Time Use, Response Rates, and Data Quality by Time of Day

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Abstract

The American Time Use Survey (ATUS) collects a detailed 24-hour time diary of all the activities respondents participated in the previous day. Interviews are conducted via Computer Assisted Telephone Interviewing (CATI) throughout the day, with most interviews being conducted between 9 a.m. to 9 p.m. (respondent time). Respondents may call in or set up an appointment to complete the survey outside of these hours. This may result in some interviews beginning as early as 6 a.m. and some ending as late as midnight. Given the level of detail of time-use diaries, we are interested in whether data quality suffers later in the day.

We examine survey response, data quality measures, and characteristics of people responding to the ATUS by the time of day when respondents were interviewed. These characteristics include respondents' demographic composition as well as their time use.

Introduction

The American Time Use Survey (ATUS) is a nationally-representative survey that collects data on how, where, and with whom Americans spend their time. It is the only federal survey providing data on the full range of nonmarket activities, from childcare to volunteering. Sponsored by the Bureau of Labor Statistics (BLS) and conducted by the U.S. Census Bureau since 2003, it is the first federally-funded, continuous survey of time use in the United States. Data are collected nearly every day of the year via Computer Assisted Telephone Interviewing (CATI). The core part of the interview is the time diary, in which respondents are asked to report a full 24 hours of activities starting at 4 a.m. on the day before the interview ("yesterday" or the "diary day") and ending at 4 a.m. on the day of the interview. These responses are aggregated to produce estimates for the average hours spent doing all sorts of activities, such as working, cleaning, sleeping, eating, and spending time with friends and family. The survey also collects demographic and labor force data, which means that these estimates can be produced for the full civilian non-institutional population age 15 and older as well as for subpopulations such as parents of young children, full-time employed persons, or the elderly.

Time use surveys conducted in other countries follow similar methodologies, with a few important differences. Studies conducted in Australia, New Zealand, and Japan have used paper diaries that ask respondents to record all their activities for 2 consecutive days. European countries that conduct time use studies—including France and the United Kingdom—are encouraged by Eurostat to collect 2 days (1 weekday and 1 weekend day) of data via a paper diary. The Canadian time use survey is probably the most similar to the ATUS, as it also collects data for a single 24-hour period via CATI. Significantly, though, the Canadian time use survey allows for a longer recall period; if a respondent cannot be reached on his interview day, he will be called again on the following day and still interviewed about his original "diary day" even though it is by that time two days prior. The ATUS practice of only asking respondents about yesterday was put in place to avoid overburdening the respondents: they only have to remember activities that occurred over the past day. However, relaxing the ATUS methodology to match the Canadian methodology may have some benefits. Increasing the recall period from 1 to 2 days (or 24 to 48 hours) might allow greater contactability—and therefore help achieve higher response rates—yet preserve the random day assignment of the sample design.

Compared to most surveys, the ATUS has a rigid data collection design. As described below, this design ensures that the sample data will provide estimates representative of the national population; however, it may introduce

some complications to the survey. In particular, the strict design parameters may hinder response among the population in general or among certain segments of the population. The average annual ATUS response rate is low for a federal survey, ranging between 52.5 and 57.8 percent annually from 2003 to 2012 (See Table 1).

This paper examines the survey design recall period. In theory, allowing sample members more time to respond to the survey would convert some of the noncontacts and refusals to completed interviews, as a longer response time means more call attempts and more opportunities to reach busy sample members. The downside to this increased response time is a potential negative effect on data quality. At this time, we are unable to compare the quality of data collected using a one-day versus a two-day recall period because these data are not available to us; however, we can use the ATUS to examine data quality over the course of one day. That is, we can examine ATUS diary data by the time of day when they were collected. Because the ATUS asks participants to recall every activity they took part in the previous day, and memory tends to fade over time, increased recall periods may cause respondents to remember fewer of their activities, or to have other problems with recalling "yesterday's" events. This potential tradeoff between improved response rates and diminished data quality is the central concern of this paper.

Table 1. ATUS Annual Response Rates*

Year	Response Rate
2003	57.8%
2004	57.3%
2005	56.6%
2006	55.1%
2007	52.5%
2008	54.6%
2009	56.6%
2010	56.9%
2011	54.6%
2012	53.2%

*Note: These are unweighted, pre-processing response rates, calculated according to the American Association for Public Opinion Research's Response Rate 2 formula: http://www.aapor.org/AM/Template.cfm?Section=Standard_Definitions2&Template=/CM/ContentDisplay.cfm&ContentID=3156.

Data

The ATUS follows strict statistical sampling principles to ensure representation by population demographics and day of the week. The stratified random sample oversamples Blacks and Non-Black Hispanics, households with children under age 18, and weekend days in order to have a large enough sample size to produce estimates for these subpopulations and for weekdays and weekend days. Statistical weights are applied to adjust for this oversampling and for nonresponse. The ATUS sample is drawn from the population of households that have completed the eighth month of interviewing for the Current Population Survey (CPS). Because of this, information on household composition and demographics is already known before the survey is fielded and it is used to select respondents. From each household in the sample, one person (the "designated person" or "DP") is selected for participation in the ATUS and randomly assigned a day of the week about which he will be interviewed (the "diary day"). The DP is called on the day of the week following the diary day—and only that day of the week—for up to eight weeks, until a single interview is completed. For example, if a DP's diary day is a Thursday, he would be called every Friday for up to 8 weeks until one interview is completed. The sample allocation of diary days is split evenly between weekdays and weekend days (50% of the sample to each, meaning 25% each for Saturdays and Sundays, and 10% for each of the weekdays). ATUS interviews are conducted seven days a week, on nearly every day of the year.

The core component of the ATUS interview is the time use "diary": a series of questions in which the interviewer collects information about every activity the respondent did on the previous day. However, while we refer to the core component of the ATUS as a time use diary, there is no paper component; all interviews are conducted over the

telephone (CATI) by Census interviewers. This means that respondents must recall yesterday's events from memory while on the phone with an interviewer.

Data used in this analysis come from ATUS interviews conducted from January 2008 through December 2010. Information from about 37,500 interviews conducted during this time period is available in the public data files published by the BLS. As the purpose of this analysis is to examine data quality, we also include an additional 900 interviews or "cases" that were excluded from the public use files because they do not meet ATUS publication criteria. For example, ATUS publication criteria require that cases must have a time diary with at most 180 minutes of unaccounted-for time (i.e., time that is assigned either the data code 500105 "Respondent refused to provide information/'none of your business'" or 500106 "Gap/can't remember"). As described in detail below, however, the measure of this unaccounted-for time is an important indicator of data quality, and excluding those cases that are outliers for that measure would bias our analysis. Throughout this paper, we refer to these two data codes (500105 and 500106) collectively as "Refused/Gap."

This analysis compiles data contained in several of the ATUS public use files, along with the unpublished records of cases that do not meet data quality standards. The ATUS Case History file and Call History file provide information needed to create data quality measures, such as information about the final case outcome code, the call attempt number, and the date of the call. Additional data not publicly available include the time each call attempt was made in both the interviewers' and respondents' time zones and many other call-level variables. For this analysis, we use call-level information about the final call that resulted in a completed interview. Additional data—such as demographic information and the number of activity episodes—come from the ATUS Respondent, Roster, and Activity files.

All estimates presented in this analysis are unweighted; that is, adjustments have not been made to account for the sample's stratification, nor have they been made to account for survey nonresponse. Therefore, these results are not representative of the U.S. population as a whole, and should not be confused with official time use estimates produced by the ATUS.

Methods

The ATUS Call History File contains information on the time of day that all interviews were completed. (Unless otherwise specified, all mentions of time of day in this paper refer to the respondent's time zone.) Outgoing calls are conducted between 9 a.m. and 9 p.m., but respondents who voluntarily call in to complete their interview or schedule an interview time on their designated day may be interviewed before or after the official call hours. For ease of analysis, we divided the interview day into six call blocks:

- Call block 1 – 6:00 to 8:59 a.m.
- Call block 2 – 9:00 to 11:59 a.m.
- Call block 3 – 12:00 to 2:59 p.m.
- Call block 4 – 3:00 to 5:59 p.m.
- Call block 5 – 6:00 to 8:59 p.m.
- Call block 6 – 9:00 to 11:59 p.m.

Our analysis begins by creating descriptive statistics by call block. We are interested in the characteristics of sample members who respond at different times of the day; in particular, we'd like to know whether people of a given sex, race, age, and employment status are more likely to respond earlier rather than later in the day or vice versa. This background information will help us to determine whether differences in data quality are due to the types of respondents who participate at different hours, rather than the difficulty or ease in recall.

We then go on to examine measures of data quality. While there is no "gold standard" of comparison for time use statistics, there are certain data quality measures that have been used in past research (Fricker and Tourangeau). Specifically, we analyze:

1. *Percent of publishable cases*. The percent of publishable cases is the total number of cases included in the public use files divided by the total number of completed cases. During the data editing process, a

small number of completed cases are removed from the ATUS each year for data quality reasons. Virtually all removals occur for one of two reasons: if the respondent reports fewer than 5 activities in the diary, or if he reports more than 180 minutes of time as "Refused/Gap." In any instance where the case is determined to not be publishable, it is removed from the public use data files and excluded from official ATUS estimates.

2. *Percent of cases with fewer than 5 activities in the diary*. Cases with fewer than 5 activities do not meet ATUS publication criteria, and therefore they do not appear on the ATUS public use files. The percent of cases with fewer than 5 activities in the diary is small as a percent of all completed cases, and is also a small share of the cases that are removed for any reason.

3. *Percent of cases with more than 180 minutes of "Refused/Gap" time in the diary*. Most of the completed cases that are removed from the data files are done so because they do not meet this data quality standard. While it is a relatively small share of all the completed interviews, these cases account for a majority of the eliminated cases.

4. *Average number of activities per case*. The number of activities reported in the diary is frequently used to assess data quality in time-use surveys. We include this measure in our analysis to determine whether and how the timing of the interview may be related to it.

Because there are some differences between weekdays and weekend days in terms of the types of activities reported and potentially the ability to recall these activities, we look at these data quality measures for weekdays and weekend days in addition to the overall averages for all days of the week.

As a final step, we conduct some simple regression analyses to measure the relationship between the interview time and these data quality measures, while controlling for demographic characteristics mentioned above.

Results

Demographics

Overall, 94 percent of all interviews were conducted between 9 a.m. and 9 p.m., with 3.3 percent occurring before 9 a.m. and 2.7 percent occurring after 9 p.m. (See Table 2.) The largest share of interviews occurred between 9 a.m. and noon for both men and women, followed by the 6 to 9 p.m. call block. The distribution of call times was similar for men and women, although women were more likely than men to complete the interview between 9 a.m. and noon, while men were more likely to complete the interview between 6 and 9 p.m.

Table 2. Percent of interviews conducted by sex and time of day

Call Block	Time Call Began	Total	Men	Women
1	6 - 9 am	3.3	3.2	3.4
2	9 am - noon	28.4	26.8	29.7
3	Noon – 3 pm	19.1	18.4	19.6
4	3 – 6 pm	22.2	22.3	22.2
5	6 – 9 pm	24.2	26.3	22.6
6	9 pm - midnight	2.7	2.9	2.6
Total		100 %	100 %	100 %

By age group, men ages 61 and older were more likely to complete the interview between 9 a.m. and noon than during other call blocks—41.1 percent of interviews with men in this age group occurred during the 9 – noon call

block. (See table 3.) Younger men ages 15 to 19 were most likely to complete the interview later in the day: 31.8 percent completed the interview between 3 and 6 p.m. and 30.4 percent completed it between 6 and 9 p.m. Men ages 20 to 60 tended to respond between 9 a.m. and noon (23.9 percent) or 6 to 9 p.m. (29.3 percent). These response patterns likely reflect the contact rates at different times of the day: teenagers are likely to be in school during the earlier call blocks, and working-age men are likely to be at work during the middle of the day. Response patterns by age were similar for women. The most popular call block for women age 61 and older was also from 9 a.m. to noon (41.8 percent of all interviews with women age 61 and older), with response rates falling as the day went on. Like the younger men, younger women were more likely to complete the interview between 3 and 6 p.m. (32.9 percent) or 6 and 9 p.m. (27.5 percent). Women ages 20 to 60 were about equally likely to complete the interview between 9 a.m. and noon (26.1 percent) or 6 and 9 p.m. (26.0 percent).

Table 3. Percent of interviews conducted by age, sex, and time of day

Call Block	**Time**	**Ages 15-19**		**Ages 20-60**		**Age 61 and older**	
		Men	**Women**	**Men**	**Women**	**Men**	**Women**
1	6 - 9 am	1.1	0.8	2.9	2.7	5.1	5.8
2	9 am - noon	13.2	15.2	23.9	26.1	41.1	41.8
3	Noon – 3 pm	20.4	19.2	17.7	19.1	20.1	21.0
4	3 – 6 pm	31.8	32.9	22.8	23.1	17.7	17.4
5	6 – 9 pm	30.4	27.5	29.3	26.0	14.8	12.8
6	9 pm - midnight	3.0	4.4	3.4	3.0	1.3	1.1
Total		100 %	100 %	100%	100%	100%	100%

By household composition, those living alone were more likely to complete the interview between 9 a.m. and noon (36.1 percent), than were those living only with a spouse or unmarried partner (32.4 percent). (See table 4.) Those who lived with a spouse or partner in addition to other household members were more likely to complete the interview between 6 and 9 p.m. (29.5 percent) or 9 a.m. and noon (24.5 percent). Those living in households with multiple members that did not include a spouse or unmarried partner were more likely to complete the interview between 6 and 9 p.m. (26.2 percent) or 3 and 6 p.m. (25.4 percent).

Table 4. Percent of interviews conducted by household composition and time of day

Call Block	**Time Call Began**	**Living alone**	**Living with a spouse or unmarried partner only**	**Living with a spouse or unmarried partner and others**	**Living in other multi-person households**
1	6 - 9 am	4.6	4.0	2.8	2.4
2	9 am - noon	36.1	32.4	24.5	23.2
3	Noon – 3 pm	21.1	18.6	17.3	19.7
4	3 – 6 pm	20.0	20.2	22.4	25.4
5	6 – 9 pm	16.5	22.5	29.5	26.2
6	9 pm - midnight	1.7	2.3	3.5	3.1
Total		100 %	100 %	100 %	100 %

The median age (unweighted) of the ATUS respondents whose data were used in this analysis was 46 years. (See table 5.) The median age was the highest for the first call block (54 years) and declined throughout the day. Employed persons were more likely to complete the interview later in the day; the percent of respondents who were employed increased for each call block. White respondents comprised 80.2 percent of all interviews, with little

variation across the call blocks. The largest share of interviews conducted with Hispanics was between 3 and 6 p.m. (15.7 percent); overall 13.9 percent of the interviews were with Hispanic respondents.

Table 5. Selected demographic characteristics by time of day

Call Block	Time Call Began	Median Age	Percent Employed	Percent White	Percent Hispanic
1	6 - 9 am	54	44.1	80.4	11.1
2	9 am - noon	52	50.0	79.9	11.9
3	Noon – 3 pm	46	56.2	80.2	14.0
4	3 – 6 pm	43	65.0	80.3	15.7
5	6 – 9 pm	42	76.8	80.8	14.6
6	9 pm - midnight	42	77.5	77.5	14.5
Total		46	61.6	80.2	13.9

Data quality

Tables 6 through 9 present data quality measures by call block. Table 6 shows that the percentage of publishable cases increased throughout the day, although the differences by call block are relatively small. As shown in table 7, the percentage of cases with more than 180 minutes assigned to data codes (for responses of "Refused/Gap") declined throughout the day. These results were true for both weekdays and weekend days. The percentage of cases reporting fewer than 5 activity episodes in the diary had a similar pattern of having higher quality measures associated with interviews that occurred later in the day (see table 8). Whether cases were publishable or not depends on whether they had more than 180 minutes of "Refused/Gap" time and whether they reported fewer than 5 activities, so we would expect these three data quality measures to covary. The number of activities reported in the diary averaged 19.6 overall, with weekday diaries averaging 2 more per day than weekend days – 20.6 compared with 18.6 (see table 9). There did not appear to be any trends or patterns in the average number of activities reported per diary across the different call blocks.

Table 6. Percent of publishable cases by diary day and time of day

Call Block	Time Call Began	Total	Weekday	Weekend days
1	6 - 9 am	97.9	98.2	97.3
2	9 am - noon	97.1	97.3	97.0
3	Noon – 3 pm	97.2	97.4	97.1
4	3 – 6 pm	98.0	98.4	97.6
5	6 – 9 pm	98.4	98.6	98.2
6	9 pm - midnight	99.0	99.2	98.7
Total		97.7	97.9	97.5

Table 7. Percent of cases with more than 180 minutes of "Refused/Gap" time by diary day and time of day

Call Block	Time Call Began	Total	Weekday	Weekend days
1	6 - 9 am	2.0	1.6	2.7
2	9 am - noon	2.3	2.3	2.3
3	Noon – 3 pm	2.2	2.1	2.2
4	3 – 6 pm	1.7	1.4	2.0
5	6 – 9 pm	1.2	1.0	1.4
6	9 pm - midnight	0.6	0.6	0.6
Total		1.8 %	1.6 %	2.0%

Table 8. Percent of cases reporting fewer than 5 activities by diary day and time of day

Call Block	Time Call Began	Total	Weekday	Weekend days
1	6 - 9 am	0.2	0.2	0.0

2	9 am - noon	0.6	0.5	0.7
3	Noon – 3 pm	0.6	0.5	0.7
4	3 – 6 pm	0.3	0.3	0.4
5	6 – 9 pm	0.4	0.4	0.4
6	9 pm - midnight	0.4	0.2	0.6
Total		0.5%	0.5%	0.5%

Table 9. Number of activities by diary day and time of day

Call Block	**Time Call Began**	**Total**	**Weekday**	**Weekend days**
1	6 - 9 am	19.8	20.5	18.3
2	9 am - noon	19.7	20.9	18.4
3	Noon – 3 pm	19.2	20.3	18.5
4	3 – 6 pm	19.5	20.8	18.4
5	6 – 9 pm	19.6	20.4	18.8
6	9 pm - midnight	20.0	20.5	19.5
Total		19.6	20.6	18.6

Regression analysis

The data quality measures in general appear to improve throughout the day. Specifically, we found that the percent of publishable cases increased and the share of cases with more than 180 minutes of time coded as "Refused/Gap" decreased as the call blocks progressed from early morning to late at night. This was a surprising result, because we expected to observe a deterioration in data quality associated with interviews conducted further from the reference period. Earlier, we observed that the characteristics of respondents varied by the time of their interview; these differences might provide an explanation for the improvement in data quality as the day progressed. To understand better the relationship between interview times and data quality, we used simple regression analysis and controlled for respondents' demographic characteristics and other factors.

First we look at the number of activities reported in the diary (data quality measure 4) by the call block in which the interview was conducted, while controlling for age, sex, weekday or weekend diary day, and the year in which the interview was conducted (see Table 10). The results indicate that at a 90 percent confidence level, sex, age, and weekday versus weekend day were all significantly correlated with the number of activities reported in the diary, while the call blocks were not. Age was negatively correlated with the number of activities reported in the diary, which is consistent with the idea that older people may have more difficulty recalling detailed activities throughout the diary day. Controlling for other factors, women reported more activities in their diary, and interviews about weekday diaries had more activities listed.

Table 10. Regression Results – Number of Activities in the diary

Variable	Estimate	Standard Error	T-Value
Intercept	18.312*	0.267	68.64
Women	3.289*	0.081	40.63
Age	-0.029*	0.002	-12.62
Weekday	2.106*	0.081	26.11
y2009	-0.088	0.097	-0.89
y2010	-0.555*	0.098	-5.64
Call Block 2	0.093	0.233	0.40
Call Block 3	-0.231	0.240	-0.96
Call Block 4	-0.103	0.237	-0.43
Call Block 5	0.002	0.236	-0.01
Call Block 6	0.233	0.329	0.71

*Estimates that are significant at a 90 percent confidence level (α=0.10).

The second analysis examines the average number of minutes that were assigned a data code per diary (data quality measure 3) by the same characteristics as the previous regression (see Table 11). The majority of activities assigned a data code in the ATUS were times when respondents provided answers of "Refused/Gap," although there are also data codes that indicate interviewer errors or uncodeable activities; this analysis focuses specifically on interviews with "Refused/Gap" codes. At a 90 percent confidence level, the call blocks were not significantly correlated with the average minutes per diary that were assigned data codes, while sex, age, whether it was a weekday versus a weekend day, and the year in which the interview was conducted were significant factors. Women and older respondents were associated with more minutes assigned to data codes. Weekday diaries had fewer minutes of data codes on average than weekend day diaries.

Table 11. Regression Results –Average minutes of data codes in the diary

Variable	Estimate	Standard Error	T-Value
Intercept	-8.436*	1.955	-4.31
Women	2.030*	0.593	3.42
Age	0.377*	0.017	22.28
Weekday	-1.276 *	0.591	-2.16
y2009	-0.416	0.723	-0.58
y2010	-0.480	0.721	-0.67
Call Block 2	1.282	1.704	0.75
Call Block 3	3.047	1.755	1.74
Call Block 4	1.018	1.738	0.59
Call Block 5	-0.034	1.730	-0.02
Call Block 6	-1.604	2.408	-0.67

*Estimates that are significant at a 90 percent confidence level (α=0.10).

In the final regression analysis, we look at the average amount of time spent in the diary section of the interview per activity to get a sense of how long the respondent took to report each activity (see Table 12). This measure provides insight about whether respondents' ability to remember the previous days' activities varies by the timing of the interview. We use the same set of predictors as in the previous two regressions (see Tables 10 and 11). Unlike the regressions presented in Tables 10 and 11, three of the call blocks were significant in this third regression: the later call blocks (4, 5, and 6) were all positively related to the time spent in the diary section of the interview for each activity, which supports the idea that respondents' ability to recall their previous days' activities is more difficult when the interview is conducted further from the reference period. The age of the respondent also had a positive and significant effect on this measure, meaning that older respondents took longer to respond to the diary than younger persons. It also took longer to report activities that occurred on weekend days than on weekdays.

Table 12. Regression Results –Average minutes spent reporting the diary per activity

Variable	Estimate	Standard Error	T-Value
Intercept	0.437*	0.008	54.41
Women	0.001	0.002	0.31
Age	0.001*	0.000	17.55
Weekday	-0.008*	0.002	-3.20
y2009	0.005*	0.003	1.65
y2010	0.052*	0.003	17.70
Call Block 2	0.001	0.007	0.17
Call Block 3	0.013	0.007	1.77
Call Block 4	0.037*	0.007	5.16
Call Block 5	0.044*	0.007	5.96
Call Block 6	0.052*	0.010	5.25

*Estimates that are significant at a 90 percent confidence level (α=0.10).

As a quality check, we ran each of the regressions above a second time, including a binary variable ("Publishable") that indicated whether a case met the ATUS publication criteria. The "Publishable" variable was statistically significant in each regression—as would be expected given its relationship with each of the data quality measures. The effects on the coefficients for other variables were minimal.

Discussion

Results from the three regression analyses finds mixed evidence that memory of yesterday's events decays over the course of one day. After controlling for age, sex, and weekday versus weekend day, our data show that respondents take a little longer to recall their activities when interviewed later in the day, but the quality of the data they report is just as good at 9 p.m. as at 9 a.m. In fact, our data quality measures improved from the earlier call blocks to the later call blocks, although this seemed to be related to the characteristics of respondents who are available to be interviewed at different times of the day rather than the time of day itself. The analyses above therefore reveal a more complicated relationship between recall and time of day than originally expected. Interviewers attempt to make contact with respondents throughout the day, calling multiple times until either a response is secured or time runs out. Therefore, the time of day that an interview is completed depends upon the respondent's traits and his time use that make him available and unavailable at different points throughout the day. As our analysis has shown, respondents who tend to be available earlier in the day are more likely to be older and women. While we find that our data quality measures improve throughout the course of the day, the driving force behind this improvement seems to be the types of respondents who are available in the afternoon and evening hours compared with the morning hours.

Women and older people are more likely to be available earlier in the day, probably because they are less likely to be employed. Overall, women report more activities and have more time assigned to data codes ("Refused/Gap") compared to men. Similarly, older respondents report fewer activities, have more time assigned to data codes ("Refused/Gap"), and spend longer in the diary portion of the interview compared to younger respondents. Respondents reporting about weekdays report more activities and spend less time in the diary portion of the interview compared to those reporting about weekend days. These findings may indicate a real difference in data quality by sex, age, and diary day, or they may indicate a flaw in the available data quality measures. Respondents interviewed later in the day take longer to respond to the diary portion of the interview, indicating that it may be harder to remember yesterday's events; however, there is no difference in the average number of activities reported or the percent of cases with data codes by time of day. The differences in our data quality measures may not truly indicate data quality errors; instead, they may simply (and accurately) reflect the differences in time use for different segments of the population. For example, while older respondents are more likely to have some memory loss compared to younger respondents (leading to poorer data quality), they also tend to have less structured days that are more difficult to recall, and they may also partake in fewer activities than younger respondents on a given day. It makes sense, then, that the age variable is significant in each of the regression analyses, but we cannot say for sure whether this indicates poor data quality. Similarly, it is certainly possible that women have less structured days than men and partake in more activities than men on a given day, and that weekend days are more difficult than weekdays for respondents to remember.

While we cannot extrapolate this analysis to say that "yesterday's" time use could be just as easily remembered tomorrow as today, it does support the survey design that the ATUS has in place. Future research will be needed to determine whether and to what extent respondents' ability to recall their activities is affected when they are interviewed more than 24 hours after the day's activities.

References

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