REPORTING ABSENCES FROM HOME:
RESULTS OF COGNITIVE TESTING OF THE AMERICAN TIME USE SURVEY'S MISSED DAYS SUMMARY QUESTION

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Executive Summary
The following paragraphs describe the results of a recently completed cognitive test of the effectiveness of a summary question designed to collect information about absences from home. A more detailed discussion follows in the remainder of the paper.

BACKGROUND
The American Time Use Survey (ATUS) received its funding in Fiscal Year 2001 and is scheduled to go into full production in January 2003. The ATUS is a computer-assisted telephone interview (CATI) conducted with a sample of retired Current Population Survey (CPS) households. Pre-testing of the questionnaire and data collection methodology began with a feasibility study in 1997 and is continuing through the survey development process.

The ATUS collects a 24-hour time diary from a designated respondent about a designated day. To reduce the chance that faulty memories may interfere with the accuracy of time diary reports, respondents report only about the previous day's activities. Summary questions are administered upon completion of the 24-hour diary to elicit additional details about some activities reported in the time diary and to collect some information about activities that occur outside the reference period.

PURPOSE
The purpose of the present study was to examine the effectiveness of a summary question designed to collect information about activities outside of the one-day reference period. Specifically, the missed days summary question that is the focus of this report is designed to collect information about absences from home of two or more consecutive nights in length. Because the ATUS relies on a yesterday-report methodology, it will not be able to collect information about the kinds of activities that occur when respondents are away from home for an extended period. Thus, the survey may underestimate activities that occur on trips away from home. Obtaining some information about the purpose of trips away from home may help adjust time-use estimates to correct for the bias that is introduced by its reliance on a yesterday-report methodology.

The primary objectives of this study were:
1. Evaluate the accuracy with which respondents can recall the month of occurrence and the duration of trips away from home.
2. Examine the impact of length of recall period on accuracy of respondents' reports, and
3. Identify meaningful categories of trip purposes.

METHODOLOGY
Respondents were recruited from the Bureau of Labor Statistics' Office of Field Operations (OFO). The use of OFO personnel permitted independent verification of respondents' reports of business travel through their travel records. Respondents participated in a one-hour session that consisted of a mock ATUS computer-assisted telephone interview and a face-to-face debriefing.

The following summary question was asked of all respondents:

Lead   *Thanks for telling me about what you did yesterday. Because this survey focuses on what people did yesterday, the picture that we get of how people spend their time is incomplete. In particular, we get very little information about what people do when they travel, even though we know that activities often change when people travel. To help us get a more accurate picture of how you spend your time, I'd like to ask you a few, very general questions about times when you may have been away from home.*

Q1   *In the month of [preceding month], how many times were you away from home for 2 or more consecutive nights?*

Q2   Use parentheticals for multiple-trip months.

    (Let's start with the most recent of those [insert Q1] trips). What was the MAIN purpose of that (most recent) trip?

Q3   *Any other purpose?*

Q4   *How many days were you away to/for [insert main purpose]?*

Q5   *How many days were you away to/for [insert other purpose]?*

Note   *Continue sequence until no more trips in reference month.*

The debriefing assessed the following key points:
- General reactions to the flow and content of the ATUS interview.
- Omissions and other errors in respondents' answers to the missed days summary question.
- The effectiveness of the life-events calendar in facilitating recall of absences from home.
- Respondents' spontaneous use of forward or backward chronology in reporting trips across and within months.
- Respondents' spontaneous labeling of trips in multi-trip months, and
- The applicability of trip purpose categories to 10 fictional travel scenarios.

RESULTS

The principle findings from this study include:

1. The administration of the missed days summary question takes approximately one minute to complete.
2. The transition between the time diary and summary question is smooth but interviewers should specify that they are only asking a few, general questions about absences from home. Respondents may become concerned if they think that they need to recall times away from home at the same level of detail as was required in the time diary.
3. The lead-in to the missed days summary question should indicate that respondents should not restrict their reports solely to business trips.
4. The ease and accuracy with which respondents could recall trip information varied with the length of the recall period and frequency with which the respondent traveled.

5. 64.4% of verified trips were accurate in terms of month of occurrence. Nine trips appeared on respondents' records but were omitted from respondents' report and 7 trips were reported for which no record existed. Errors increased as the recall period increased.
6. 31% of verified trips were accurate in terms of trip duration. However, when the duration of a trip was reported inaccurately, the report was usually only off by one day.
7. The life-events calendar facilitated recall of trips that had been omitted from responses to the summary question.
8. During a debriefing, respondents favored a forward-chronology reporting style when reporting trips across and within months. However, during the administration of the summary question, responses to the forward-asking approach were more error-prone than were responses to the backward-asking approach.
9. When discussing multiple trips in a given month, respondents most often labeled trips by purpose as a way of distinguishing between trips.
10. Respondents did not have any difficulty labeling trip scenarios by purpose and suggested that categories to capture community service or volunteer trips, career development trips, and emergency travel be added. However, they found questions about an "other" purpose intrusive and difficult to answer.

RECOMMENDATIONS

Based on the findings from this study, the following modifications to the current missed days summary question are suggested:

- Revise the introduction to specify that only general information is needed about business, vacation and other types of trips.
- In multi-trip months, use a backwards-recall strategy to collect information about each trip. Collect information about the main purpose of trips only. If main and other purposes must be specified, create a dual-purpose category.
- Restrict the recall period to 2 months or less to facilitate accurate recall.

COGNITIVE TESTING FOR MISSED DAYS SUMMARY QUESTION TO
THE AMERICAN TIME USE SURVEY

Introduction

History of ATUS and Summary Questions

In the early 1990s, the Bureau of Labor Statistics (BLS) began exploring the feasibility of conducting a new survey to measure how Americans spend their time. The primary purpose of this survey is to improve estimates of time spent in non-market activities (e.g., childcare) and in market work, and to provide data on a variety of quality of life indices (e.g., time for leisure, travel, health care, etc.). In 1998, a BLS working group developed specifications for the American Time Use Survey (ATUS), and began pre-testing the questionnaire and collection methodology through a series of cognitive studies. Included as a DOL/BLS budget initiative for fiscal year 2001, development and testing of the ATUS program continues, with full production of the survey scheduled for calendar year 2003.

Time Use Methodology

  In the ATUS, respondents are asked to report a "time diary" in which they provide a sequential list of the previous day's activities, the duration of each activity, and contextual information--such as where and with whom an activity occurred. Second, respondents are asked a number of summary questions about specific activities of interest. In some cases, these summary questions probe for details about activities that are likely to be missed due to the 1-day reference period or to the time diary methodology itself. This information supplements time diary reports, and is used to measure potential bias, as well as to produce more accurate and comprehensive time-use estimates.

To date, the ATUS working group has designed a set of summary questions that ask respondents about four specific activities: *passive child care, dependent care, paid work,* and *missed days.* In the fall and winter of 2000, Phase I pilot tests of summary questions were completed. Cognitive interviews conducted by Stinson (2000) and Schwartz & Fricker (2000) revealed a number of problems with the questions resulting from respondents' differing interpretations of question wording. Based on these findings, the dependent care question was dropped and Phase II tests began on a revised set of the remaining summary questions in the winter of 2000. The current study focused only on the revised set of *missed days* summary questions.

Justification for the inclusion of Missed Days Summary Question

ATUS respondents will be contacted at home by telephone on a designated day, and asked to provide detailed information about their activities the previous day (the reference day). Bounding the reference period this way reduces the chance that memory deficits will interfere with accurate reports[i]. However, missed interviews are a potential problem with this collection methodology. The reason for this is that the inability to reach a respondent on a designated day may be related to the respondent's activities on the reference day.

To illustrate, assume that a respondent's designated day is Tuesday, March 6th, but that she misses this interview because she is vacationing out of town until March 8th. Assume further that she is successfully contacted on her 2nd designated day, Tuesday, March 13th, and reports

about activities from her 2nd reference day, Monday, March 12th. The report from this completed interview may differ substantially from the (missed) report on her 1st reference day (i.e., while she was vacationing), had it been possible to contact her on March 6th.

Because the ATUS is unable to interview people when they are traveling, the survey may underestimate activities that are engaged in when away from home, and overestimate time spent on activities at home. Therefore, it is important that to have a measure of this potential bias in order to adjust time-use estimates as required. To that end, ATUS needs to collect normative data on the number of extended absences from home. The ATUS will not be able to collect information about the kinds of activities conducted during extended absences from home. However, obtaining some information about the <u>purpose</u> of trips away from home may help either to directly adjust time-use estimates or to direct future research on how to minimize this bias. For example, if the majority of absences from home in a given month are for business travel, work days could be weighted up to account for missed days.

Missed Days Summary Question: Phase I

The following *missed days* summary question was initially drafted by the ATUS working group to capture this data:

> *I would now like to ask you about any absences from home during the month of [prior month]. In [prior month], how many nights, if any, did you spend away from home for personal travel, including vacations? Business travel or other related reasons? Hospital stays? Other reasons?*

As part of Phase I testing, the BLS evaluated this question by conducting 10 in-depth cognitive interviews with respondents who had been away from home during the previous month. Interviews began with a face-to-face administration of the ATUS (i.e., time diary reports + the *missed days* summary question), followed by a debriefing in which participants were asked a series of questions designed to elucidate their understanding of and reactions to the survey items. Results indicated that respondents had a number of difficulties with the question as worded.

Summary of Phase I Missed Days Findings

- Some respondents whose travel spanned across a change in month (e.g., the last week in February through the first week of March) provided inaccurate answers.

- Respondents with more than one home (e.g., college students) had difficulty interpreting and answering the question.

- Respondents interpreted the phrase "away from home" in different ways. E.g., some

Phase II Test

Revisions to the Missed Days Summary Questions
Based on these findings, a number of changes were made to the *missed days* summary question (see Attachment 1).

Introduction: An introduction was added to help with the transition between the time diary and the summary question. This paragraph provides a better explanation of the purpose of the *missed days* question, and was designed to alleviate respondent concerns about intrusiveness.

Question wording and structure: The original *missed days* question was broken out into a set of specific questions in order to reduce respondent confusion, and to better capture information about travel length and purpose. These questions include:

> *In the month of [MONTH], how many times were you away from home for 2 or more consecutive nights?*
>
> *[If more than one trip in MONTH] Let's start with the most recent of those [INSERT TOTAL NUMBER OF TRIPS] trips.*
> *[All] What was the MAIN purpose of that trip?*
>
> *Any other purpose?*

The phrase "for two or more consecutive nights" was added to the first question because Phase I tests found that simply asking about times "away from home" proved ambiguous to some respondents. Because activities that occur during day trips or absences of less than 2 consecutive nights should be reliably reported in the time diary, the ATUS working group was placed emphasis on measuring on more extended absences.

Reference period: For testing purposes only, the reference period for the *missed days* question was lengthened to 3 months. In full production, respondents will be asked to report trips taken in the month preceding their initial interview date. However, the ATUS may have up to an 8-week fielding period with sample being released throughout the month. Therefore, it is possible to schedule an initial interview (e.g., March 28th) such that the *missed days* referent month (i.e., February) occurs almost 2 full months earlier. And, if the respondent is not actually contacted for two months (e.g., May 23rd), the referent month could be 3 months before the interview date. To test the effects of having a recall period that is potentially three months long, respondents in this study were asked about all trips taken during the most recent three months.

Half of the respondents were asked about their trips in chronological order, i.e., they began with trips taken in January and concluded with trips taken in March (*forward*-asking strategy). The other half of the respondents reported their trips in reverse chronological order, beginning with trips taken in March and working backwards to trips taken in January (*backward*-asking strategy).

For reports of multiple trips in a single month, respondents were asked about trips within the month using a *backwards* question asking strategy (i.e., they were asked to report the most recent trip in the month first, then the next most recent trip, and so on), regardless of condition.

<u>Specifying trip purpose</u>: Reference to specific types of travel (e.g., personal vs. business vs. other) was eliminated from the summary question. Previous research has shown that different respondents will often interpret these trip category labels differently. In the revised summary question, respondents are allowed to describe the purpose of a trip using their own words, and their response is coded into one or more trip purpose categories. The proposed trip purpose categories were designed to match closely with those used in the National Household Transportation Survey conducted by the Bureau of Transportation Statistics, and standards set forth in International Travel Survey conducted by Department of Commerce, International Trade Administration (see Attachment 2). Respondents' interpretations of these categories and their composition were examined during the cognitive debriefing.

Respondents

To assess the accuracy of respondents' self-reported absences, we recruited staff from the Bureau's Office of Field Operations (OFO). The benefits of using OFO personnel were twofold: (1) they engage in frequent business travel, and (2) more importantly, the accuracy of their reports could be independently verified through travel records. (Pre-approval to recruit OFO staff and obtain travel records was sought and given by OFO Associate Commissioner, Robert Gaddie.)

OFO management provided the names of 30 training and management staff who travel on regular basis. Twenty-two individuals (14 men, 8 women) were eligible, available, and participated in this study. Seventeen of the 22 participants were white and 5 were black. Table 1 provides additional demographic information for our respondents.

Table 1. Respondent demographic information		
	Mean	**Median**
Age	37.4	41
Education (years)	17.3	16
HH size	2.3	2

Cognitive Test Design and Methodology

The study of the ATUS *Missed Days* summary question consisted of 22 cognitive interviews. Each session began by collecting a time-diary report from the respondent, followed by the *missed days* summary questions. To adhere to ATUS methodology, the time diary and summary question were administered over the phone. Participants were phoned by the interviewer who was located in another room.

Because the reference month for all missed days questions is the month prior to the respondents' first designated interview date, some respondents in field production of ATUS may be asked about absences from home in the prior month. However, some may be asked about absences from home as long as 3 months ago, depending upon the length of the field period[1]. To evaluate the extent to which accuracy of recall is affected by length of the reference

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[1] A field test in currently underway that will help determine if an 8-week field period is necessary.

period, all participants were asked about trips taken 1, 2 and 3 months prior to their interview month. To control for possible confounds due to the order in which respondents were asked about successive months, the order in which respondents were asked to report about trips was counterbalanced across subjects. The sample was divided evenly among two groups of participants. 11 respondents were asked about trips beginning with the most recent month and working backwards (e.g., "In the month of March, how may times were you away from home…" "In the month of February, how many times were you away from home…"). 11 were asked about trips beginning with trips taken three months prior to the interview and working forward (i.e., first they were asked about absences in January, then February, then March).

When the ATUS interview was completed, the interviewer returned to the room, and proceeded with a face-to-face cognitive interview. This interview examined potential cognitive, linguistic, and methodological problems associated with the collection of *missed days* information. Debriefing consisted of the following five sections (see Attachment 3 for the full protocol):

- General reactions/Rating scale administration: Assessed the clarity and flow of the ATUS interview by asking subjects a series of open-ended questions, followed by subject assessment of survey on three dimensions: ease of recall, level of intrusiveness, and degree of confidence in their responses. Each dimension was rated on a 6-point scale where "1" had a negative valence and 6 had a positive valence. Respondents rated 4 items related to the time diary and 5 items related to the *missed days* summary question.
- Missed *missed days*: Unreported Absences: Determined whether and why respondents failed to report trips during the ATUS interview using directed probes and retrospective think aloud.
- Life-events calendar: Identified factors affecting the recall and reporting of absences from home using a life-events calendar. This 6-month retrospective tool used the visual cue of a calendar and the listing of personal events or milestones to help jog memories of *missed days*. It also allowed for natural examination of respondents' reports of trips spanning two months (e.g., March 29 – April 8). The effectiveness of the life-events calendar may suggest strategies for facilitating recall of absences from home in full production.
- Multiple trip labeling: Assessed subjects' spontaneous labeling and presentation of multiple trips in a month. Trip labeling may be an effective means by which to facilitate recall. Identifying frequently used labels by respondents may help determine which type of label (e.g, by destination, by purpose or by dates of trips) will be most effective in full production.
- Trip purpose scenario: Evaluated fit of trip purpose categories to 10 fictional travel scenarios. Subjects selected "Main" trip purpose category and, when applicable, an "Other" trip purpose.

Results

Data collected from the ATUS interview (time diary and the *missed days* summary question) produced the tabulations: total interview duration; number of time diary activities reported; time to administer summary questions; total number of trips reported.

ATUS administration statistics

- Completion of time diaries took an average of 14.2 minutes (median = 13), and respondents reported an average of 28 activities (median = 25).   These numbers are slightly lower than those reported in previous ATUS tests (e.g., Stinson, 2000 and Schwartz & Fricker, 2001 reported an average diary duration of about 19 minutes, with approximately 30 activities per diary). Variability in time diary reports between individuals makes drawing substantive conclusions difficult, especially with the relatively small sample in this study. Moreover, the 14.2 minutes cited here does not include the time needed to administer the *missed days* summary questions. The average duration for the *missed days* section was 2.8 minutes, bringing the total interview duration to 17 minutes.

There are several factors that may have contributed to differences in duration and item generation between studies. First, the typical household size for participants in this study was small (median = 2), with the modal household represented by persons living alone (9/22 or 41%). Those respondents from larger households (3 or more members) had longer time diary interviews (15.7 v. 13.3 minutes) and reported more activities (33.9 vs. 24) than did respondents from households with only 1 or 2 members (only the latter is significantly different, given the high variability in duration). The average household size in previous studies, especially those examining *childcare* summary questions, may have been larger and involved more activities, and therefore required additional time to complete the diary. This is based on the assumption that there is a positive association between household size and either number of activities or diary duration, controlling for response style.

A second explanation for differences between studies is that all of the respondents in this study were employed, unlike previous studies in which stay-at-home parents and the unemployed participated. As a result, 20/22 (91%) respondents in this study reported about a workday. And, because the time diary does not collect information about activities done while at work, these respondents were reporting detailed activities for only two-thirds of a day.

- When the missed days question asks about 3 consecutive months, it takes approximately 3 minutes to administer. Most respondents reported taking 2 trips (of duration 2+ consecutive nights) in the last three months (range 0 – 7 trips). Collecting data on 1 trip takes approximately 1 minute.

- Of the 98 trips that respondents reported in the last three months, 48% (47) were for business, 52% (51) were for vacation/leisure.

Time Diary

Ratings and Reactions:
In general, respondents were able to complete the time diary with sufficient detail, and they reported little difficulty recalling the previous day's activities. Respondents were asked to rate 4 items pertaining to the Time Diary portion of the survey for perceived difficulty of recall, level of intrusiveness, and degree of confidence in their report. These rating are shown in Chart 1 below[2].

CHART 1. Respondents' Mean Ratings of Time Diary Questions

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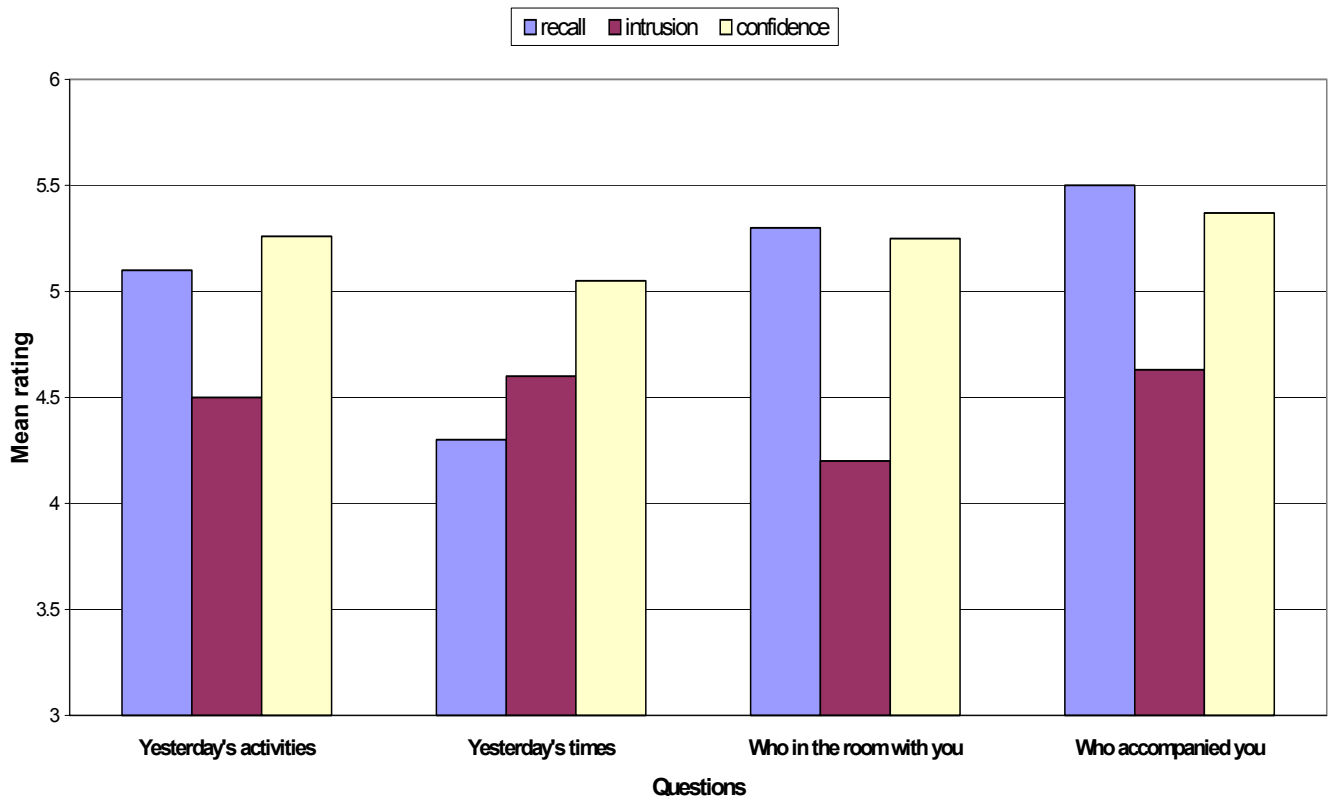
[2] (Note: Rating scales ranged from 1 to 6, where 1 had a negative valance on each dimension- i.e., very difficult to recall, very intrusive, not at all confident- and 6 had a positive valance- i.e., very easy to recall, not at all intrusive, very confident. All mean ratings were above the mid-point of the scale, so the origin of the chart is the mid-point, or 3, to help identify potential differences)

Respondents' ratings of ease of recall are generally high, as are their level of confidence in their answers about the previous day's activities. In general, respondents said they felt that it was difficult to recall activities that were mundane (e.g., reading the mail, feeding the dog), and difficult to know how to report multi-tasking behavior. Several respondents said that their time diaries did not reflect child-management and/or relation-management behavior adequately. They indicated that social interactions with household members often are very spontaneous, taking place in short concentrated bursts while involved in some other activity (e.g., a child coming into the kitchen during dinner prep to ask about homework). They expressed some discomfort/dissatisfaction that they were unable to relate "the experiential time" of these sorts of activities, instead having a "with child" notation next to the main "dinner prep" activity. In full production, the childcare summary question should ameliorate some of these concerns.

Time diary items were rated as slightly to moderately intrusive. The "who was in the room with you" probe was rated as most intrusive, although it still fell above the midpoint on the scale. A number of respondents volunteered that this probe was bothersome because it seemed to intrude into their personal life.

> *"What business is it of the government who I'm in the room with? It felt a bit like 'Big Brother' watching over me."*

In this study, *"who was in the room with you"* was judged as more intrusive than any component of the missed days summary question.

One male respondent in the process of a divorce indicated that he would not feel comfortable sharing details regarding his "social" friends for fear it might affect the outcome of the divorce proceedings. Several suggestions for alternative ways of obtaining this type of information using a summary question format were made (e.g., "Did you spend time with friends or family?" "Did you have any social activities?"). It may be important to communicate to respondents that they do not need to provide individuals' names in response to the "who was in the room with you" probe. It is sufficient for the respondent to report those persons' relationship to the respondents (e.g., "my friends" or "my son," etc.).

Time Diary (TD) Introductory Language
All respondents said that they thought the introductory script and instructions were clear. However, the following changes were suggested. [3]

1. Additional time should be taken to restate that the survey is 'conducted by the Bureau of Labor Statistics, which is a part of the Department of Labor.'

    More than a third of respondents (8/22) mentioned that citing the sponsor and government affiliation again would help respondents to recall any mailed materials they had received, and to differentiate the ATUS call from other solicitations.

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[3] Respondents in this study had not received introductory materials, such as the ATUS brochure, prior to participation.

2.   Include direct mention of pre-interview materials the respondent has received.

Many respondents (11/22) volunteered that they liked the phrase "this is not a sales call," and said that referencing mailed materials may serve as an additional assurance and/or reminder.

3.   Include sample questions or examples of the TD in the introduction to allay fears and highlight the level of detail needed.

Focused questioning during the cognitive interview revealed that some respondents experienced mild apprehension during and immediately following the verbal TD instructions[4]. Some said that they tried to make a quick, mental inventory of their day to determine if any personal activities needed to be self-censored. They reported that this process- and the potential for inadvertent, unwanted self-disclosure (i.e., failing to adequately or convincingly censor their responses) could be stressful[5].

Others said that they were concerned initially that they would have the responsibility for creating the structure and pace of the TD 'on the spot.' One person put it this way:

> *"It [the introduction] was so quick. I felt sort of like, 'well, okay. I'll go along with you,' but I really wasn't sure what I was going to do."*

It is worth noting, however, that respondents said their concerns were quickly addressed once they began the time diary with the interviewer.

> *"Once I started going through my day, your first questions gave me a better sense of what details you wanted. Then I went through, ticking things off as they came to me. I had to concentrate, so I wasn't thinking about too much else."*

Additional TD comments
Most respondents (18/22) reported that it was easiest for them to remember the time and duration of weekday morning activities. The two most often cited reasons were routines related to commuting (e.g., "I know I have to be out of the house by 6:30, or traffic is terrible." "I catch the 7:45 train") and to attending to children (e.g., "Sylvia's always up by 7:00, and I do her hair first thing." "I know I've got to get her to the bus stop by 8:00"). After-work activities and those on weekends (i.e., Sunday) where rated as more difficult to report accurately because they are usually less regimented/time-dependent.

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[4] 9 respondents reported that they felt "somewhat apprehensive" because they were not sure what to expect from the time diary. Only four of the nine were able or willing to elaborated their explanations, and their responses provide the details cited in this section.
[5] It is likely that some of the self-presentation concerns raised, however, would be mitigated in real ATUS phone interviews (though not eliminated entirely). In the lab, respondents know that they will be interacting with the interviewer immediately after the interview, so efforts to avoid embarrassing topics may be stepped up.

Finally, respondents indicated that interviewer probing helped them to more accurately provide the level of detail needed. They reported that the occasional use of a *time-confirmation* probe (i.e., "Okay, so that puts us at 2:30. Is that about right?) was helpful in keeping them on track, and allowing them to conduct internal validity checks of their reports. The importance of well-trained interviewers was emphasized.

Missed Days Summary Questions

Missed Days Summary Question Introduction
Overall, subjects reported that the transition between the time diary and the missed days summary questions was smooth, and that the instructions for the summary questions were clear. However, several respondents reported being "stressed" initially because they anticipated being asked to provide detailed information about trips in a manner similar to the TD portion of the survey.

> *"I felt like it was a 'pop-quiz' that I hadn't studied for. On the heels of the diary, then I thought you were going to ask me detailed questions about what I did on those trips. Who could remember that?"*

To address this concern the introductory script was modified early in the data collection process. After adding the phrase, "ask you a few very general questions about times you were away from home," none of the 15 remaining respondents raised concerns about the level of detail required.

Another potential problem with the current wording of the introduction is that respondents may incorrectly assume that the interviewer only is interested in certain types of absences. One-quarter of the respondents said that they thought initially that the summary question was only asking about business travel[6]. They said that this was not an artifact of knowing the reason for their recruitment, but was somehow implicit in their own thinking about travel (i.e., travel is associated most closely in their mind with business). They recommended changing the introduction to include a statement that the question pertains to both personal and business trips.

There was also some concern that the revised question would confuse respondents by switching from "2 or more nights" in the language of the introduction, to the question "how many days were you away?" Overall, this did not seem to be a problem with most participants. However, 6 of 22 respondents did ask for clarification after the summary question was read for the first time, and 10 respondents start off providing their answers in terms of nights away. This was easily remedied, however, although some respondents later commented that they were not sure how to report "days"- did this include travel days, half days.

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[6] With two exceptions, this confusion was cleared up during the ATUS interview, either through direct questioning by the respondent, or the use of an interviewer probe. The two exceptions were respondents run early in the study and who reported little or no travel.

Ratings and Reactions

The two most frequently cited concerns with these questions centered on the length of the recall period and the difficulty of accurately remembering the exact duration of trips. Data from respondents' ratings of the Missed Days questions are provided in Chart 2.

CHART 2. Respondents' Mean Rating for Missed Days Questions
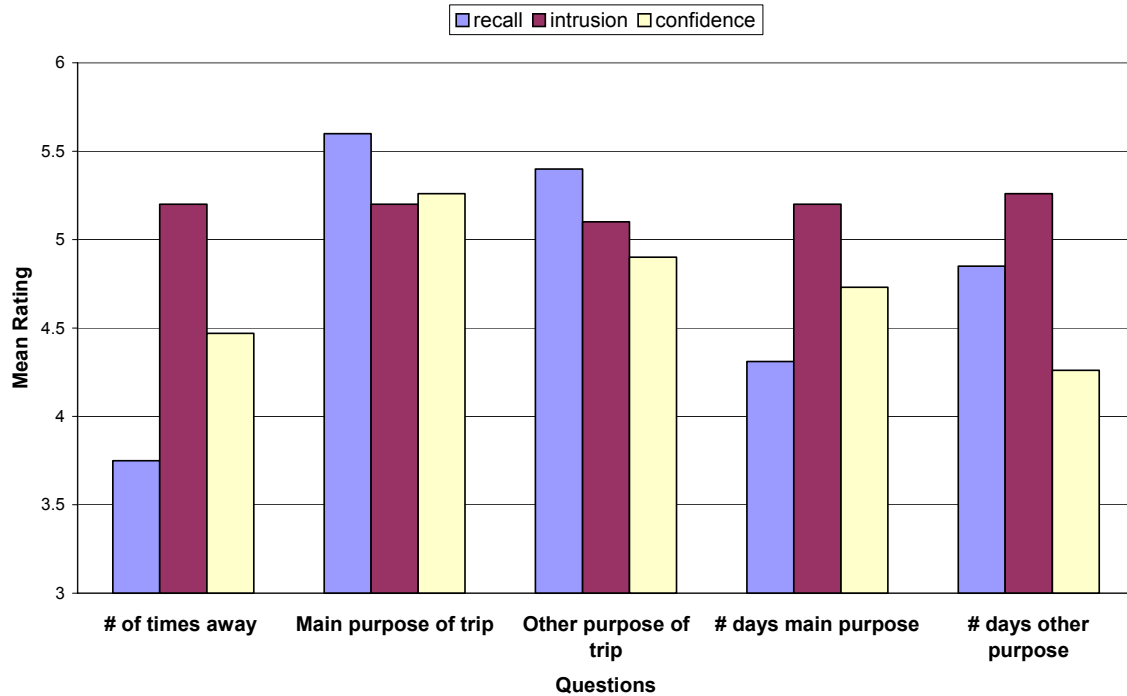
Problems associated with the length of the recall period are evidenced in subjects' ratings of ease of recall. Respondents reported that the reason the *number of times away from home* was rated as so difficult was because the rating scale questionnaire did not differentiate between months. Most respondents had little difficulty reporting trips taken in the most recent month. However, the difficulty of remembering trips taken further in the past (e.g., 2-3 months prior to the interview) caused respondents to rate this item much lower.

As can be seen, recall and confidence ratings for both trip purpose and duration are higher than for *number of times away.* In part, this is because memory for purpose and duration is conditional upon remembering the event in the first place; a person cannot remember the purpose of a trip without first recalling that the trip occurred. Stated somewhat differently, the very act of remembering a trip necessarily involves the recollection of some contextual details. Trip purpose, length, and destination are commonly recalled attributes. For this reason, the perceived ease of recall and accuracy in reports of trip purpose and duration may be less affected by reference month than are reports of the *number of times away*[7].

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[7] However, perceived accuracy does not mean that respondents will actually provide more accurate reports. For instance, in cases where trips are "recalled" but actually taken outside the reference period, subjects may provide trip details with confidence, but their responses would not be "accurate."

The length of the recall period proved most problematic for frequent travelers who had the hardest time remembering trips taken 2 or 3 months ago. For the purposes of this study, frequent travelers were defined as those individuals who took 12 or more trips per year. They reported that after a month, details of their business travel (especially month of travel and duration) tended to get blurry.   They could report "educated guesses" about these details, and were able to report the purpose of these trips with confidence. By contrast, less frequent travelers reported that they could provide the number of absences fairly easily regardless of month because their trips were "not routine" and "stuck out."

Several respondents noted that it was easier to report duration for business travel than for personal/leisure trips, especially when asked about trips that occurred 3 months ago. For work related travel, respondents said that they could rely on their memory for similar business trips as aides in their reporting.

Missed *missed days*: Unreported Absences
Next, subjects were asked to think back on the past three months, and to report trips that they may have forgotten to include in the ATUS interview. Five respondents (23%) indicated that they had failed to report trips during the interview. As noted above, two respondents omitted personal trips from their reports because they did not understand that the *missed days* question pertained to both personal and business travel.   Two other respondents failed to mention trips that they described as neither "business" nor "leisure." In one case, the respondent drove to see his sick relative over a long weekend, a trip he referred to as "personal business". In the other case, the individual drove to New Jersey to spend time with the in-laws. Finally, one respondent failed to report a two-night absence from home because she "was focused on the number of days" she was gone. She left for her trip on a Friday evening and returned Sunday morning, and indicated that she only felt like she was gone 1 day.

Without exception, respondents said that trying to recall trips taken 3 months prior to the ATUS interview was difficult. Statements made by respondents during the administration of the *missed days* question clearly reflect the uncertainty they felt. When asked about absences from the beginning of the reference period, twelve of twenty-two respondents prefaced their responses with qualifications such as, "This is harder. I believe I was in…", or "I'm not sure, but I think I was gone…", and "That's tough because I'm gone so much. I assume…"

Trip Verification:
It was possible to verify the accuracy of respondents' reports of their business trips through OFO travel records. Excluding 2 cases for which the data was missing, 29 out of the 45 (64.4%) respondents who reported business trips were accurate in terms of the month of occurrence. In the 16 remain cases, 9 were *omissions* (on record but not reported by respondent) and 7 were *inventions* (reported but not verified by records). Frequent travelers in this study were responsible for 7 of the 9 *omissions* and 5 of the 7 *inventions*. Chart 4 depicts respondents' errors in trip reports as a function of length of the recall period.

Chart 4. Reporting Errors by Reference Month
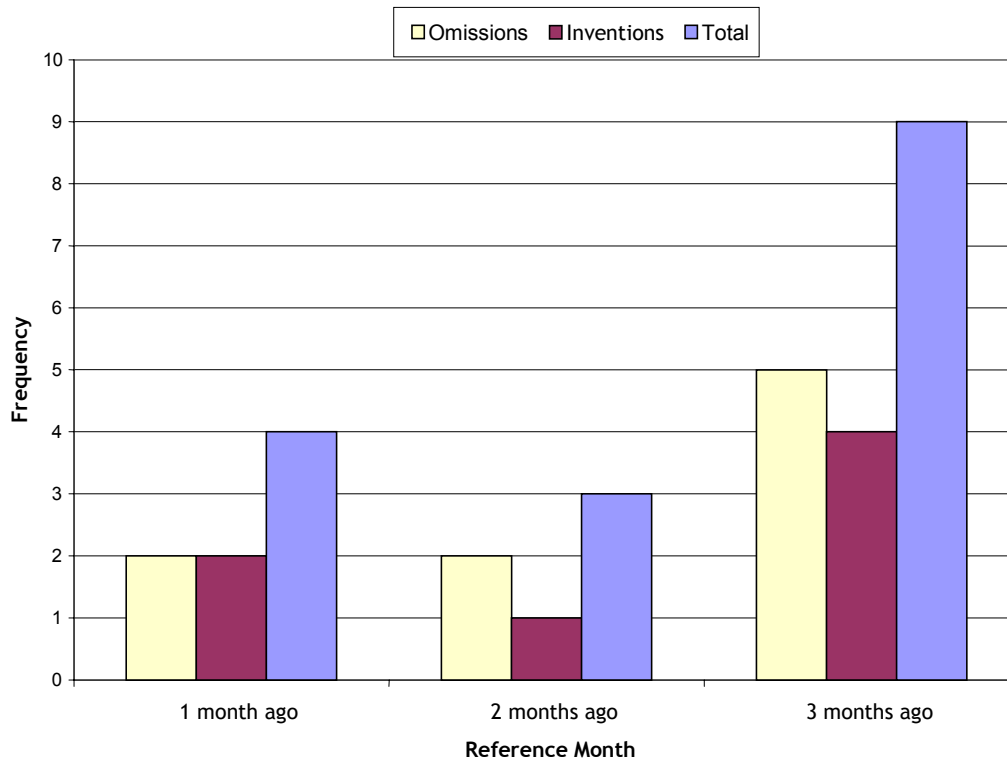
In contrast to the moderate accuracy rate for reports of trip frequency over a 3-month period, estimates of trip duration were quite low. Only eight of the twenty-six respondents (31%) who reported a valid business trip provided a trip duration that matched the available records exactly[8]. However, when trip duration was reported inaccurately, respondents most often mis-specified the length of the trip by only 1 day. Moreover, although the distribution of trip duration errors didn't differ as a function of question-asking strategy, there was a slight tendency for errors to increase with length of recall period (i.e., subjects' estimates of trip duration were worse when reporting on trips early in the reference period). See Chart 5.

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[8] The cases in which the trip could be veified, but its length could not, were omitted.

Chart 5. Accuracy of Respondents Estimates of Trip Duration by Reference Month
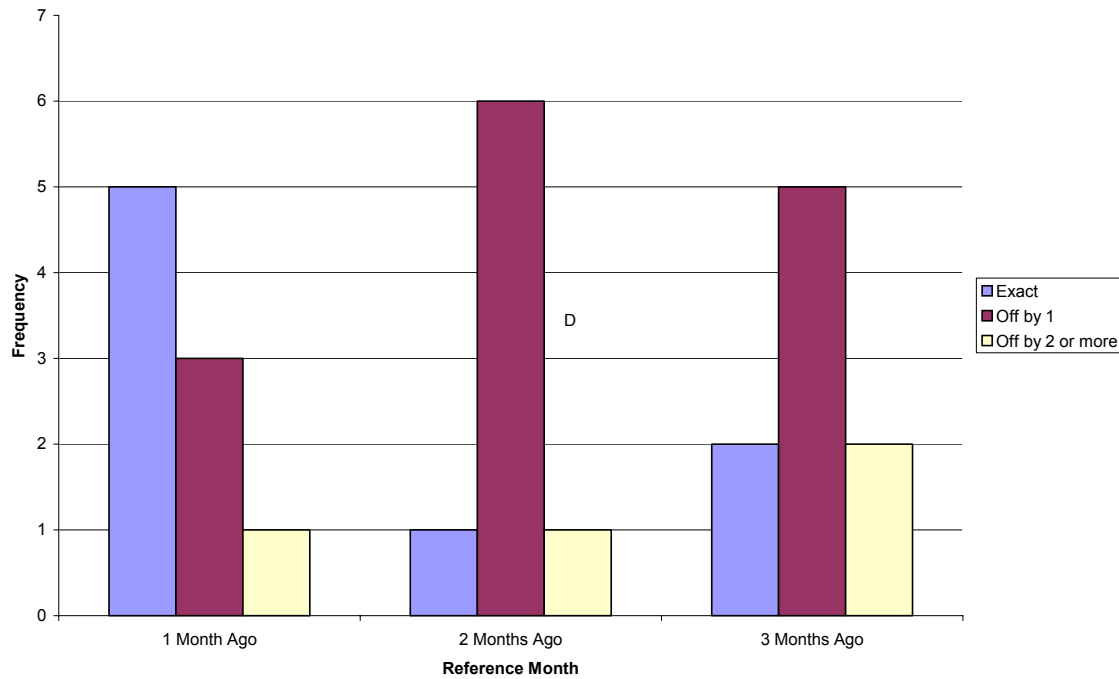
As noted above, reports of frequent travelers were more error-prone than were those of infrequent travelers. Table 2 summarizes the reporting errors made by frequent and infrequent travelers as a function of the length of the recall period.

	Reporting Errors by Type of Traveler	
Reference month	Frequent Travelers (n = 10)	Infrequent Travelers (n = 12)
One month ago	3	1
Two months ago	2	1
Three months ago	7	2
Total	12	4

As seen in Table 2, errors in reported reference month are rare for infrequent travelers. Chart 6 shows reporting errors for estimates of trip duration for infrequent travelers only.

Chart 6. Accuracy of Infrequent Travelers' Estimates of Trip Duration by Reference Month:
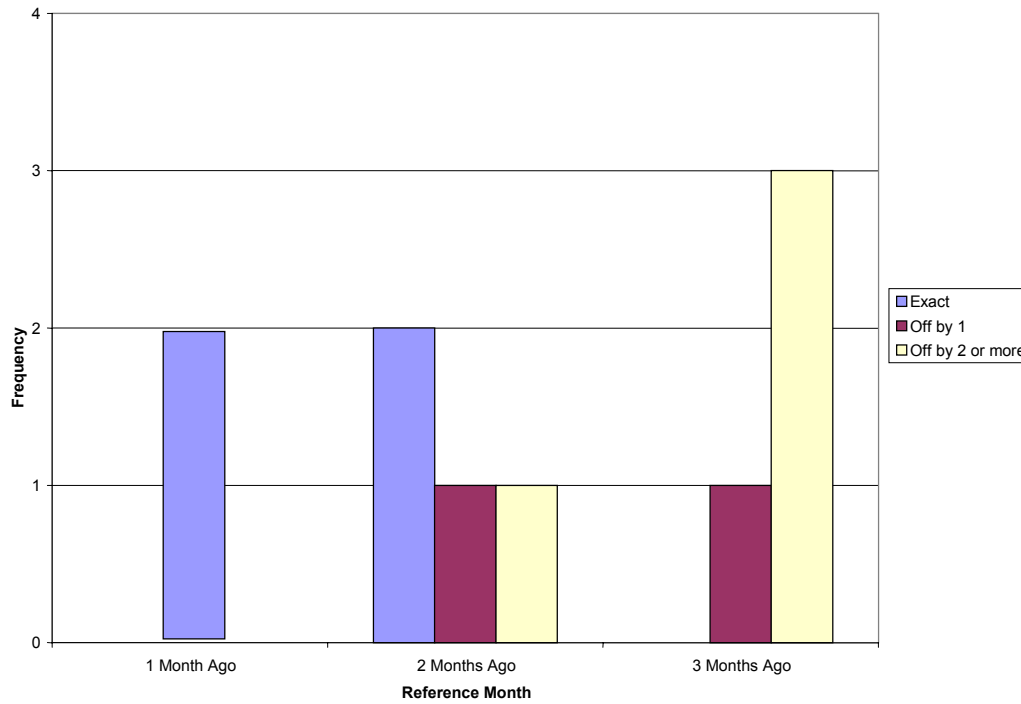
As seen in Chart 6, although some errors in duration estimates occur for trips taken two months prior to the interview, the more serious estimation errors (i.e., estimates that are off by 2 or more days) occur with a three-month reference period. Even if the ATUS has an 8-week fielding period, few respondents will be required to report trips that occurred three months ago. All infrequent travelers reported accurate trip lengths for trips that occurred in the preceding month.

Life-Events Calendar
It is not always possible to recall specific events on demand. Occasionally, memories are 'triggered' by other events or thoughts, suddenly allowing the previously unavailable memory to be recalled. The purpose of the life events calendar was to provide respondents with another context for thinking about their recent travel. Subjects were given a six-month calendar and asked to mark off travel, personal events, holidays, birthdays, and other special events they remembered. While they reconstructed this six-month period from memory they were asked to "think aloud" in order to track the thought processes governing recall of travel information.

Only two respondents mentioned a trip during the life events exercise that had been forgotten in the ATUS interview and in the directed questioning earlier in the debriefing. One respondent's recall was prompted after remembering that there was a holiday weekend in February (President's Day), and that had taken a three-day vacation. The other respondent failed to recall a trip that spilled over into February. It had begun as a business trip in the last

week in January, and was extended for personal travel through February 4th . The respondent said that the business portion of the trip (a regular training session) dominated his focus, and it was only after looking at the calendar that he realized that he had tacked on personal travel.

Three other respondents had trips that spanned months within the reference period. Only 1 accurately reported the number of days in each month; the other 2 respondents folded the entire trip into the month the trip started, and the month in which the majority of the trip fell, respectively. During cognitive interviews, most respondents (18/22) said that they would have difficulty reporting accurately the number of days that fell into either month. Aside from general recall issues, the number of days in given month (i.e., 28 – 31) was the most cited reason for this difficulty.

In general, respondents found the use of a calendar aided their recall of trips, especially trips taken several months ago. All respondents with reported travel said it would have been desirable to have access to their day planner or travel vouchers, but that a calendar was the next best alternative. Other useful memory cues included probes related to travel troubles (e.g., canceled flights, bad weather), car rentals, and the preparation of materials (e.g., training package, presentation, packing).

Life events and multiple trip labeling
The life events calendar also provided an opportunity to examine respondents' natural reporting strategies. How would respondents spontaneously talk about trips taken over a six-month period? Would trips be reported in chronological order? How would multiple trips taken in the same month be reported?[9]

When asked directly, respondents were divided in their stated preference for the question asking strategy used in the missed days module. Nine of 22 (41%) said that they preferred the backward-by-month strategy because it asked about the most recent and more readily recollected trip first. They felt that this would be less discouraging than the forward-by month method, and also would give them additional time to think about work related trips that may not be as fresh in memory. 13 of 22 (59%) preferred to be asked in chronological order because it seemed "more natural," whereas the backward-by-month was "like trying to say the alphabet backwards."[10]

When spontaneously reporting trips[11], however, the majority of respondents utilized a forward-reporting strategy. Table 3 shows the number of times respondents utilized a forward reporting

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[9] Reading conventions in Western culture strongly influence how people attend to written material-namely, they begin at the top of a document, reading left to right and down the page. To get help disentangle this bias from any preferences related to chronological ordering, arrangement of the months in the calendar was varied. See Attachment 3.

[10] This preference differed somewhat, depending upon the question asking strategy condition the respondent was in. Of the respondents who were in the *backward* by month condition, 9/11 said they would have preferred to report in *forward* or chronological order. 7/11 respondents in the *Forward* by month condition indicated that they preferred to report their trips in reverse chronological order. This is a common finding. Respondents tend to prefer whatever technique they were not exposed to. For examples related to income questions, see Schwartz & Paulin, ASA 2000.

[11] During directed questioning and during the life events calendar exercise.

strategy when discussing their travel freely.   As you can see, this result holds for both reports of months within the reporting period, and for multiple trips in a given month. There was no difference in this pattern as a function of question asking strategy used in the ATUS interview.

Table 3. Frequency with which question asking strategy was used by reference interval

	Reporting Strategy Used		
	Forward	Backward	Mixed
Reporting Trips Across Reference Period	25	11	2
Reporting Trips Within A Single Month	16	2	0

Numbers are based on available data.

Despite respondents' preference for a forward-reporting strategy, the implementation of a forward-asking strategy across months during the administration of the summary question resulted in 40% more response errors (i.e., omissions and intrusions). The forward-asking strategy resulted in 10 response errors whereas the backward-asking strategy yielded 6 errors.

Trip Purpose labeling
Respondents reported that providing a MAIN trip purpose during the ATUS interview was an easy and effective way of reporting their travel activity. During the cognitive interview, when respondents discussed multiple trips they had taken in a single month, 13 of 22 (59%) spontaneously reported the trip purpose as the primary (i.e. first) descriptor. 7 used the destination, and 2 used the date of travel. They reported that their criteria for selecting the MAIN purpose were (1) who paid for the trip, and (2) how did you spend the bulk of your time?

Several respondents (8/22) said that they found the question about a trip's "other purpose" confusing and/or moderately intrusive. For example, one respondent said that the question seemed to imply that he had some ulterior motive for going to San Diego in the middle of the winter, or that we were asking about what he did on his down time.

Respondents did not have difficulty labeling the trip scenarios with the purpose categories. Several additional category or sub-category possibilities were suggested including, "volunteer/charity/community service" (as distinct from pure leisure or religious activity), "career development" (as distinct for business trips for which one is paid and is not solely personally beneficial), "emergency travel" (e.g., natural disasters, to attend funeral).

The OTHER purpose category (i.e., a secondary purpose, not Other-specify) was consistently used for situations in which the person extended a trip for personal reasons, but was not applied to instances where the person "takes advantage of down-time"(e.g., site-seeing in the afternoons after meetings).

All respondents used the Other-specify option for the scenario involving charitable/volunteer work, and also for the scenario describing "emergency" travel (i.e., staying with friends because of storm damage). About half of the respondents (5/12) said that we should add a category for one or both of these trip purposes.

Summary of Findings

Based on the findings from this study, the following observations about the administration of the ATUS were made. First, the length of an ATUS interview and the number of activities reported is likely to be related to the employment status of the respondent (employed vs. not employed), reporting day (work vs. nonwork day) and household composition (size and presence of children). Employed respondents living in households without children and reporting about a work day are likely to produce the shortest (both in terms of time and number of activities reported) ATUS interviews.

With respect to the missed days summary question, several key findings are worth emphasizing. First, the accuracy with which respondents can recall the month of a trip occurrence and its duration are affected by the frequency with which the respondent travels and the length of the recall period. Frequent travelers' reports are most error-prone simply because travel is part of their routine and therefore lacks the salience that it may have for infrequent travelers. Both frequent and infrequent travelers have difficulty reporting accurately about trips that occurred three months prior to their interview.

The use of a life-events calendar in this study suggests that accuracy may be enhanced by having respondents consult their own calendars or diaries. Accuracy was also enhanced when a backward-asking strategy was used during the administration of the summary question.

The results of this study indicate that approximately half of all trips taken in a given month are for business. The others are for vacation or pleasure. This may mean that the ATUS does not need to make a weighting adjustment to account for absences from home.

Outstanding Issues

A number of issues emerged during this study that need to be addressed prior to full production. Consistent with findings from other pre-testing efforts (see Schwartz & Lynn, Result of Paid Work Testing: Phase 1), this study found that the exclusion of multi-tasking or simultaneous activities from the time diary is problematic. Respondents want to report multi-tasking and feel that the ATUS' restriction to reports of primary activities only is artificial and misrepresents their daily activities.

The instructions to the time diary specify that knowing who was with a respondent is necessary for accurate coding of activities. Nonetheless, some respondents are hesitant to provide this information and questions about who was in the room with them slightly to moderately intrusive.

In general, the transition between the time diary and missed days summary question works well. However, respondents in this study initially understood the question to apply to business trips only. This affect may be exacerbated when the missed days summary question follows questions about paid work. Respondents reported some confusion related to the use of the phrase "nights away" in the lead-in and the instruction to report trip purposes in terms of "days." Their uncertainty about how to count days (i.e., should they include travel days or half days?) may be reflected in the inaccuracy of their reports of trip duration.

The accuracy with which respondents can report about times away from home deteriorates as the recall period increases. Both frequent and infrequent travelers had difficulty reporting trips that occurred three months prior to their interview. Two pending decisions based on the results of the ATUS field test have direct bearing on this issue. First, a field period of 4-weeks will ensure that no respondents report trips that occurred 3 months prior to their interview. A 6- or 8-week field period will result in some respondents (though probably very few) faced with this recall situation. Second, the use of substitution (planned for 40% of the sample) is likely to decrease the number of contact attempts needed to gain cooperation and may shorten the field period for respondents who have more than one eligible interview day per week. Thus, substitution may minimize the likelihood that some respondents are asked to report about trips 3 months ago.

Respondents generally grouped their own trips into two categories – business and personal. When presented with additional categories during the debriefing, respondents sorted fictional scenarios into more detailed subcategories and suggested further distinctions to accurately categorize different types of trips. Two decisions are needed with respect to the use of predetermined categories in the ATUS. First, which categories would be informative in terms of weighting adjustments? Second, do trip purposes provide information that is important for reasons other than weighting? If so, what level of detail is required?

Recommendations
Based on the results of this study, the following recommendations are offered:

Time diary recommendations
A help screen should be developed to explain why the ATUS collects information about who was in the room with respondents during an activity. This help screen could explain the importance of social context in understanding people's daily activities and the ambiguity of the "who was with you?" probe.

Further research is needed to address respondent concerns about the ATUS' exclusion of simultaneous activities.

Missed days summary question recommendations
The revised lead-in to the summary question that emphasized that the interviewer was going to ask a few, very general questions about absences from home should be implemented. The inclusion of this phrase reassured respondents who might otherwise have worried that they were going to be required to report their activities away from home in as much detail as they had provided in the time diary.

The lead-in to the summary question may need to be revised to clarify that the questions about times away from home apply to business, personal and other types of trips.

It is recommended that a backward-asking strategy be used when respondents report multiple trips within a reference month. This approach is consistent with other surveys and is less error-prone than is the more familiar forward-asking strategy. It is further recommended that interviewers suggest to respondents that they consult a calendar or diary to facilitate recall of times away from home.

It is recommended that the following trip purpose categories be used:

Q1. What was the purpose of that trip? Was it --
1. Vacation or visiting friends or relatives
2. Work or business, or
3. Something else - specify - Go to Q2

[blind: these responses are not read to the respondent]
4. multiple purposes -- Go to Q3
5. DK
6. REF

Q2. (screen for something else/specify) *Check all that apply.*
1. School-related activities
2. Weddings or funerals
3. Medical reasons
4. Other/specify _____

Q3. (screen for multiple purpose) *Check all that apply.*
1. Vacation or visiting friends or relatives
2. Work or business, or
3. School-related activities
4. Weddings or funerals
5. Medical reasons

6. Other/specify _____

It is also recommended that the ATUS omit the question about "other" purposes. Some respondents found this intrusive and difficult to answer.

Future research should also examine the impact of question order on respondents' interpretations of the summary questions. Specific attention should be paid to the impact of having the paid work summary questions precede the missed days summary question.

The recommended wording of the missed days summary question follows:

Lead Thanks for telling me about what you did yesterday. Because this survey focuses on what people did yesterday, the picture that we get of how people spend their time is incomplete. In particular, we get very little information about what people do when they travel, even though we know that activities often change when people travel. To help us get a more accurate picture of how you spend your time, I'd like to ask you a <u>few, very general questions</u> about times when you may have been away from home for business, vacation or other sorts of trips.

Q1 In the month of [MONTH], how many times were you away from home for 2 or more nights in a row[12]?

---

[12] Interviewers in the ATUS field test recommended the phrase "in a row" instead of "consecutive."

Q2   (Use parenthetical if more than 1 trip in a month).

(Let's start with the most recent trip you took in [MONTH]). What was the MAIN purpose of that trip?

      1. Vacation or visiting friends or relatives – Go to Q5
      2. Work or business, or – Go to Q5
      3. Something else - specify - Go to Q3

      [blind: these responses are not read to the respondent]
      4. multiple purposes -- Go to Q4
      5. DK
      6. REF

Q3   (screen for something else/specify) *Check all that apply.*
      1. School-related activities
      2. Weddings or funerals
      3. Medical reasons
      4. Other/specify _____

All responses go to Q5

Q4   (screen for multiple purpose) *Check all that apply.*
      1. Vacation or visiting friends or relatives
      2. Work or business, or
      3. School-related activities
      4. Weddings or funerals
      5. Medical reasons
      6. Other/specify _____

All responses go to Q5

Q5   How many days were you away for that trip?

          Continue question sequence until no more trips on roster.

Attachment 1. Missed Days Summary Question

**Question
Sequence**

Lead   **Thanks for telling me about what you did yesterday. Because this survey focuses on what people did yesterday, the picture that we get of how people spend their time is incomplete. In particular, we get very little information about what people do when they travel, even though we know that activities often change when people travel. To help us get a more accurate picture of how you spend your time, the next few questions ask you a <u>few general questions</u> about times when you may have been away from home.**

Q1   **"In the month of [MONTH], how many times were you away from home for 2 or more consecutive nights?"**

Q2   **"Let's start with the most recent of those [INSERT TOTAL NUMBER OF TRIPS] trips. What was the MAIN purpose of the most recent trip?**

Q3   **"Any other purpose?"**

Q4   **"How many days were you away to/for [INSERT MAIN PURPOSE]?"**

Q5   **"How many days were you away to/for [INSERT OTHER PURPOSE]?**

Q6   **"Okay, now let's talk about the next most recent trip** (if necessary, of the other two trips that you made in [MONTH], let's talk about the one that was most recent) **What was the MAIN purpose of the second most recent trip?"**

Q7   **"Any other purpose?"**

Q8   **"How many days were you away to/for [INSERT MAIN PURPOSE]?"**

Q9   **"How many days were you away to/for [INSERT OTHER PURPOSE]?"**

Q10   **"And what about the other trip you made in [MONTH]? What was the MAIN purpose of that trip?**

Q11   **"Any other purpose?"**

Q12   **"How many days were you away to/for [MAIN PURPOSE]?"**

Q13   **"How many days were you way to/for [OTHER PURPOSE]?**

                 Continue for any additional trips in [month]

Attachment 2. Debriefing Questions

1. General Reactions

1) The first thing I'd like to do is to get your general reaction to the survey. What was it like for you to complete this survey?

2) Were there questions that you found particularly difficult or confusing?
    (1) If so, what were they?
    (2) What made them difficult?
    (3) How might we improve them?

3) Were there questions that you found particularly easy?
    (1) If so, what were they?
    (2) What made them easy?

4) Were the instructions sufficiently clear?
    (1) If not, why not?
    (2) What could we do differently?

5) Did the questionnaire seem to flow smoothly?
    (1) If not, why not?
    (2) How about the transition near the end, when we switched from talking about what you did yesterday to talking about times when you were away from home?
    (3) What could we do differently to improve this transition?

6) Did you have any other general reactions to the content of the questionnaire, or to the way it was administered?

7) What about other people…how do you think they'll react to this survey?

2. Ratings administration and review

Okay, I think I have a good sense of your overall impression of the survey. Now, let's take a look at three specific aspects of the survey. First, we're interested in how easy or difficult it was for you to remember the things that you told me about. I'd like you to use this 6-point scale to rate how easy or difficult it was for you to remember different things that I asked you about on the phone. For example, the first question asks you to rate how easy or difficult it was to remember 'the activities that you did yesterday?' If you had a very difficult time remembering these activities, you would circle '1'; if you found remembering these activities was very easy, you would circle '6'.

The second set of questions asks you to rate how intrusive you felt it was to be asked about each item. Finally, we'd like to get a sense of how confident you are in the accuracy of the information you reported.   Please spend a few minutes filling out each questionnaire, and then we'll talk a bit about your responses.

a) I'd like to start by getting a feel for what these numbers mean to you.
    (1) What makes something a 6?
    (2) What about a 5, how is a 5 different from a 6?
    (3) *Continue using each rating provided by respondent.*

b) Let's start by looking at your ratings on the first questionnaire, the one that asked about how easy or difficult it was for you to remember different things. I'd like to better understand each of your answers.

    (1) We'll start up here with the first one, what was it about remembering what you did yesterday that made it (use ratings to determine fill) for you to remember?

    (2) What was it about remember what you did yesterday that made it easier than remembering (choose example for questionnaire)?

    (3) Why was it harder to remember what you did than it was to remember (choose example from questionnaire)?

    (4) Go through each item on questionnaire in a similar manner.

c) **For items with same ratings** – You gave both (choose example) and (choose example) the same rating (give number). Was one of these easier to remember than the other? Why was that? I'd like you to go ahead and put these in order from hardest to easiest, even though I know that they were (all/both) equally (use ratings/verbal labels to determine fill).

d) Repeat procedure for each questionnaire – ease/difficult, intrusiveness and confidence.

3. Missed Days Probes

Toward the end of the telephone interview, I asked you about times when you were away from home for two or more consecutive nights. I'd like to spend some time talking with you about what it's like to try and remember times away from home.

1. Missed Trips

Okay, we talked about trips that you made in the past 3 months. You told me about (use number of trips reported and reported purpose).

(1) Thinking back on it now, did you take any other trips in January, February or March, other than the ones you already told me about?

❑ Yes   ❑ No

1. Tell me about that trip.
2. Why is it that you think you remembered this trip now but not earlier?
3. Was it something about the trip itself?
4. Was it something about the way I asked you about times away from home?
5. How could I have asked the question differently that would have made it easier for you to remember all of your trips?

(2) Were there any trips or absences that you weren't sure whether to include or not?

❑ Yes   ❑ No

1. Tell me about that trip.
2. What was it about that trip that made you uncertain about whether you should mention it?

2. Labeling

[Single trip respondents]

1. I'd like you to think back, have you ever taken multiple trips in a single month?

❑ Yes   ❑ No

> 1. Were you away from home for 2 or more consecutive nights on each of those trips?
>
> ❑   Yes   ❑ No
>
> 2. Okay, let's talk about this. Tell me about the time you took multiple trips in a single month.
> *Note: Probe for details if not provided. Labels, order, purpose.*
>
> 3. How easy or difficult is it for you to recall those trips? What makes it easy/difficult?

Interviewer check items:

1) Did the subject spontaneously label trips?   ❑ No
    ❑ Yes, **by destination**
    ❑ Yes, **by date of travel**
    ❑ Yes, **by purpose**
    ❑ Yes, **by some other label (specify)**

2) In what order did the subject report trips?
❑ **Forward** (beginning of month to end)
❑ **Backward** (end of month to beginning)
❑ **Something else** (specify)

[Multiple trip respondents]

1. I'd like to focus a little bit on [MONTH WITH MULTIPLE TRIPS].

Interviewer check items:

1) Did the subject spontaneously label trips? ❑ No
   - ❑ Yes, **by destination**
   - ❑ Yes, **by date of travel**
   - ❑ Yes, **by purpose**
   - ❑ Yes, **by some other label (specify)**

2) In what order did the subject report trips?
   - ❑ **Forward** (beginning of month to end)
   - ❑ **Backward** (end of month to beginning)
   - ❑ **Something else** (specify)

3) How easy or difficult was it for you to remember (all/both) of those trips?
4) What would have made it even easier?

3. Life Events Calendar (6 months/think aloud)

Okay, let's take a slightly different approach to this.
[Show respondent 6 month calendar. Layout of the calendar will be counterbalanced to avoid visual cues biasing recall order, as below:

A			B	
Oct	Jan		Mar	Dec
Nov	Feb		Feb	Nov
Dec	Mar		Jan	Oct

I'd like you to use this calendar to help you think about times you were away from home for 2 or more nights during the past 6 months, October, 2000 to March 2001. Let's start by filling in some events that we already know took place during those months. Sometimes, thinking about events helps people remember other things because those events serve as time anchors, reminding us of where we were or what we were doing. So, let's first put some in together.

Write on calendar. Fill in the following dates:
- *Tuesday, October 31st – Halloween*
- *Tuesday, November 7th – Election Day*
- *Thursday, November 23rd – Thanksgiving*
- *Monday, December 25th – Christmas*
- *Sunday, December 31st – New Year's Eve*
- *Monday, January 1st – New Year's Day*
- *Wednesday, February 14th – Valentine's Day*
- *Saturday, March 17th – St. Patrick's Day*

Okay, now I'd like you to go through each month and fill in any personal events that are significant to you. So, you can fill in people's birthdays or anniversaries, any special events…anything you want.

All right, now let's take a look at each month. Tell me about any trips you may have made during that month. It's okay to tell me again about trips we already talked about. I'm especially interested in your thought process-what are you thinking about as you try to recall these trips? So, when you're going through this, I'd like you to "think aloud" and tell me what brings a certain trip to mind- is it because it's during a holiday, or because the plane was delayed for such a long time, what? *(Model think-aloud behavior. For example, if I were doing this I might say something like …)* Just try to give me a sense of how you're coming up with these times? Okay?

Once you recall a trip, just mark off the days you were gone, and then go on to the next one you remember, and so on. Any questions?

4. Spanned Months

Here's an instance where one trip spans Month1/Month2. If I asked you about any trips you took in Month1, how would you report that?

What about if I asked about trips you'd taken in Month2?

Would you try to just report on the days within the specified month?

How easy or difficult would it be for you to remember accurately the days that fell in either month?

What would make it easier?

5. Card Sort (Trip purposes)

    (1) At the end of the survey, I asked you to tell me about the MAIN purpose of your trip(s). For example, you told me that you went [fill destination/label, or "on a trip"] for [fill PURPOSE]. I'd like to have you do something similar again, only this time we'll use some pre-set options. On each of these cards I've attached a label describing a possible purpose for a trip. Take a moment to go over your trips in the last six months, and tell me where you'd categorize each one. You can select any category you'd like; there's no right or wrong answer. We just want to see if these categories capture trip purposes accurately. If there's a trip that doesn't seem to fit into any one category well, please let me know. If there's a trip that seems to fit into more than one category, tell me all the categories that you think it fits.

- ❑ Visit friends or relatives
- ❑ Vacation/Leisure
- ❑ Business/Professional (meetings, conferences, seminar)
- ❑ School related activity (Study/Teaching)
- ❑ Health treatment
- ❑ Religion/Pilgrimages

    (2) Let me give you some fictional situations. Tell me how you would classify each of these trips:

Scenarios:

- Bill travels to Boston for an annual meeting of the American Photography Association. Although his occupation is a teacher, he serves on the board of the Association, and helped to coordinate this year's conference.

  - ❑ Visit friends or relatives
  - ❑ Vacation/Leisure
  - ❑ Business/Professional (meetings, conferences, seminar)
  - ❑ School related activity (Study/Teaching)
  - ❑ Health treatment
  - ❑ Religion/Pilgrimages
  - ❑ Other/specify _____

- Sarah travels to Michigan to interview with several potential employers.

  - ❑ Visit friends or relatives
  - ❑ Vacation/Leisure
  - ❑ Business/Professional (meetings, conferences, seminar)
  - ❑ School related activity (Study/Teaching)
  - ❑ Health treatment
  - ❑ Religion/Pilgrimages
  - ❑ Other/specify _____

- Anna and Sam take a week off from work to volunteer to build a house with Habit for Humanity.

  - ❏ Visit friends or relatives
  - ❏ Vacation/Leisure
  - ❏ Business/Professional (meetings, conferences, seminar)
  - ❏ School related activity (Study/Teaching)
  - ❏ Health treatment
  - ❏ Religion/Pilgrimages
  - ❏ Other/specify _____

- Leslie is sent by her employer to a training facility in San Jose for a 3 day course.

  - ❏ Visit friends or relatives
  - ❏ Vacation/Leisure
  - ❏ Business/Professional (meetings, conferences, seminar)
  - ❏ School related activity (Study/Teaching)
  - ❏ Health treatment
  - ❏ Religion/Pilgrimages
  - ❏ Other/specify _____

- Dora is staying with neighbors until storm damage to her roof is fixed.
  - ❏ Visit friends or relatives
  - ❏ Vacation/Leisure
  - ❏ Business/Professional (meetings, conferences, seminar)
  - ❏ School related activity (Study/Teaching)
  - ❏ Health treatment
  - ❏ Religion/Pilgrimages
  - ❏ Other/specify _____

- Manuel and his best friend attend a weekend retreat offered through his church.

  - ❏ Visit friends or relatives
  - ❏ Vacation/Leisure
  - ❏ Business/Professional (meetings, conferences, seminar)
  - ❏ School related activity (Study/Teaching)
  - ❏ Health treatment
  - ❏ Religion/Pilgrimages
  - ❏ Other/specify _____

- Betsy attends a three day conference in New York City for work, but remains for in the city afterward to visit with friends over a 3 day weekend.

  - ❏ Visit friends or relatives
  - ❏ Vacation/Leisure
  - ❏ Business/Professional (meetings, conferences, seminar)
  - ❏ School related activity (Study/Teaching)
  - ❏ Health treatment
  - ❏ Religion/Pilgrimages

    ❑ Other/specify _____

- Derek flies home from college to spend his spring break with his parents.

  - ❑   Visit friends or relatives
  - ❑   Vacation/Leisure
  - ❑   Business/Professional (meetings, conferences, seminar)
  - ❑   School related activity (Study/Teaching)
  - ❑   Health treatment
  - ❑   Religion/Pilgrimages
  - ❑ Other/specify _____

- Robert and a co-worker are sent by their employer to Miami, FL in order to meet with clients. Their daily meetings are typically over by 3:00. In the afternoon and evenings, they go the beach, sight-see, eat out, etc.

  - ❑   Visit friends or relatives
  - ❑   Vacation/Leisure
  - ❑   Business/Professional (meetings, conferences, seminar)
  - ❑   School related activity (Study/Teaching)
  - ❑   Health treatment
  - ❑   Religion/Pilgrimages
  - ❑ Other/specify _____

- Sheila accompanies her husband to visit her mother-in-law for the weekend.

  - ❑   Visit friends or relatives
  - ❑   Vacation/Leisure
  - ❑   Business/Professional (meetings, conferences, seminar)
  - ❑   School related activity (Study/Teaching)
  - ❑   Health treatment
  - ❑   Religion/Pilgrimages
  - ❑ Other/specify _____

(3) What's your reaction to these categories? Do they make sense to you?

(4) What was the deciding factor when selecting a MAIN purpose?

(5) Are we missing any important categories? Which ones?

(6) What other options would you like to see in terms of specifying purposes?

(7) *[If not covered earlier]* How easy was it for you to come up with a MAIN trip purpose?

(8) How about breaking down the trip into days for multiple purposes- how could we ask this question better (e.g., asking for percentage of time)?

ID# _____

Please use the rating scale below to describe your experience in the Time Use Survey.

How easy or difficult was it to remember --	**Very Difficult**					**Very Easy**
1. The activities you did yesterday?	1	2	3	4	5	6
2. The times that you did each activity?	1	2	3	4	5	6
3. Who was in the room with you?	1	2	3	4	5	6
4. Who accompanied you to different activities?	1	2	3	4	5	6
5. The number of times you were away from home for 2 or more consecutive nights?	1	2	3	4	5	6
6. The MAIN purpose of each trip you took?	1	2	3	4	5	6
7. Any OTHER purpose for each trip you took?	1	2	3	4	5	6
8. The number of days you were away for the MAIN purpose of each trip?	1	2	3	4	5	6
9. The number of days you were away for any OTHER purpose for each trip?	1	2	3	4	5	6

ID# _____

How intrusive was it to ask you about –	**Very Intrusive**				**Not at all Intrusive**	
1. The activities you did yesterday?	1	2	3	4	5	6
2. The times that you did each activity?	1	2	3	4	5	6
3. Who was in the room with you?	1	2	3	4	5	6
4. Who accompanied you to different activities?	1	2	3	4	5	6
5. The number of times you were away from home for 2 or more consecutive nights?	1	2	3	4	5	6
6. The MAIN purpose of each trip you took?	1	2	3	4	5	6
7. Any OTHER purpose for each trip you took?	1	2	3	4	5	6
8. The number of days you were away for the MAIN purpose of each trip?	1	2	3	4	5	6
9. The number of days you were away for any OTHER purpose for each trip?	1	2	3	4	5	6

ID# _____

How confident are you in the accuracy of the information you provided about -	Not at all confident					Very Confident
1. The activities you did yesterday?	1	2	3	4	5	6
2. The times that you did each activity?	1	2	3	4	5	6
3. Who was in the room with you?	1	2	3	4	5	6
4. Who accompanied you to different activities?	1	2	3	4	5	6
5. The number of times you were away from home for 2 or more consecutive nights?	1	2	3	4	5	6
6. The MAIN purpose of each trip you took?	1	2	3	4	5	6
7. Any OTHER purpose for each trip you took?	1	2	3	4	5	6
8. The number of days you were away for the MAIN purpose of each trip?	1	2	3	4	5	6
9. The number of days you were away for any OTHER purpose for each trip?	1	2	3	4	5	6

MARCH 2001						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

FEBRUARY 2001						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

JANUARY 2001						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

DECEMBER 2000						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

NOVEMBER 2000						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

OCTOBER 2000						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Attachment 3. Trip Purpose Categories

<u>Categories currently included in phase 1 summary question</u>

Business
Vacation
School
Other

<u>Proposed Categories</u>

Visit friends or relatives (includes going to weddings/funerals)
Vacation/leisure
Business/professional
School related activity
Health treatment
Other
More than one purpose

<u>ATS Long Trip Categories</u>

To and from work
Business
Combined business and pleasure
School related activity
Vacation
Visit friends or relatives
Rest or relaxation
Sightseeing (historic/scenic)
Outdoor recreation (sports, fishing, hunting, etc.)
Entertainment (theater, concerts, sports events)
Shopping
Went out to eat
Spent the night
Changed transportation modes
Other family/personal (religious, medical, wedding, give someone a ride)
Other

<u>ITA Categories</u>

Business/professional
Convention/conference/trade show
Leisure/recreation/holidays/sightseeing
Visit friends or relatives
Government affairs/military
Study/teaching
Religion/pilgrimages
Health treatment
Other

Endnotes

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[i] Telescoping results from the temporally inaccurate placement of recalled events. In forward telescoping, events that occurred prior to a reference period are erroneously brought forward and included in it. Backward telescoping involves pushing recent events back into a previous reference period (Sudman and Bradburn, 1982). Telescoping is used most often to explain over/under estimation in judgements involving the aggregation of individual occurrences for the purpose of a summary response (e.g., "Last month, how much did you spend eating out at restaurants?"). However, because the ATUS time diary asks about the previous days' individual activities in a step-by-step, chronological sequence, the effects of memory loss or telescoping bias are minimized.