

BUSINESS TRIPS AND VACATIONS: EXPLORATIONS OF THE AMERICAN TIME USE SURVEY

Jack Goodman
The Time Use Institute
www.timeuseinstitute.org

February 2009

Introduction

Surveys and other scientific undertakings often produce insights on topics beyond those for which they were initially intended. The American Time Use Survey (ATUS) is an example.

The ATUS is a nationally representative survey of time use by adults over a 24-hour period. It is sponsored by the U.S. Bureau of Labor Statistics and has been fielded annually since 2003, with approximately 12,000 to 21,000 respondents each year. Respondents are asked about how they spent their time – minute-by-minute – over a 24-hour period beginning at 4AM on the day prior to the day of the interview, which is typically conducted by telephone. But if the adult who is selected for the survey sample is out of town on the interview day, he or she is less likely than others to be contacted and surveyed on the designated day. Thus activities undertaken by individuals while they are traveling will be underreported in the ATUS.

To provide researchers with some guidance on the extent of this underreporting, the ATUS program in 2005 began to ask supplemental questions about trips that had the respondent away from home for at least two nights. Information is collected on all such trips the respondent took in the month prior to the month of the interview. (In some instances, the questions refer to trips in the month two months prior to the interview.) Although the primary motivation for the trip supplement questions is to correct for potential biases in the ATUS, the trip supplement also provides data that can support estimates of the prevalence and motivations for trips of two or more nights away from home, the durations of those trips, and the characteristics of the individuals most likely to take trips of different types.

The survey statisticians responsible for the ATUS rightly caution that survey weights mathematically correct for use with the trip data have not been produced, and for that matter would be difficult or impossible to produce. However, for reasons explained in

the appendix, I believe that one of the weight variables available in the ATUS is a good approximation of what the mathematically correct weight variable would be, and that the estimates produced using that ATUS weight variable can generate estimates of trip prevalence and characteristics that have little bias.

The findings reported below are from the 12,248 adults who completed the ATUS survey during 2007 and who reported a total of 13,686 trips. Background information on the ATUS and the trip supplement data are available at www.bls.gov/tus.

Trips: Prevalence and Types

Approximately 27 percent of adults age 15 and over who were surveyed in 2007 report taking at least one business trip or vacation of two nights duration or longer away from home during the month about which they were asked. Seven percent of all respondents reported taking more than one trip in the reporting month.

Of these trips, the most common purpose was vacation or to visit friends or relatives, accounting for 65 percent of all trips. Business or work trips were next, totaling 21 percent of all trips. Weddings, funerals, school trips, and medical reasons accounted for a total of about 6 percent of trips, and unspecified or multiple reasons accounted for the remaining 8 percent.

Reasons for Trips of Two or More Nights Away from Home

(% distribution of all trips)

65%	Vacation or Visiting Friends/Relatives
21%	Business or Work
1%	Multiple Reasons
2%	School related Activities
1%	Weddings or funerals
2%	Medical Reasons
7%	All Other Reasons
<hr/>	
100%	Total Trips

Who Takes Trips?

The profile of trip takers depends on the purpose of the trip. The age distribution of travelers is particularly interesting. As shown below, the median age of those taking a trip is a bit lower than of those not traveling, but the median ages of vacationers and business travelers are about the same. Despite this similarity in medians, the age distributions of business and vacation travelers are quite distinct. Fully 62 percent of all

business travelers fall within the middle-age range of 30-54, compared to only 38 percent of vacation travelers, more of whom are either young adults or the elderly.

Men and women are about equally likely to take trips of two or more nights away from home. But the vast majority (70 percent) of all business travelers are male. Women, on the other hand, are the more likely to be vacationers.

It costs money to travel, so it is not surprising that the household incomes of travelers are significantly higher on average than those of non-travelers. The incomes of work travelers are highest of all, presumably because those who travel out of town on business tend to be higher paid managers or professional workers.

Age, Sex, and Income of Travelers and Others

	all travelers	work travelers	vacation travelers	non- travelers
mean age (years)	42	42	42	45
Age % Distribution				
< 30 years	32	19	32	24
30-54	41	62	38	46
55+	28	19	30	30
total	100%	100%	100%	100%
Sex % Distribution				
male	49	70	45	48
female	51	30	55	52
Median Household Income				
	\$65,165	\$78,222	\$63,524	\$47,377

Trip Durations

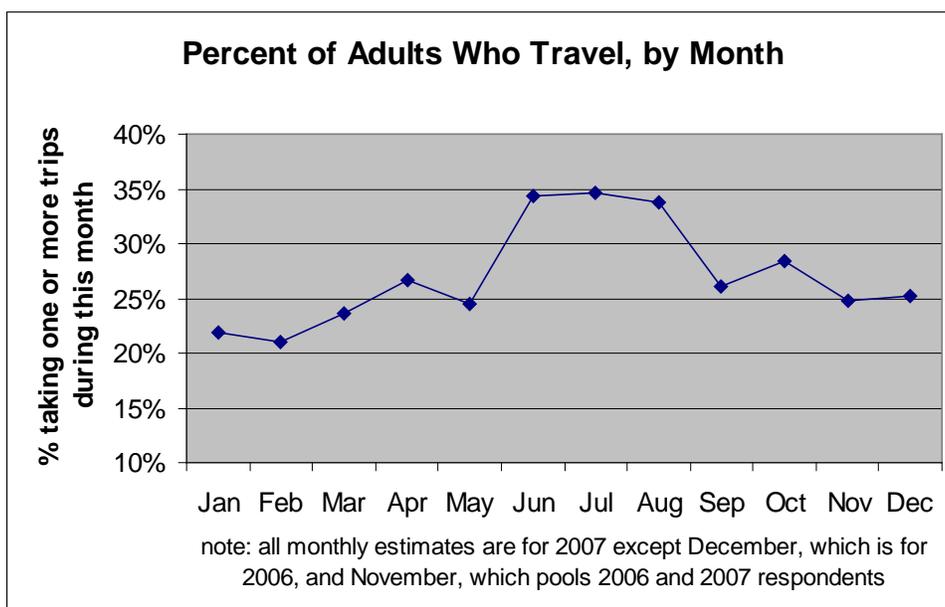
The ATUS definition of a trip is travel that keeps the respondent away from home for two or more nights in a row. Of all such trips, 39 percent were reported as exactly two nights' duration, 22 percent were three nights, and 11 percent were four nights. Only 12 percent of reported trips were of more than 7 nights' duration.

Durations of trips does not vary much by trip of purpose. The typical (median) duration for both work trips and vacations is 3 nights, and the average (mean) duration for both types was 4.4 nights. When trips undertaken for multiple or unstated reasons are included, the average trip duration was 4.6 nights.

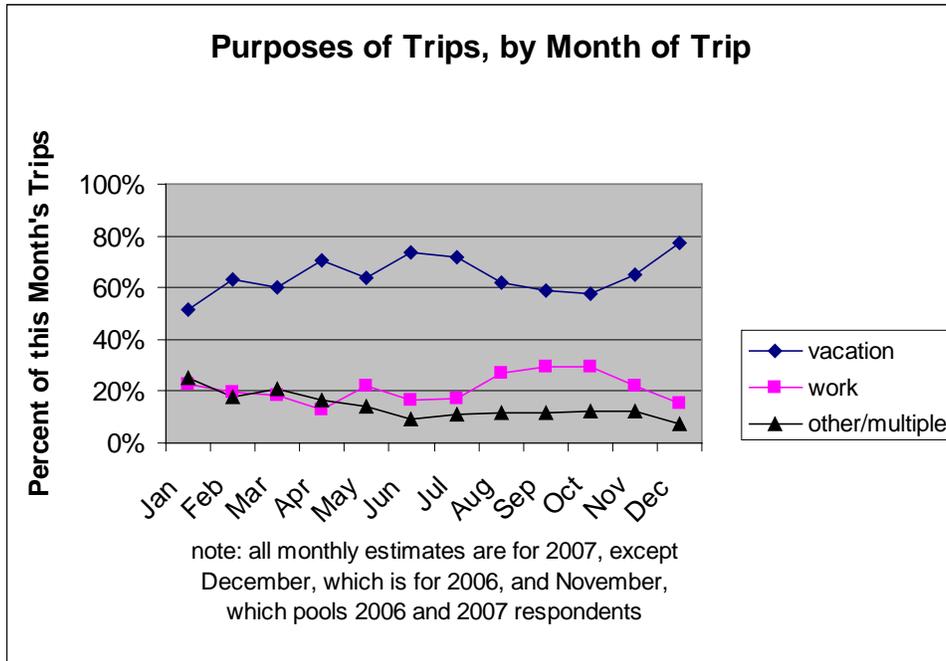
Women's trips are slightly longer on average than are men's – 4.8 compared to 4.5 nights. But for those trips that are for work, women are away slightly less time than are men (4.1 nights compared to 4.5 for men).

Trips and Seasons

The summer backups we all observe on the highways and at airports are corroborated by the ATUS data on the timing of trips. In each of the months of June, July, and August, 34 or 35 percent of all adults report taking at least one trip of at least two nights' duration. Trips are least common in the January/February depths of winter, months in which only 21 or 22 percent of adults report taking a trip.



Business trips and vacations tend to occur at different times of the year. As shown in the chart below, vacation travel peaks in the summer and again around Christmas. Vacations account for over 70 percent of all trips in the months of June, July, and December. Business travel, by contrast, is more concentrated in the late summer and early fall, when business or work account for up to 30 percent of all trips.



Appendix: Weighting the Trip Data

The “trip supplement” of the American Time Use Survey was introduced with the 2005 round of field operations and has been continued in subsequent rounds. As explained in the ATUS Users’ Guide:

“Because the ATUS asks respondents only about ‘yesterday,’ the survey may underestimate activities that occur on overnight trips away from home. Therefore, ATUS respondents are asked a series of questions about trips away from home for 2 or more nights in a row, during a specific reference month. Questions are asked about the number, duration, and purpose of overnight trips. This additional information may be used to adjust time-use estimates to correct for any bias introduced by the reporting methodology. The reference period for trips data is either the month before the initial contact attempt or 2 months prior to the interview month, whichever is most recent.”
(June 2008 edition, page 10).

The underestimation of activities while on trips arises because respondents are less likely to be reachable for the telephone interview about the previous day's activities if they are out of town.

The statisticians responsible for the ATUS are clear in advising users on appropriate uses of the trip supplement data. In particular, regarding the weighting of trip supplement observations in the data file, the following guidance is provided: "This file should be used with caution because it does not contain weights, and neither the ATUS final weights nor the ATUS base weights can be used to generate nationally-representative estimates with these data." (*ATUS Users' Guide, June 2008 edition, page 10*).

One might question why the ATUS final weights are not appropriate for application to the trips supplement observations. After all, if these final weights, when applied to ATUS respondents, can provide unbiased estimates of the time use of U.S. adults in the day prior to the interview, why cannot those same weights provide unbiased estimates of the number and characteristics of U.S. adults who travel in the month (sometimes the second month) prior to the interview? Similarly, the final weights would seem to be able to support unbiased estimates of the characteristics of trips taken by those who travel, because the final weight for each respondent can be assigned to each trip taken by that respondent.

The ATUS documentation provides little detail on why the final weights are inappropriate, but communications with ATUS staff and my own speculations suggest the following might lead to some bias: the seasonality of travel combined with the moderate monthly differences in (weighted) number and demographics profile of ATUS respondents, ambiguity in how respondents report questions that span the end of a month, trip recall and reporting errors, and population growth between the trip reference month and the actual survey month.

In addition to potential bias in the trip estimates, application of the ATUS final weights can result in higher variances to the trip estimates than when these weights are applied to the other ATUS activity data. One reason is that the ATUS final weights' underweighting of Saturday and Sunday observations (because of the intentional oversampling of weekend days) is appropriate for generating activity estimates for a typical day, but when applied to trip estimates for a full month these final weights essentially throw away some of the information contained in the weekend interviews.

The bottom-line assessment of the applicability of the ATUS final weights to the trip supplement data is a partially subjective determination. Yes, as advised by the ATUS

staff, the weights are not strictly applicable to the trip supplement data. But how bad are they? My subjective assessment is that the potential bias from using the ATUS final weights with the trip supplement data is moderate and that the ATUS final weights can provide estimates of the characteristics of travelers and their trips that are free of large bias. However, national estimates of the total number of trips, and the variance of all the estimates generated from applying the final weights to trip supplement data, are subject to other complications, known and unknown, and are best avoided. The estimates and interpretations presented in the text are intended to be consistent with this evaluation.

In conclusion, the estimates provided in the charts and tables of this paper are best interpreted as qualitatively correct, but not numerically precise, characterizations of U.S. travelers and their trips.