suggested roadway improvements include wider lanes and shoulders, improved lighting, adding left-turn lanes at intersections and larger lettering on less complex signage.

The increase in older drivers killed in traffic accidents is occurring as older Americans form a greater portion of the overall population. The older segment of the population (those 65 and older) grew nearly twice as fast as the total population between 1990 and 2000, according to the Census Bureau. The number of older Americans will only increase, as baby boomers will start to turn 65 in 2011. Estimates show that one in five people will be 65 or older by 2030.

Conclusions

A key question for the future, as travel demand continues to grow at a time of little increase in road capacity, is the ability of intelligent transportation and telecommunication technologies and other demand management strategies to be the predominant factors of the next decade to preserve and enhance personal mobility and system performance. Safety concerns will be important as the driving public includes more and more older drivers.

The world is changing around us. Transportation researchers and policy makers will be increasingly challenged to anticipate and meet public demands for efficient, equitable, and safe transportation mobility and access. The ability to access good information about travel and the characteristics of the traveling public is key to understanding trends in travel behavior, and anticipating future needs. The national travel survey is a source of critical information for transportation planners and policy makers.

About the National Personal Travel Survey

The National Personal Travel Survey (NPTS) serves as DOT's primary source of quantitative data on the travel behavior of the American public. The 2001 survey was the most recent in the series, which spanned 1969, 1977, 1983, 1990, 1995, 2001. Data from the survey is used to investigate topics in transportation safety, the mobility of various population groups, congestion, the relationship of personal travel to economic productivity, the impact of travel on the human and natural environment, and the use of each transportation mode by trip purpose, trip length and other characteristics. The National Personal Travel Survey is a significant resource for addressing issues arising in surface transportation reauthorization.

The survey collects information on the full continuum of travel – from trips across the street to those across the country. Information on trip purpose, mode used, trip length, number on trip, time of day, day of week, as well as information on demographics such as income, race, gender, etc. are included in the national survey data.

In 2001 the national sample contained over 26,000 U.S. households, with another approximately 44,000 households from States and MPOs participating in the "add-on" component.

States and MPOs have a unique opportunity to purchase samples in the next series, planned for 2008. These additional samples, along with the random national samples that fall in the local area, are processed and geocoded to provide a local travel dataset for application in local planning and travel demand forecasting. The add-on program is like a turnkey project, where FHWA staff centrally coordinates contracting, quality control, error-checking, and compilation of the dataset. The high-quality data is low risk, SP&R and PL funds can be used, and traditionally the federal match has been waived for this pooled fund project.

For more information on the survey methods and content, to access the on-line analysis tool and recent publications, or to find out more about the add-on program for the next survey, visit the website at http://nhts.ornl.gov or contact susan.liss@fhwa.dot.gov, 202-366-5060.