

Response Analysis Survey: A Qualitative look at Response and Nonresponse in the
American Time Use Survey
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Abstract: In January 2004, the Bureau of Labor Statistics (BLS) conducted a Response Analysis Survey (RAS) that elicited qualitative information related to survey response in the American Time Use Survey (ATUS.) This information was elicited from both respondents and people who refused to do the survey. The RAS was conducted to help the BLS better understand a person's propensity to respond or not to the ATUS, and to better understand to which survey features his or her response propensity is correlated.

Keywords: time use, nonresponse

The American Time Use Survey (ATUS) is the first continuous, federally funded survey designed to measure people's daily activities, including where they spend their time, what they spend their time doing, and who they spend their time with. However, the survey design of the ATUS is considerably different from most surveys in three main areas. First, the ATUS sample is not new. The ATUS sample is drawn only from respondents who have completed their entire rotation of interviews in the Current Population Survey (CPS). CPS participants remain in the CPS sample for eight nonconsecutive months and ATUS draws its sample two months after a household completes its eight month in CPS.¹ Although using the CPS as a sampling frame offers many advantages, it may increase respondent burden and fatigue which can lead to an increased concern for nonresponse and measurement error. Second, while most surveys interview any one or all household members, in ATUS, a single, specific household member is pre-designated as the respondent. The ATUS designated person (DP), age 15 years or older, is selected randomly from each household to participate in the interview, without substitution or proxy responses. This person may or may not have been the designated person in CPS. Finally, unlike most surveys that allow reporting during any time in a selected reference period, the ATUS respondent is required to report on a pre-assigned reporting day which is a specific day of the week. Fifty percent of the sample is assigned to report about a selected weekday--10 percent each for Monday through Friday. And, 50 percent is assigned to report about Saturday or Sunday--25 percent each. The specific day of the week assigned to each DP does not change over the course of the data collection period, and there is no substitution of this day. These three design requirements can decrease the relative response propensity among the ATUS sampled persons as compared to respondents in surveys with fewer design restrictions. The requirements also significantly constrain efforts to increase response in ATUS.

In 2003, the average ATUS response rate, by panel month, was 57%.² Achieving and maintaining response rates and quality data is a continual issue which must be addressed in any survey program. Once a survey program acknowledges response problems, an important question is how to identify, develop, and implement effective methods to reduce and/or adjust for nonresponse. In January 2004, the BLS conducted a Response Analysis Survey (RAS) in order to better understand both response and nonresponse processes in ATUS. The main goal of the RAS study was to understand, on a qualitative level, a person's propensity to respond to the ATUS, and to better understand to which survey features his or her response propensity was correlated. The study designers' hope was that some conclusions would lead to operational changes to improve

¹ See CPS technical paper for more information on CPS sample design

² All response rates were calculated using AAPOR Response Rate #2.

response without requiring confirmation from larger studies, and that other conclusions would serve as the bases for future hypotheses to be confirmed or denied by larger studies.

Methods

The Response Analysis Study was conducted from January 13 – 16, 2004 at the U.S. Census Bureau's telephone center in Jeffersonville, Indiana (JTC). All interviews were conducted by experienced ATUS interviewers. For simplicity, the RAS sample focused on English-speaking adults with telephones. It excluded all households where the CPS interviewer recorded that Spanish was the primary language spoken, all ATUS DPs under the age 18, and all households for which the Census Bureau had no telephone number on record.

Because the main goal of RAS was to understand the response propensity of both ATUS respondents and nonrespondents, the sample was purposefully divided among these two participant groups. In general, nonrespondents can be categorized into three types: noncontacts, refusals, and other noninterviews.

- Noncontacts are cases where the household cannot be contacted by an interviewer. Noncontact is usually caused by an interaction of the number of call attempts, the time of the attempts, and the respondent's behavior.
- Refusals are cases where the household is contacted and someone, not necessarily the DP, refuses to participate in the survey. Refusal is influenced by a respondent's reluctance to be interviewed and is often attributed to the interaction between the respondent, the interviewer, the survey, and the surrounding environment.
- Other noninterviews are cases where an interview can not be completed due to a limitation of the survey design.³

Because refusals remain the main contributor to ATUS nonresponse, the RAS study included a focus on refusals. A total of 240 RAS participants were selected from November 2003 retired ATUS sample. Of the total 240 respondents in the RAS sample, 70 were sampled from ATUS respondents and 170 were selected from ATUS refusals. ATUS refusals were further classified as either a hard or a soft refusal. The classification depended on whether the refusal was before the ATUS interview began (hard) or at some point during the ATUS interview (soft).

Approximately one week prior to the interview, each DP was sent a priority mailer containing an advance letter and a \$20 ATM debit card with instructions.⁴ The debit card was included as an incentive to increase response to the RAS study. The incentive was used because part of the sample was comprised of participants with a history of refusing ATUS and because a previous ATUS field test indicated that incentives tended to speed response time.⁵ At the completion of the RAS interview, the interviewer provided the respondent with the PIN number to activate the debit card.

The RAS study was a paper-and-pencil telephone survey. On average, each interview required 10-12 minutes to complete, with respondents taking several minutes longer than nonrespondents because respondents were asked several more questions than nonrespondents. All participants were asked their reason(s) for choosing to participate or not participate in the ATUS, what they thought about the CPS, the ATUS advance mailer, and their general attitudes towards government

³ Groves and Couper, *Nonresponse in Household Survey*, New York, John Wiley & Sons, 1998.

⁴The original plan was to give participants \$25 each, however, ATMs only dispense money in increments of \$10.

⁵ For a review of the 2001 ATUS Operations test, see Piskurich et al., 2002 AAPOR proceedings.

and non-government surveys. In addition to these questions, the respondents and the soft refusals received questions about what they thought about the ATUS interview. This included questions about the interviewer, the interviewer’s effort to contact them, and the purpose of the ATUS survey. The interviewers were trained to record the RAS verbatim responses so that the maximum amount of information could be obtained.

Results

The Response Analysis Survey was an opportunity to learn, on a qualitative level, about sampled individuals’ response decisions and the affects of several survey elements on that decision. Unlike most surveys, the American Time Use Survey has several unique design requirements including the use of retired CPS participants as a sampling frame, a pre-determined designated person, and a pre-assigned reporting day. These survey features not only affect a participant’s response propensity but also limit what solutions can be implemented to increase response. The RAS study focused on four main areas: survey participation, the ATUS advance mailer, interviewer–respondent interaction, and respondent attitudes towards government surveys.

Table 1: RAS outcomes, cooperation and response rates

	Number Eligible	Number Contacted	Number Responded	Cooperation Rate	Response Rate
Respondents	67	58	54	93%	81%
Nonrespondents	153	109	49	45%	32%
Total	220	167	103	62%	47%

* 20 interviews were ineligible for the RAS study

Table 1 shows the number of RAS sample cases that were eligible for interview, the number of those eligible that were contacted and completed, and the cooperation and response rate for each participant group. A cooperation rate shows the number of completed interviews divided by all participants. By contrast, a response rate shows the number of completed interviews divided by all eligible respondents. In addition to the participant’s questionnaire, an interviewer debriefing questionnaire was administered. The interviewer questionnaire gathered feedback on the actual RAS interviews and on how the interviewers felt about the questions asked of the participants.

Chart 1 shows that the majority of ATUS respondents completed the RAS interview. Only a small percentage was classified as noncontacts and refusals. Similarly, Chart 2 shows that the majority of ATUS refusals also refused the RAS study. However, 24% of the ATUS refusals were RAS noncontacts. It is possible that due to the RAS study’s short data collection period and the increased difficulty in contacting refusals, some potential respondents were never contacted and were then classified as noncontacts. Perhaps if the data collection period were extended, more noncontacts could have been reached, which may have resulted in more completed interviews.

Chart 1: RAS Outcomes for Eligible ATUS Respondents

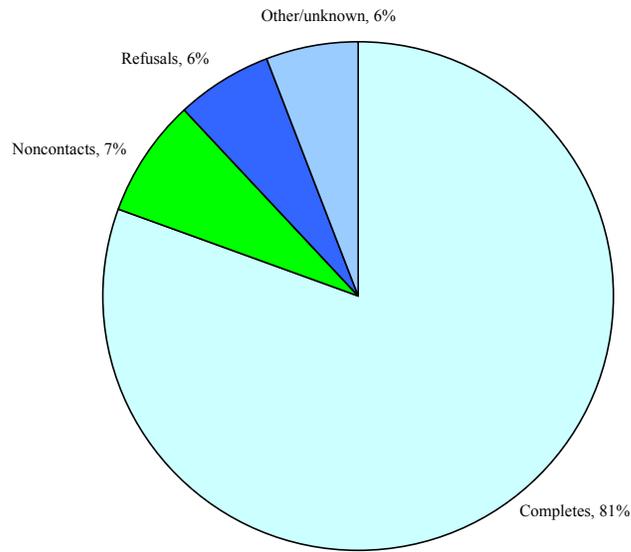


Chart 2: RAS Outcomes for Eligible ATUS Nonrespondents

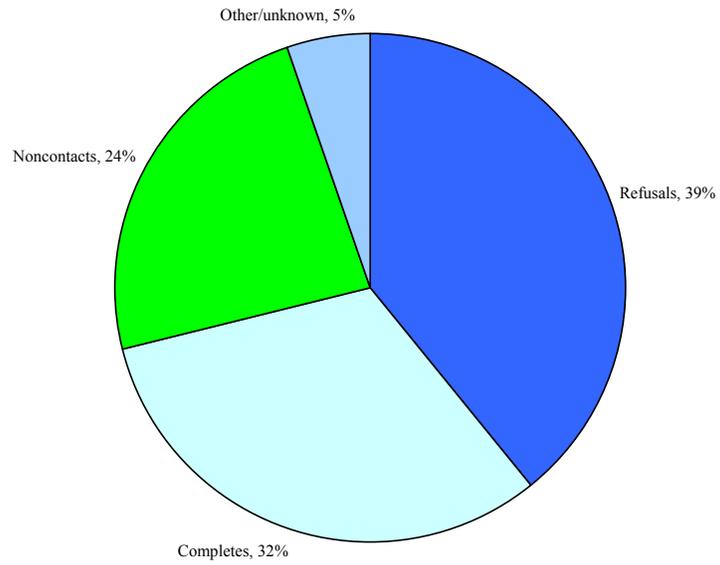


Table 2: RAS survey response by ATUS response status

	ATUS Respondents n = 54	ATUS Nonrespondents n = 49
RAS Advance Letter		
Received letter	94%	92%
Did not receive letter	6%	8%
ATUS Advance Mailer		
Remembered advance mailer	61%	38%
Did not remember	31%	55%
Not sure	7%	6%
Of those who remembered receiving the advance mailer*		
Read the letter	100%	67%
Read the brochure	45%	33%
Visited the web site	6%	0%
Of those who read either the letter or the brochure**		
The letter or brochure influenced their decision to participate or not	36%	7%
Had questions that were not answered in the letter or brochure	6%	0%
Wanted more information before the interview	30%	7%
Reported that they visited the web site	6%	0%
Used the email address	0%	0%
ATUS Interviewers		
Called at a convenient time	76%	N/A
Explained survey purpose clearly	93%	N/A
Respondent asked a question during the interview	19%	N/A
Respondent was satisfied w/ the answer***	90%	N/A
Seemed knowledgeable	98%	N/A
Was polite and courteous	100%	N/A
Interview pace was:		
Just right	94%	N/A
Too slow	2%	N/A
Too fast	2%	N/A
Interviewer said something inappropriate	0%	N/A
Interviewer could have made the interview more enjoyable	8%	N/A
Survey Sponsor		
Gov't surveys are worthwhile	78%	59%
Non-Gov't surveys are worthwhile	26%	37%
Worried about confidentiality	24%	32%

* Respondents, n = 33, Nonrespondents, n = 18

** Respondents, n = 33, Nonrespondents, n = 15

*** Respondents, n = 10

Participation

The RAS study's main goal was to understand the response mechanisms of ATUS respondents and refusals. Survey participation is dependent on many different elements, some of which are controllable and constant and others which are stochastic and variable, independent of the survey and the survey organization. In ATUS, factors like survey sponsorship and survey topic are fixed elements; however, these elements interact with variable factors, such as a respondent's predisposition towards surveys and the survey environment, to produce an always-changing response mechanism. This response mechanism not only varies across respondents, and between contact attempts, but often changes throughout the course of a single survey interaction. This makes survey participation not only an important factor to understand, but also a very difficult one to modify.

Twenty-four percent of all ATUS respondents who participated in the RAS study stated that they had no specific participation reason. While it is good that the ATUS did not give them a conscious reason not to respond, it also means that the ATUS did not give them a conscious reason to respond. Most likely, these respondents had a participation reason; it was simply no longer salient to them at the time of the RAS. Ultimately, it is necessary to understand their exact response reason not only to develop positive design changes, but also to avoid design changes that could inadvertently turn potential respondents into refusals.

Of the respondents who did give a participation reason, 28 percent stated that their decision was because of general, survey-related reasons rather than ATUS-specific reasons. Most likely, this group is comprised of highly motivated respondents who are willing to complete an interview, regardless of specific survey characteristics. Twenty percent stated that their decision was because ATUS was a government or Census Bureau survey. Several respondents said that they felt as though they were helping the government or performing a civic duty by participating in the survey. Another 9% stated that their CPS participation caused them to participate in ATUS and an equal number stated it was due to the interviewer. The final 9% was divided between the survey topic (7%) and the advance letter (2%) as the main reason for participating in ATUS.

Thirty-three percent of the ATUS nonrespondents stated that their decision not to participate in ATUS was because of their previous CPS participation. Several nonrespondents stated that they were tired of the Census Bureau calling them and they felt that participating in CPS was doing more than their share of the work. While the ATUS sampling frame can not be changed, the survey can be modified to help participants understand why they were "re-selected" by the U.S. Census Bureau for another survey. The modifications must emphasize the re-selection reasons on an individual respondent level and make it clear to the respondent why it is important for him or her to participate.

Sixteen percent of the ATUS nonrespondents also stated that they were too busy to complete the survey at the time of contact. Contact problems are often solved by altering a survey's call strategies; however the current ATUS call strategy is designed to contact participants across different times and is flexible enough to make appointments for later days if necessary. While the ATUS call strategy is limited by the pre-selected reporting day requirement, it seems more likely that the "too busy" response is a polite way of refusing the survey request. If this is the case, it does not matter how the survey alters its call schedule because it is no longer a noncontact problem, but a disguised refusal problem. This reason also raises the issue of nonignorable nonresponse because the likelihood of participation is much higher when someone is home (though they can do the survey from another location) and being at home may be a function of

one's time-use on any given day. It is not clear, however, if being at home is a function of one's time-use on the *prior* day—the critical question for examining nonignorable nonresponse in ATUS.⁶

Fourteen percent of ATUS nonrespondents who participated in the RAS study stated other non-ATUS related reasons for not participating. Similar to respondents who stated general survey participation reasons, this group of nonrespondents is most likely hard refusals who do not complete surveys regardless of the survey's characteristics. This number demonstrates that relatively few ATUS nonrespondents have a fixed response propensity towards all surveys. Similarly, only 12 percent of ATUS nonrespondents stated that they had no reason for not participating and that the majority of nonrespondents were able to recall specific refusal reasons.

The remaining non-participation reasons include: 8 percent who stated inconvenient call times and 8 percent who stated that the survey topic was too private/ none of the government's business. The final 8 percent was divided equally between Census/ government sponsorship, the interviewer, survey difficulty, and general disdain towards survey participation.

Advance Mailer

The Census Bureau attempts to maximize response by sending a letter to all ATUS sampled individuals in advance of the ATUS. The letter is signed by the Director of the Census Bureau and contains information for the participants about the purpose and sponsor of the survey, the voluntary nature of the study, the confidentiality of information, and when the Census Bureau will be calling. In addition to the advance letter, the Census Bureau sends sampled individuals a brochure to provide the participant with additional survey information. The brochure also provides individuals with a link to an informative BLS web site and a Census Bureau e-mail address. RAS participants were also sent an advance letter explaining their participation in the special follow-up survey.

When asked, 61 percent of the ATUS respondents that participated in the RAS study remember receiving the ATUS advance mailer. Of the ATUS respondents that remembered receiving the advance mailer, all reported that they had read the letter, but only 45% of them said that they had read the brochure. Of those respondents who read either the letter or the brochure, a little more than a third (36%) said that at least one of them influenced their participation decision, and about 30% said that they would have liked to have had more information before starting the interview. Most respondents would have liked either an advance copy of the questionnaire or a better understanding of how the diary portion of the interview was going to be conducted.

Of the nonrespondents, 38% remembered receiving the advance mailer. Within that group, two-thirds reported reading the letter, while only one-third reported reading the brochure. Only 7% of the nonrespondents that read either the letter or the brochure said that at least one of the two had influenced their participation decision. Of those who read either the letter or the brochure, 7% of ATUS nonrespondents said that they would have liked to have had more information before starting the ATUS interview. The easiest way for participants to get more information is through the web site or by asking an email question. However, the participants who stated that they had wanted more information neither visited the web site nor sent an email question. One reason for the information disconnect might be that the web site and email address are listed only in the last page of the brochure. Thus, if these participants are not reading the brochure then they are not getting the additional information.

⁶ Rubin, D.B., *Multiple Imputation for Nonresponse in Surveys*, New York, John Wiley & Sons, 1987

Overall, the responses to the RAS advance mailer questions show that for the majority of the ATUS respondents, the letter acted as a positive force towards participation. The larger problem for the ATUS, like most surveys, is getting the nonrespondents to read the letter. The results for the brochure were worse, with fewer participants reading the brochure, even if they read the advance letter.

Interviewer

Another way to increase response in any survey is to examine and improve upon the techniques used by the interviewers to administer the survey to the participants. Interviewers are especially important since they administer the questionnaire to the respondent and thus serve as a conduit between the researcher and the participant. Experienced ATUS interviewers were asked to conduct the RAS interviews since they were the most familiar with the ATUS and were the most capable of handling the special requirements of an open-ended paper-and-pencil survey.

The majority of the feedback received from participants about the interviewers was positive. When asked, 98% of RAS respondents said that the interviewer seemed knowledgeable and 100% said the interviewer was polite and courteous. Most RAS respondents felt the pace of the interview was just right and only 9% said there was something the interviewer could have done to make the interview more enjoyable. Most of the comments were about the diary portion of the ATUS interview and mostly consisted of impossible modifications to the survey or requests for an advance mailing of questionnaires or diaries. About 2 in 10 (18%) respondents remembered asking a question during the interview. Of those who asked a question, 90% were satisfied with the answer they received. None of the RAS respondents reported that the interviewers said anything inappropriate during the survey.

Survey Sponsor

Survey sponsorship is also an important part of a participant's response decision. Groves and Couper⁷ note that government agencies often obtain higher response rates than other organizations because of the high amount of authority and legitimacy they instantly convey to their respondents. In ATUS, survey sponsorship is already salient to participants since they have an ongoing relationship with the U.S Census Bureau and the Bureau of Labor Statistics due to their previous participation in the CPS.

As noted above, the most common reason for participating in ATUS was that it is a government survey. Government surveys were deemed more worthwhile than private surveys by both respondents and nonrespondents. About 8 in 10 (78%) ATUS respondents and 6 in 10 (59%) ATUS nonrespondents reported thinking that government surveys are worthwhile. By contrast only about 26% of ATUS respondents and 37% of ATUS nonrespondents reported thinking that non-government surveys are worthwhile. The questions were asked only of general "government" versus "non-government" sponsors. It would be interesting to ask about specific government and private agencies to determine whether respondents actually associate specific agencies with the more general labels or if they associated specific agencies with being important.

Interviewer debriefing

After the RAS was complete, a debriefing questionnaire was administered to all RAS

⁷ Groves and Couper, *Nonresponse in Household Survey*, New York, John Wiley & Sons, 1998, p. 21.

interviewers. This main goal of the debriefing questionnaire was to gather the interviewers' general opinions on what they thought of RAS, including whether they thought the goal of better understanding response to the ATUS was achieved, and what they would change if the same or a similar study were conducted in the future.

Overall, most interviewers enjoyed working on the study and thought that the RAS provided valuable qualitative information for better understanding response to ATUS. There were some mixed opinions as to the overall success of the RAS, but there were a few responses that were common to almost all of the interviewers that completed the debriefing questionnaire. The majority of the interviewers believed that the RAS study would have provided more insight into a person's propensity to respond to ATUS if it had been conducted directly after ATUS, rather than two months later, as was done for this study. The interviewers felt that respondents had a difficult time remembering details about the ATUS. This was of particular concern for nonrespondents because most of them were "hard refusals" whose only experience with ATUS was receiving the advance mailer. Even then, fewer than one-third of the nonrespondents remembered receiving the advance mailer. Some interviewers also stated that they thought the \$20 incentive was a good idea and that it was responsible for the good response to RAS.

Recommendations and Conclusion

The Response Analysis Survey focused on four different aspects of the American Time Use Survey: survey participation, the advance mailer, the interviewer-respondent interaction, and survey sponsorship. These four aspects represented different points in the survey process where the respondent interacted, either directly or indirectly, with the ATUS survey. The purpose of RAS was to test whether error-causing breakdowns occurred during one or more of these interaction points. The goal of the study was to identify information that might assist BLS and Census in minimizing problems in future ATUS call attempts and interviews. Once the RAS was complete, it was evident that there were indeed areas where breakdowns had occurred. After these breakdowns were studied, recommendations for operational changes and future studies could be made. These changes and recommendations are divided into three groups: future RAS studies, the ATUS, and surveys in general.

Future RAS studies. As discussed, this RAS study was successful in identifying factors that affected an ATUS designated person's response propensity. However, in conducting the RAS study, there were several factors that affected the findings in important ways. First, we were concerned with CPS-related participant fatigue and, therefore, decided to wait two months between the participant's ATUS interview and their RAS interview. In hindsight, two months was too long, as some participants had problems remembering the ATUS interview or recalling interview specific details. A possible solution would be to conduct any additional studies a few weeks to a month after the ATUS interview in order to maximize response and participant recollection. Next, we found that the RAS participants, especially the nonrespondents, reacted positively to the use of an incentive, however nonrespondents were more difficult to contact than respondents. Ideally, we would continue the use of an incentive, and at the same time, would implement a longer data collection period for nonrespondents. In addition, we found that it would have been beneficial to conduct a pre-production walkthrough prior to the study. This would have reduced the number of administrative issues that needed to be addressed during the time when the study was being conducted, helping to minimize on-the-fly decisions and improving our ability to accurately predict study cost. Finally, if another RAS were to be conducted, it would, perhaps, be beneficial to narrow the focus to one or two of the four, previously mentioned, interaction points. More thorough and detailed questions would possibly allow an even better understanding of how and when breakdowns occur in the survey process.

The ATUS. The RAS study also recognized several aspects of the American Time Use Survey that could be improved. In the area of participation, the ATUS materials and interview need to better communicate to respondents that ATUS is different from the CPS and different from other surveys. Other modifications could emphasize individual (respondent-level) reasons for participation and emphasize why it is important that he or she respond to the survey. Some of this is already done, as interviewers check the age, sex, and employment status of respondents before calling. Still, more specific targeting language could be developed for the advance materials, the interview, or both. The ATUS also needs to bridge the communication gap between the respondents and the survey organization. The easiest way to accomplish this is through the advanced materials. The RAS study shows that the brochure was an ineffective means of communication with the ATUS participants. Ideally, a new brochure should be tested with not only different graphics and colors but, more importantly, better and more efficient text. Text should include information that the respondents are most interested in and perhaps be tailored to different subpopulations. The ATUS also needs to make the web site and email address more readily available to respondents by including them in the advance letter, as well as the brochure. During the RAS, respondents also requested more information about the diary collection instrument. Many felt that they would have been better prepared for the interview had they known the nature of the diary questions prior to the interview. This has not been implemented at this time because of a concern that more diary-specific information could inadvertently alter the respondent's daily activities or cause other participants to refuse the interview. A middle path, where more information is provided, but no advance diary is included could be explored and would require testing before implementation. Participation could also be increased by offering respondent incentives. Incentives would be tested in a controlled environment—perhaps implemented in different amounts, in different ways, or to different target groups—prior to implementation. An interviewer incentive could also be used to increase motivation on a challenging survey and could help reduce noncontacts. Finally, nonresponse bias is a concern for all surveys, but the ATUS faces the issue of bias possibly being associated with the sponsor's main measure of interest, time. If busy people answer the survey in a different proportion than non-busy people and the two groups are statistically different from each other then potential bias could occur, however this is outside of the scope of this study.

Other surveys. Other surveys, both federal and private, can also benefit from the results of the RAS study. First, the RAS suggests that how respondents perceive the survey sponsor (government or not) affects response. It also suggests that while many respondents cited a sense of duty as a reason for responding, agencies cannot rely solely on participants' sense of duty for response. In addition, more research is needed in order to understand what other information respondents require to make a decision in favor of completing a survey.

The other main issue that arose out of RAS was the issue of incentives. In response to dropping response rates, many survey organizations turn to respondent incentives, especially monetary ones. It is important to first understand what is being lost because of nonresponse before attempts are made to remedy the loss by using incentives. Ultimately, an incentive serves to compensate respondents for their time spent completing a survey. Respondents' perceptions of the value of money and of their time probably influence their propensity to complete a survey in exchange for an incentive. We do not have a good understanding, however, of how these perceptions are changing over time.

In conclusion, we found that a mixture of influences affected response propensity in ATUS. Some are related to the detailed requirements of the survey (e.g. use of the CPS as a sample frame), while others are smaller and more addressable (such as ineffective advance materials). The ATUS

program faces many of the same issues that other survey organizations face. Response analysis surveys offer an inexpensive, relatively quick tool for exploring these issues.