FHWA NHTS

REPORT

TRAVEL BEHAVIOR TREND ANALYSIS OF WORKERS AND NON-WORKERS

2017 National Household Travel Survey

February 2019

Introduction

Travel behavior trends are impacted by a variety of factors, including household characteristics, built environment, and transportation service, among others. Transportation planning has traditionally focused on work trips and related rush hour congestion, but in the past decade, more recognition has also been given to the role of non-work trips as well. As a result, employment status is one of the primary determinants of travel behavior at both the individual and household levels. Connecting people to opportunities is an important function of the U.S. transportation infrastructure system. Understanding how employment status impacts travel trends in the United States is a major benefit of the National Household Travel Survey (NHTS). This report provides an analysis of U.S. travel behavior trends by employment status using NHTS data from 2001, 2009, and 2017 with a focus on person-miles traveled (PMT) and person trip rates.[1–3] Unless otherwise noted, all trips are person trips, and all miles traveled reflect PMT.

Employment status is defined based on how respondents answered NHTS questions regarding employment. The following three employment status categories are used in this report:

- **Full-time workers**: Respondents who indicated their primary activity "during most of last week" was either working or temporarily absent from work or they reported working for pay or profit "last week." They also indicated in a second question that they worked at least 35 hours a week.

About the NHTS

Conducted periodically since 1969 by the Federal Highway Administration, the NHTS collects travel data from a sample of U.S. households. The information is used to understand trends in the Nation's trip-making and miles of travel by mode, purpose, and time-of-day for use in policy, planning, and safety.

Data are collected for household members for each day of the year, yielding a rich demographic profile linked to daily travel and vehicle characteristics.

For more information:
http://nhts.ornl.gov

U.S. Department of Transportation
Federal Highway Administration

- **Part-time workers**: Respondents who indicated their primary activity "during most of last week" was either working or temporarily absent from work or they reported working for pay or profit "last week." They also indicated in a second question that they worked fewer than 35 hours a week.
- **Non-workers**: Respondents who indicated their primary activity "during most of last week" was something other than working or temporarily absent from work.

This report compares travel behavior statistics for full-time, part-time, and non-workers over time and across different characteristics such as age, income, gender, presence of children in the household, vehicle ownership, and metropolitan statistical area (MSA) size. In order to provide a balanced comparison of travel for all three categories of workers, the focus of this report is on adults ages 23–65 (thus excluding adults 18–22 who are predominantly college students and those older than 65 who are predominantly retired).

Overall Impact of Employment Status on Travel Trends

The total number of adults ages 23–65 categorized by employment status and survey year are shown in figure 1. The number of full-time workers steadily increased from 2001 to 2017, while the number of part-time workers increased from 2001 to 2009 but then decreased slightly from 2009 to 2017. At the same time, the number of total non-workers increased significantly between 2001 and 2017.

Figure 2 shows daily PMT by employment status across all three NHTS years. Overall, the total reported PMT declined from 2001 to 2017. However, regardless of survey year, full-time workers reported the highest PMT followed by part-time workers and then non-workers.

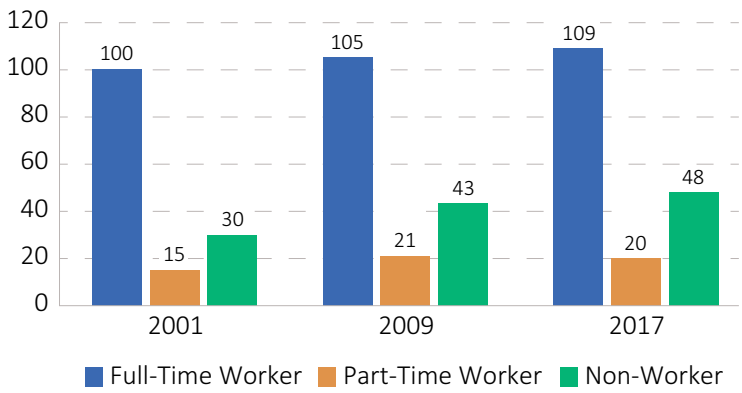

Figure 1. Total number of adults ages 23–65 by employment status and NHTS year.[1–3]

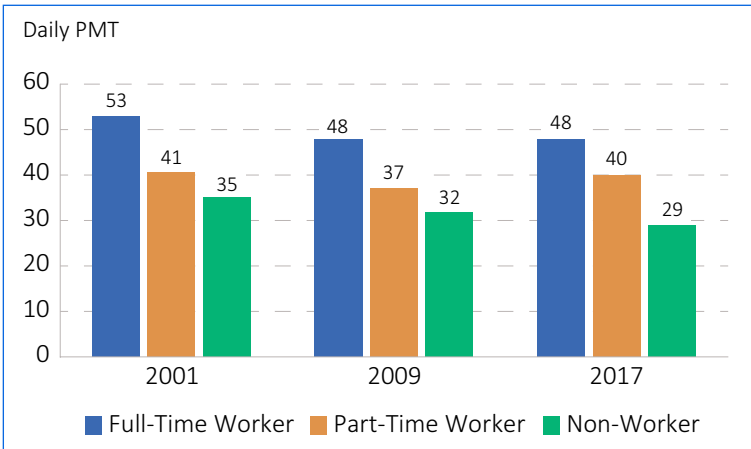

Figure 2. Daily PMT for adults ages 23–65 by employment status and NHTS year.[1–3]

Daily trip rates also varied by employment status, with part-time workers consistently reporting the highest level of trip-making. Daily trip rates declined over time for all employment categories, with each group experiencing the same size decline from 2001 to 2017 (see figure 3).

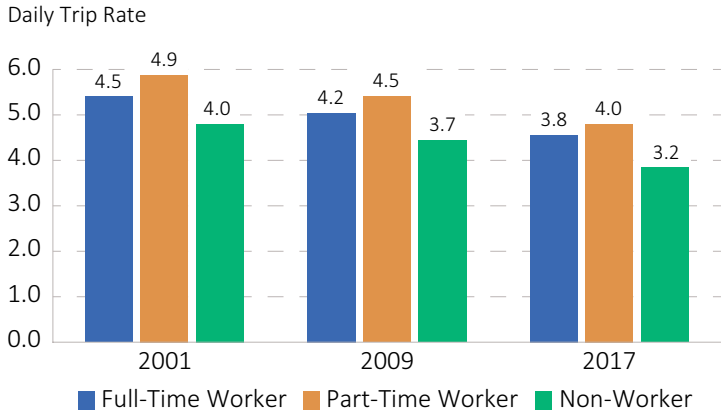

Figure 3. Daily trip rate for adults ages 23–65 by employment status and NHTS year.[1–3]

While trip rates declined, the number of individuals eligible to work from home increased from 2001 to 2017 (see figure 4). Although home-based workers represent a relatively small share of all workers, their increase in numbers has outpaced the growth in the number of total workers for the same time period.

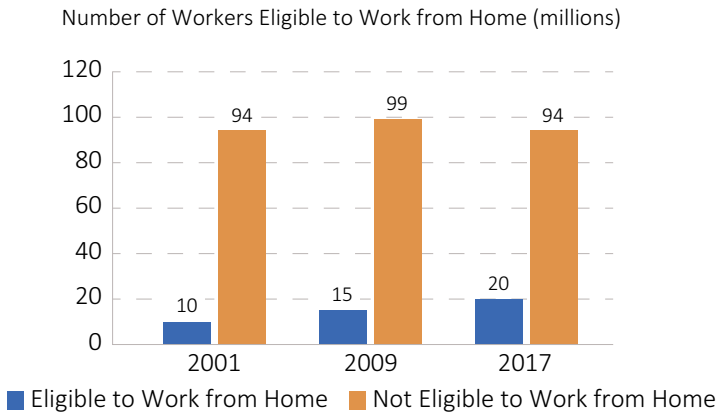

Figure 4. Total number of workers ages 23–65 based on eligibility to work from home by NHTS year.[1–3]

Figure 5 shows daily weekday trip rates by trip purpose (i.e., work trip versus non-work trip). The number of daily weekday work trips remained steady at 1.2 trips for full-time workers across all three survey periods, while that for part-time workers increased slightly from 0.8 to 0.9 trips. The average daily weekday non-work trip rate declined each survey period for all three employment categories, with non-workers reporting the most non-work trips each weekday.

On the weekends (see figure 6), trip rates were relatively the same regardless of employment status, with only a slight decline each survey year. For all employment status categories across all survey years, weekend trip rates were lower than weekday trip rates.

Effects of Age and Employment Status on Travel Behavior

Within the three employment status categories, there are further differences in travel behavior depending on age. For purposes of this analysis, the general age groups of 23–34, 35–54, and 55–65 were used. Figure 7 illustrates the effect of employment status on

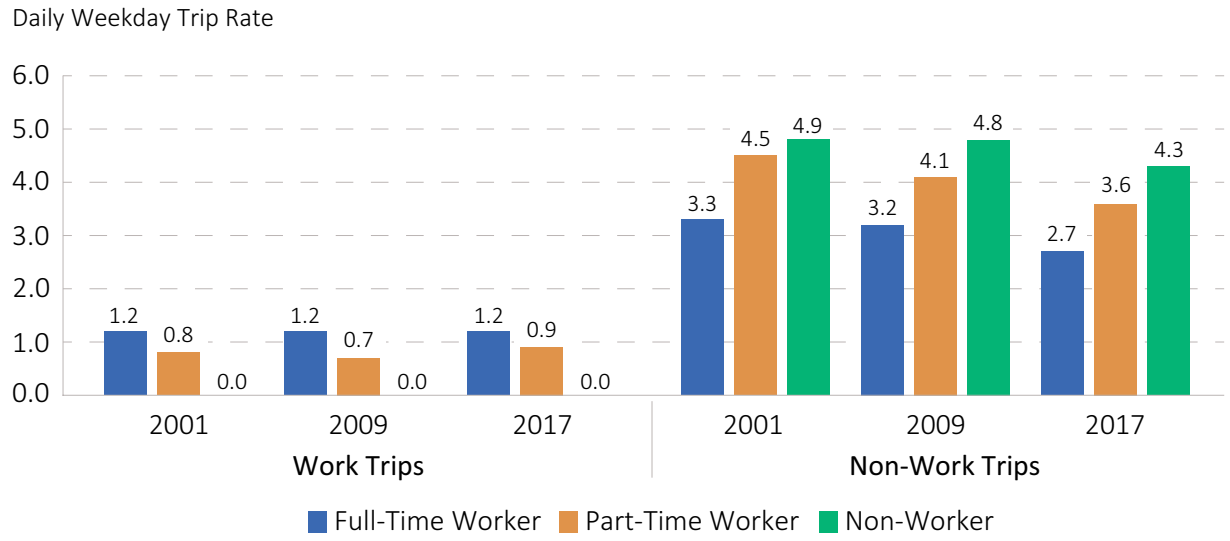

Figure 5. Daily weekday trip rate for adults ages 23–65 by employment status and NHTS year.[1–3]

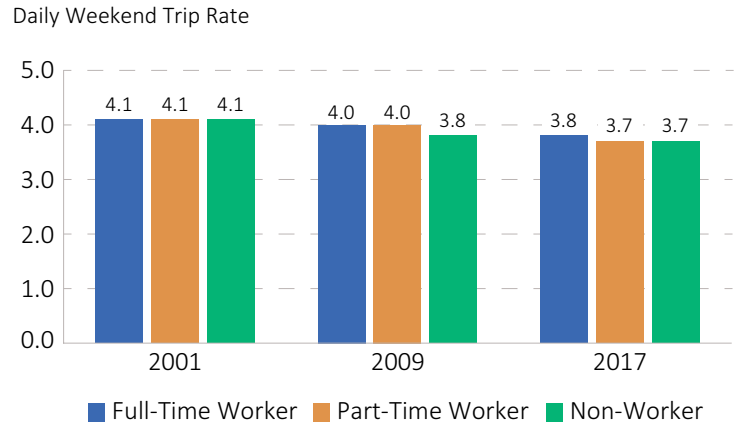

Figure 6. Daily weekend trip rate for adults ages 23–65 by employment status and NHTS year.[1–3]

PMT over time. Generally, full-time workers traveled more than part-time workers, who traveled more than non-workers for all age groups and survey years. In addition, PMT increased significantly in 2017 for the 23–34-year-old part-time and full-time workers but declined for non-workers. For all other age groups, PMT declined from 2009 to 2017 except for non-workers ages 55–65.

Figure 8 shows that part-time workers had the highest trip rates among all employment status categories except for those ages 23–34 in 2017. The higher part-time worker trip rates were likely due to part-time workers generating more non-work trips in their households compared to full-time workers or part-time workers having more time for discretionary travel.

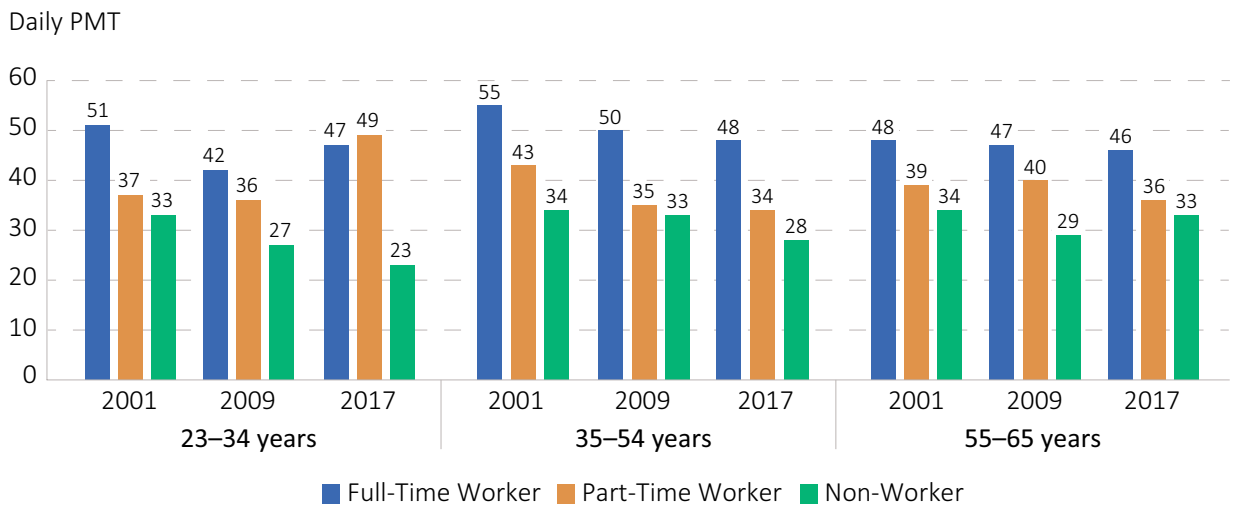

Figure 7. Daily PMT by age group, employment status, and NHTS year.[1–3]

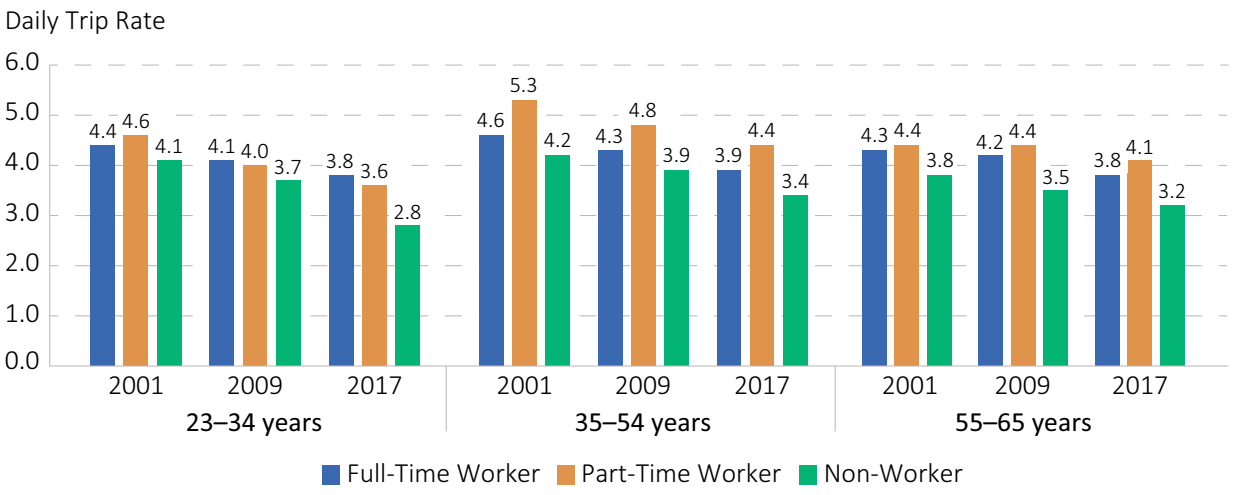

Figure 8. Daily trip rate by age group, employment status, and NHTS year.[1–3]

Effects of Income and Employment Status on Travel Behavior

Travel behavior patterns are often highly correlated with household income. Figure 9 illustrates the effects of income and employment status on daily PMT for adults ages 23–65

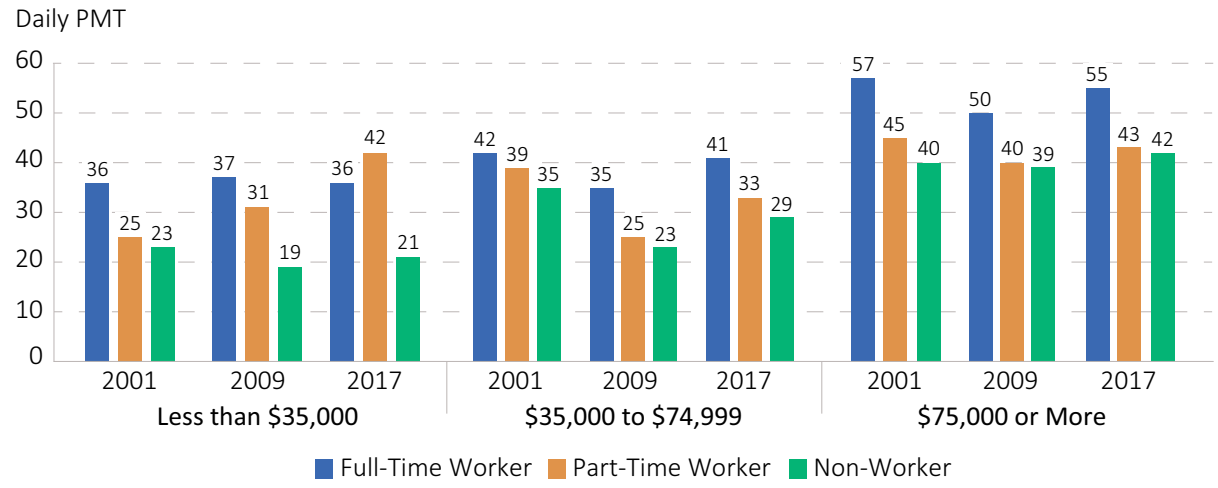

Figure 9. Daily PMT for adults ages 23–65 by income class, employment status, and NHTS year.[1–3]

by three income groups: low (i.e., less than $35,000), middle (i.e., $35,000 to <$75,000), and high (i.e., $75,000+). Generally, PMT increased as income increased within each survey year. The one exception was for middle-income workers in 2009, which might be partially attributed to higher gas prices in 2009 and its unique impact on this income group. In addition, full-time workers traveled more than part-time workers within the same income group and survey period with the exception of the low-income group in 2017, where part-time workers traveled more miles. Non-workers tended to travel the fewest miles each day with the exception of 2017, where high-income non-workers reported traveling the same number of miles as part-time workers. Although not shown, the trip rate trends followed the same as noted for PMT.

Effects of Gender and Employment Status on Travel Behavior

The highlights of the effects of gender and employment status on travel behavior are shown in figure 10. In terms of trip rates, females reported more trips than their male counterparts across all employment status categories and survey years. Male full-time workers took more trips than male part-time workers in 2009 and 2017, while female full-time workers took fewer trips than female part-time workers across all three survey years.

Effects of Presence of Children and Employment Status on Travel Behavior

Travel behavior varied based on household composition, particularly if children were present in the household. As shown in figure 11, respondents in households with children reported more trips than those living in households without children. For those with children, part-time workers consistently reported higher trip rates than full-time and

non-workers. On the contrary, daily trip rates for full-time and part-time workers in households without children were virtually the same. In all cases, non-worker trip rates were lower than that of either worker group.

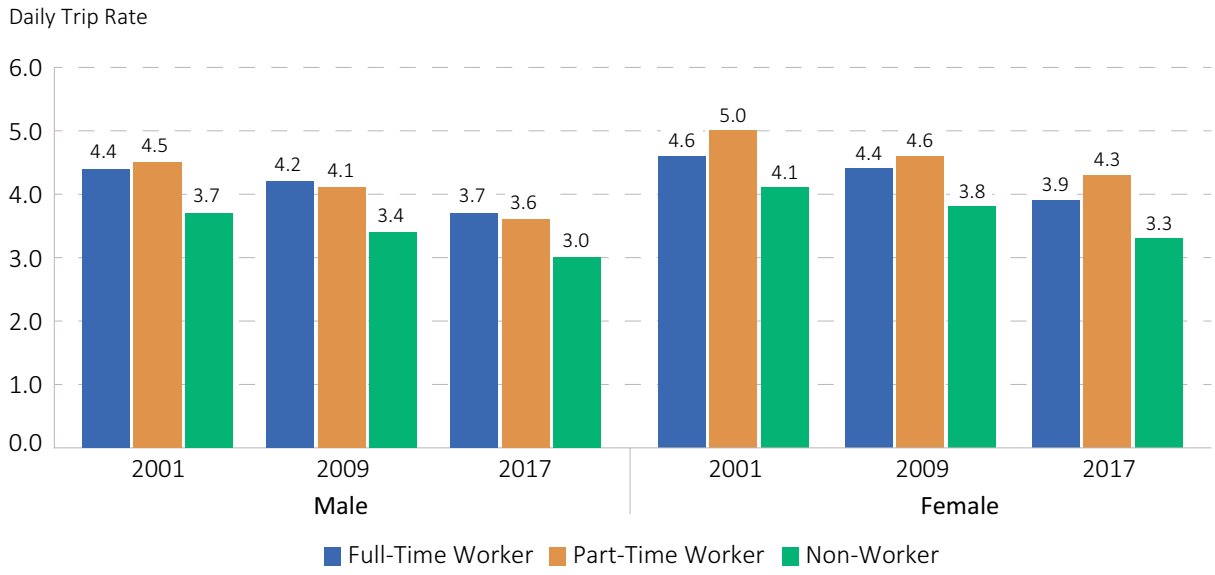

Figure 10. Daily trip rates for adults ages 23–65 by gender, employment status, and NHTS year.[1–3]

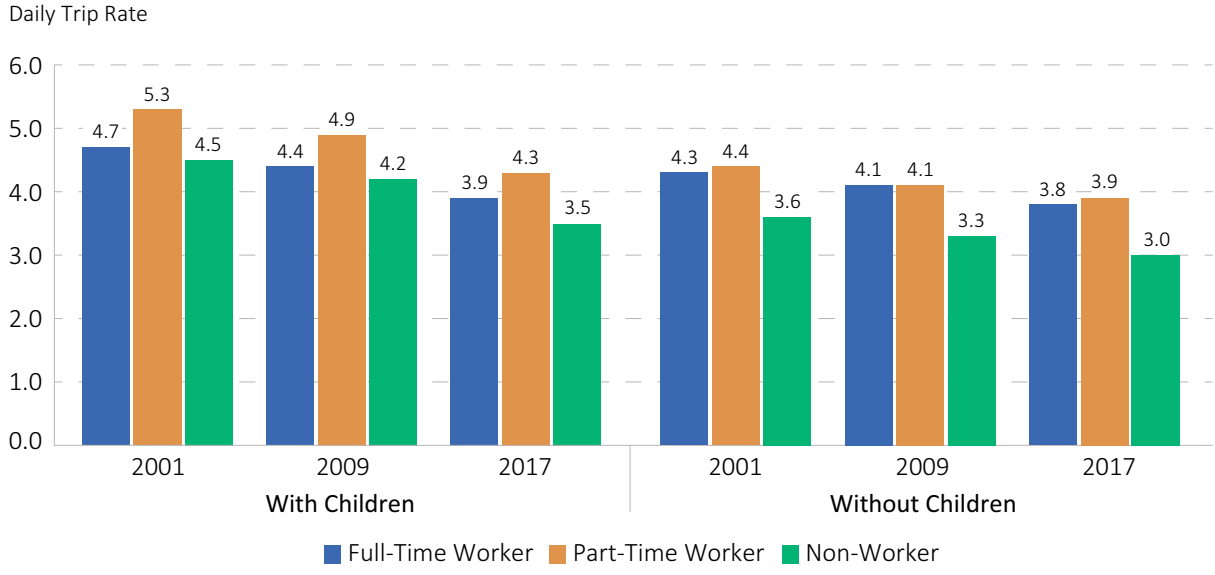

Figure 11. Daily trip rates for adults ages 23–65 by presence of children, employment status, and NHTS year.[1–3]

Effects of Vehicle Ownership and Employment Status on Travel Behavior

With respect to household vehicle ownership, PMT and daily trips increased as vehicle ownership increased from zero to one vehicle regardless of employment category. Ownership of two or more vehicles appeared to reduce the trip rates of full-time workers and, except for 2017, increase travel by non-workers, as shown in figure 12. Workers may have received priority for vehicle use in a single-vehicle household, and having a second vehicle would allow non-workers to travel more.

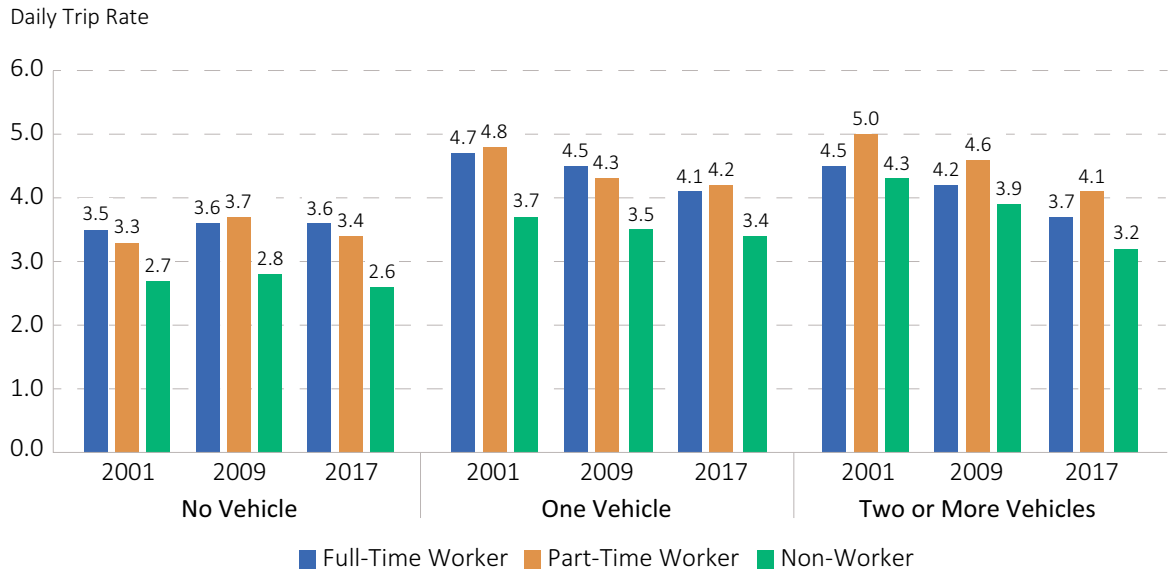

Figure 12. Daily trip rates for adults ages 23–65 by number of vehicles, employment status, and NHTS year.[1–3]

Effects of MSA Size and Employment Status on Travel Behavior

Travel behavior is a function of both traveler characteristics as well as the environment in which travel takes place. For the purposes of this report, MSA sizes are defined as follows:

- **Non-MSA:** Areas outside an MSA.
- **Small:** Less than 250,000 people.
- **Medium:** 250,000 to less than 1 million people.
- **Large:** One million people or more.

Travel based on MSA size and employment status varied more in terms of the geography trends as opposed to employment status. As shown in figure 13, in 2001, trip rates (regardless of purpose) were highest in the small MSA areas, followed by the medium MSA areas, the non-MSA areas, and large MSA areas. In 2009, trip rates started to converge, with

those in the small and medium MSAs being similar, and those in the large and non-MSA areas being similar. By 2017, this convergence continued, with similar trip rates reported across all MSA and non-MSA areas.

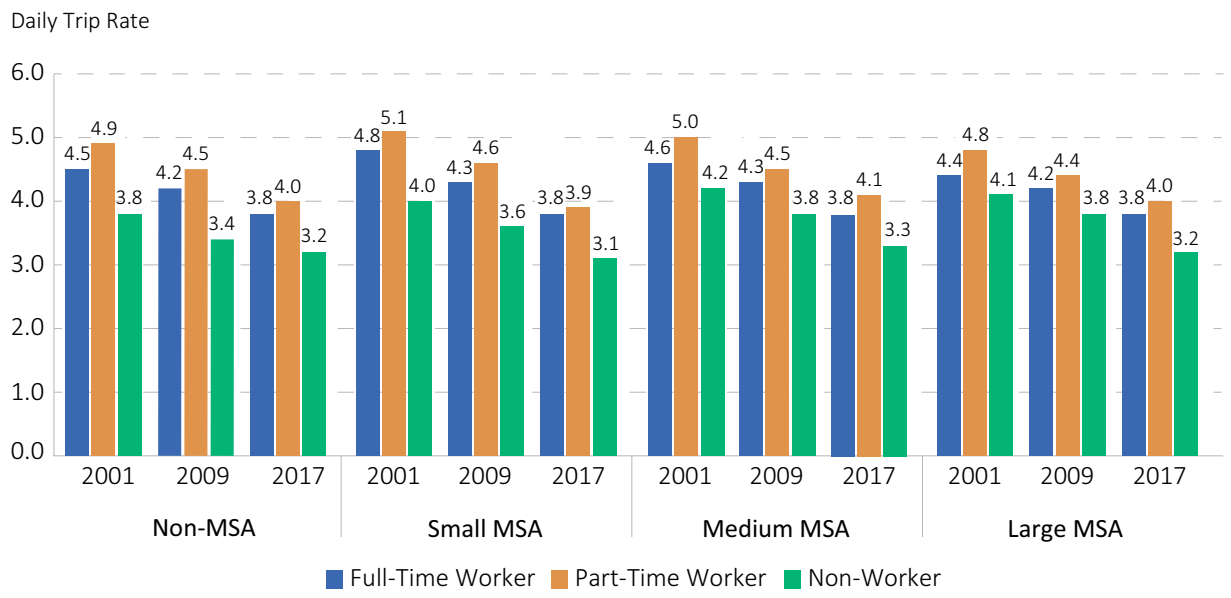

Figure 13. Daily trip rates for adults ages 23–65 by MSA size, employment status, and NHTS year.[1–3]

Conclusions

This report explores the travel behavior trends associated with adults ages 23–65 based on three employment statuses (i.e., full-time, part-time, and non-worker) across various characteristics (i.e., age, income, gender, presence of children in the household, vehicle ownership, and MSA size). Noteworthy findings include the following:[1–3]

- Part-time workers made the most trips, while non-workers made the least, which has been a consistent trend over the past 17 years.
- The percentage of workers who indicated they were eligible to work from home has increased over time from 10% in 2001, to 13% in 2009, and to 18% in 2017.
- Regardless of employment status, trip rates were higher on the weekdays than the weekends. On weekdays, part-time workers reported the highest trip rates, but on the weekends, trip rates were fairly consistent across the employment status categories.
- Across all age groups (i.e., 23–34, 35–54, and 55–65), part-time workers reported higher trip rates, except in 2017, when the 25–34-year-old full-time workers reported higher trip rates. In addition, in 2017, PMT increased significantly for full-time and part-time workers ages 23–34 but declined for non-workers in the same age group.

- With respect to household income, full-time workers generally traveled more than part-time workers within the same income group and survey period. Non-workers generally tended to travel the fewest miles each day.
- Across all employment statuses, females made more trips than males. Male full-time workers reported more trips than male part-time workers, while female full-time workers reported fewer trips than their part-time counterparts.
- Adults ages 23–65 who lived in households with children reported making more trips than those living in households without children for all NHTS years and employment statuses.
- Moving from zero to one household vehicle significantly increased trip rates across all three employment status categories, while increasing ownership to two or more vehicles significantly increased the amount of travel by non-workers.
- Between 2001 and 2017, there were notable travel behavior differences among workers and non-workers in different MSA types. These differences appear to be more related to the MSA size than employment status.

References

1. Federal Highway Administration. (2001). *2001 National Household Travel Survey*, U.S. Department of Transportation, Washington, DC. Available online: https://nhts.ornl.gov, last accessed September 16, 2018.
2. Federal Highway Administration. (2009). *2009 National Household Travel Survey*, U.S. Department of Transportation, Washington, DC. Available online: https://nhts.ornl.gov, last accessed September 16, 2018.
3. Federal Highway Administration. (2017). *2017 National Household Travel Survey*, U.S. Department of Transportation, Washington, DC. Available online: https://nhts.ornl.gov, last accessed September 16, 2018.

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