NHTS BRIEF: THE INFLUENCE OF THE INTERNET ON TRAVEL

This special report of the FDOT Trends and Conditions process highlights how internet users and nonusers travel differently in Florida. The prevalence of the internet has changed how and why people travel. The use of Skype and enhanced teleconferencing capabilities have allowed some individuals to forego travel that they might have otherwise made. The internet has made it easier to shop and have packages delivered to you, deposit checks electronically without going to the bank, and watch movies without going to the rental store or a movie theatre.

All analyses conducted in this report are based on the 2009 National Household Travel Survey (NHTS). The NHTS is a survey conducted by the U.S. Department of Transportation's Federal Highway Administration every 5 to 8 years. The survey is considered the most comprehensive dataset in examining travel patterns and behavior within the United States. Data collection for the 2009 NHTS took place between March 2008 and May 2009. The Florida Department of Transportation elected to purchase an add-on sample, enabling a more accurate analysis of travel within the state.   More information on the NHTS can be found at http://nhts.ornl.gov/2009/pub/UsersGuideV2.pdf.

Why Internet Use Might Impact Travel

The interest in understanding internet use in a travel survey results from the expectation that internet use might influence travel demand by enabling communication as a substitution for travel (shopping online, distance learning, working remotely from home, etc.). Alternatively, internet gained knowledge has spurred additional travel in some cases (met someone 70 miles away on eHarmony, found a new restaurant on the other side of town, found a collectible on Craigslist that you need to drive to see). To date, research has identified these mixed effects; however, the relative significance of each effect appears to be changing with increased comfort levels associated with internet commerce and communications. How internet communications might ultimately influence total travel is likely to evolve as the technology continues to mature and become more affordable and the availability of internet access becomes more prevalent.

Defining Groups for Analysis

In this analysis, Floridians were divided into one of two categories based on their internet usage in the month prior to being surveyed: users (those that used the Internet at least once a month) and non-users.

One is cautioned about going too far in interpreting the results presented in this brief due to the fact that age and household income may be somewhat correlated with internet usage. Figure 1 shows that, in general, younger people as well as individuals coming from moderate to high income households are more likely to be users of the internet. To attempt to account for the lower technology literacy of older adults, remaining analyses performed in this brief focus on travel by individuals 65 or younger. In addition, analyses are segmented by an individual's annual household income.

Figure 1 - Floridian's Internet Usage by Age and Household Income
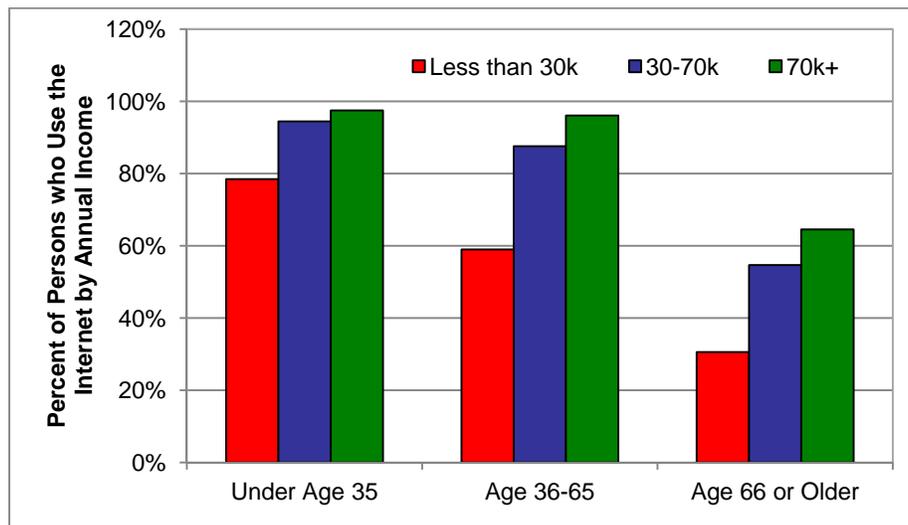
As Figure 1 indicates, the age and income effects are pronounced with meaningfully lower internet use for the 66+ age group and for the lowest income group.

In terms of race and ethnicity, there is a fairly noticeable difference in demographics between users and non-users (Figure 2). Some of this disparity can be attributed to income (as some races are more likely to have higher incomes) as well as an individual's immigrant status.

**Figure 2 – Floridian Internet Usage by Race and Ethnicity**
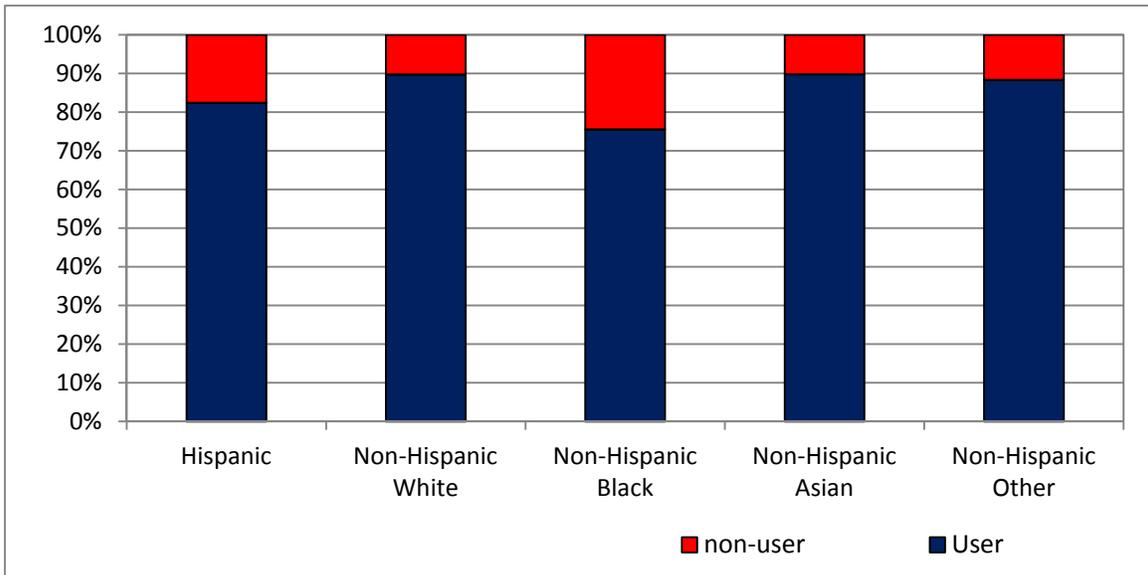
Note: Analysis performed only on those 65 and younger.

Trip Rate

When studying how the internet influences travel, one of the key metrics to examine is the trip rate. As shown in Figure 3, internet users tend to make more trips than non-users, even after accounting for income and age. It is possible that people using the internet may simply be more mobile than those that do not, which may account for internet user's higher trip rates.

Figure 3 – Trip Rate by User Category
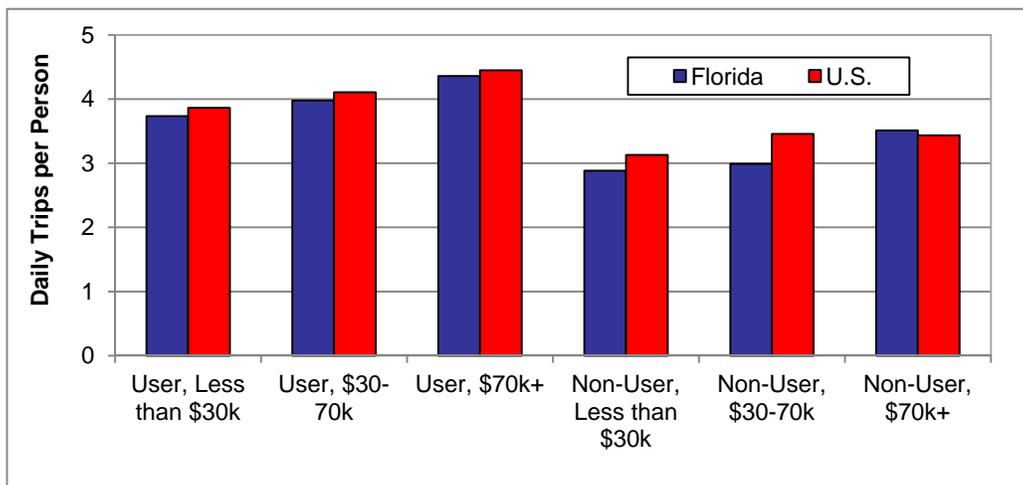
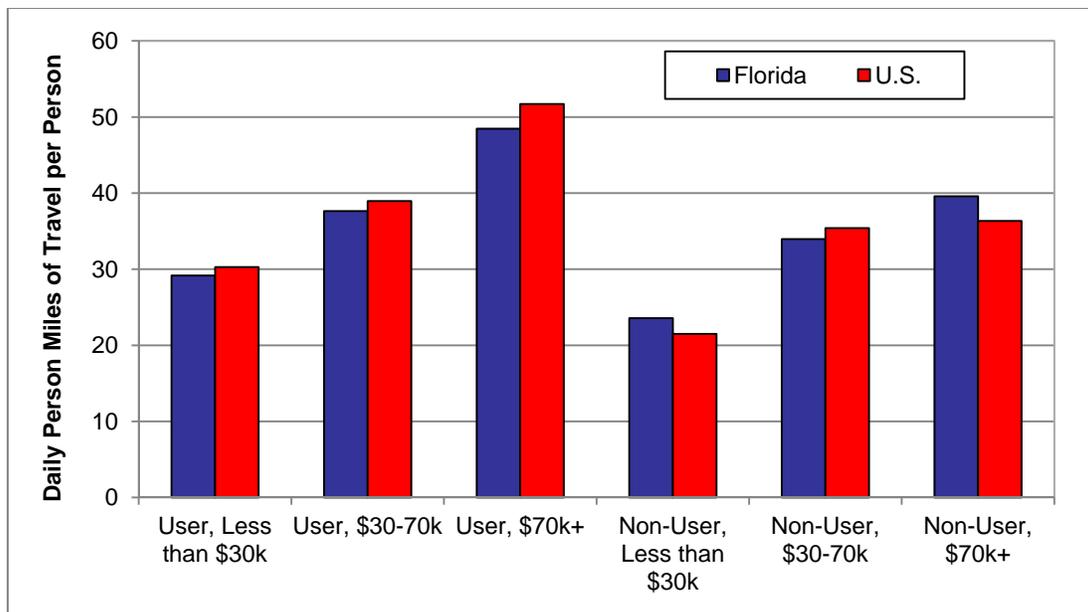Note: Analysis performed only on those 65 and younger.

VMT/PMT

Vehicle miles of travel (VMT) and person miles of travel (PMT) provide a good indication of the distances that individuals travel. Figure 4 and Figure 5 show that internet users tend to have higher daily VMT and PMT values than non-users. It remains unclear whether the use of internet influences travel levels or whether persons whose social, economic and personality characteristics that motivate internet use also motivate higher levels of travel.

Figure 4 – Floridian VMT by User Status and Household Income
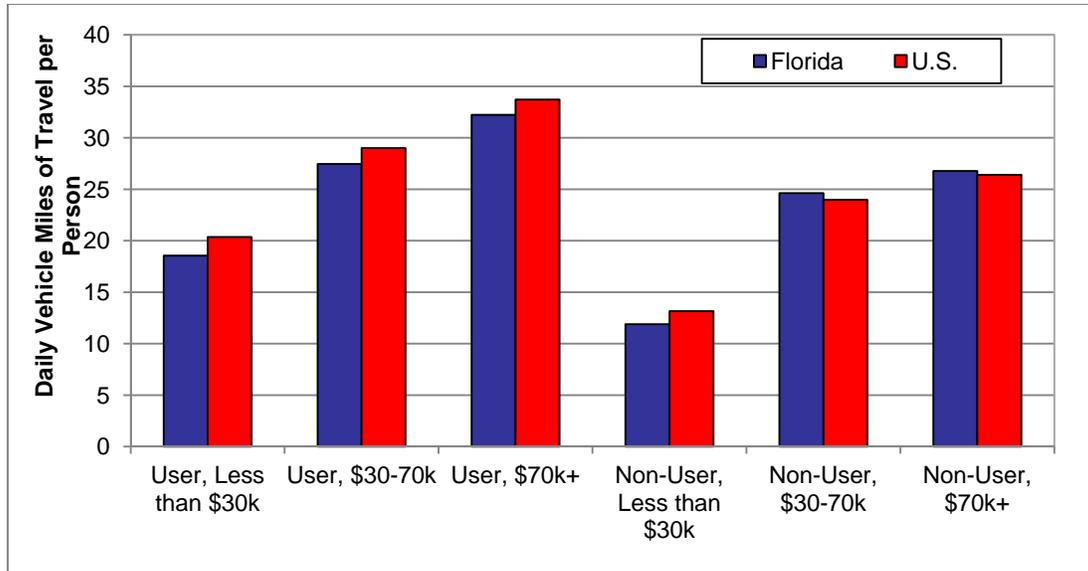
Note: Analysis performed only on those 65 and younger.

**Figure 5 – Floridian PMT by User Status and Income**

Note: Analysis performed only on those 65 and younger.

Trip Purpose

Figure 6 illustrates non-work travel trip purpose shares for internet users and non-users by income. The data indicates that internet users were likely to have fewer shopping trips (as a percentage of non-work travel) than non-users and subsequently have more social/recreational trips than non-users. This could suggest the time saved on internet shopping is reinvested in social/recreation travel. What is also interesting is that even after controlling for age (only examining those 65 and younger), non-users tend to still make more trips for medical/dental purposes, which could be an indication that non-users may have underlying medical conditions which may in turn explain lower internet use and/or lower trip rates and VMT/PMT levels.

Figure 6 – Floridian Non-Work Trip Purposes by User Category
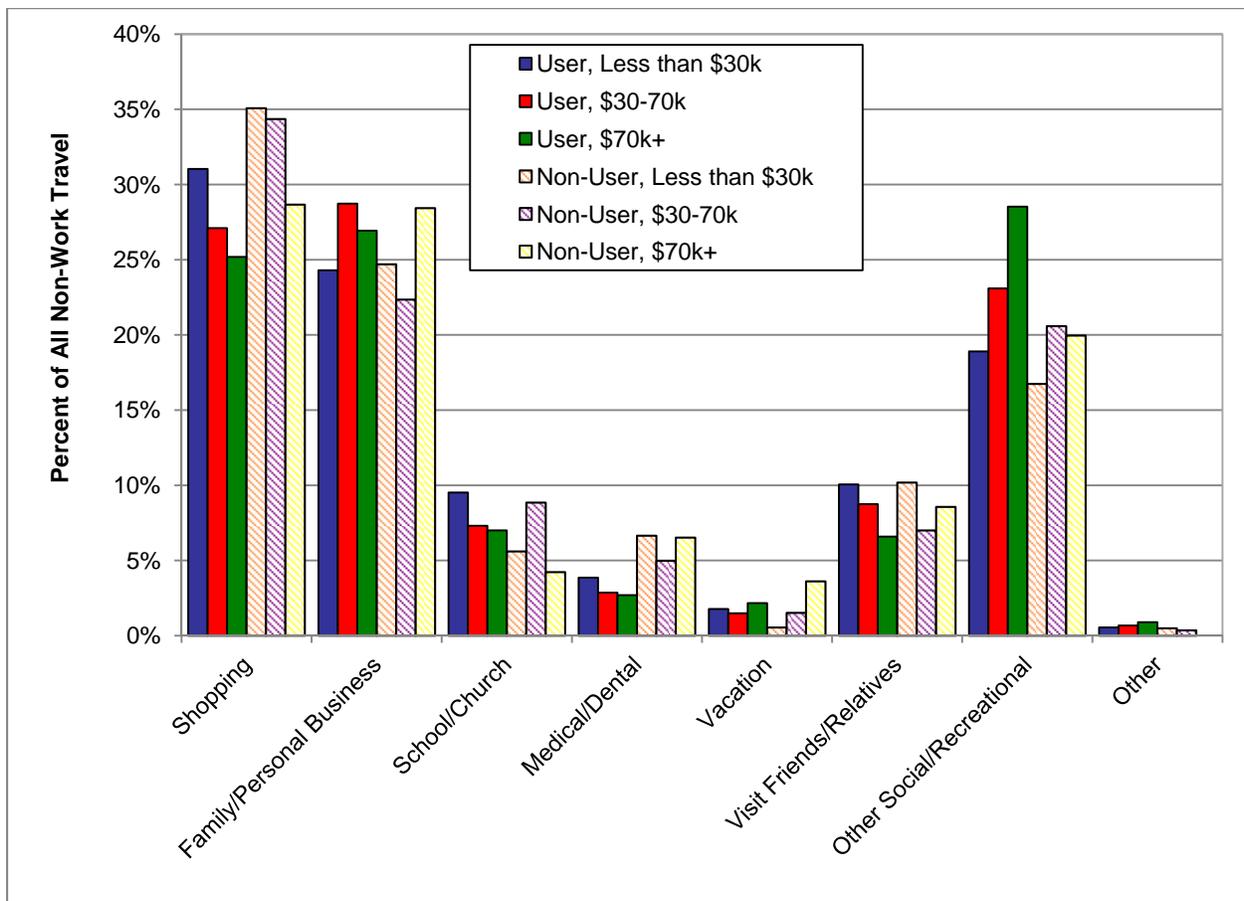
Note: Analysis performed only on those 65 and younger.

Shopping is often cited as one of the main trip purposes in which the internet has influenced travel. In Florida, approximately 51 percent of all persons 65 and younger that use the internet purchased something online in the month prior to being surveyed. Collectively, these users made an average of 3.9 purchases online. Almost 87 percent of these individuals elected to have their items delivered. Those that do not wish to have their items delivered usually end up picking them up from a store/warehouse.

Conclusion

The internet has influenced travel patterns among individuals that choose to adopt it. In this brief, NHTS Florida data indicates that internet users tend to be primarily those under the age of 65 and are highly represented in households with moderate to high annual incomes. After accounting for age and household income, internet users were found to have higher trip rates, VMT, and PMT levels than those that do not use the internet. Trip purposes were found to be relatively similar between the two groups with the exception of shopping and social/recreational trips. It was observed that internet users tended to take fewer shopping trips, more social/recreational trips, and fewer medical/dental trips (as a percentage of non-work travel) than non-users. One could hypothesize that internet use for shopping may be freeing up some travel time that is subsequently expended on travel for and participation in social activities. However, our understanding of the full influence of internet use and its interrelationship with other characteristics of the population is still evolving and it's premature to establish cause-and-effect relationships at this point in time.

Many factors at play will continue to shape how the internet influences daily travel. These include more widespread adoption of the internet, increasing internet speeds, greater functionality and user confidence in internet transactions and use, and an increased emphasis or need to use the internet for daily life. These may shape travel in ways thought unimaginable a decade ago. However, the full effect of internet use is rapidly changing and has changed even since the 2009 NHTS data collection. At this time, it is premature to estimate the ultimate net effect on travel as more commerce and social communications take advantage of internet based technologies. However, it is clear that internet based communication is, in effect, a new mode choice for engaging in many social and commercial transactions and provides users another option that can replace travel should individuals so choose.