

# American Time Use Survey

The American Time Use Survey (ATUS) is the nation’s first federally administered, continuous survey on time use in the United States. The goal of the survey is to measure how people divide their time among life’s activities.

| Quick Facts: American Time Use Survey   |  |
|---|--|
| <b>Subject areas</b>                    | Hours, Time use  |
| <b>Key measures</b>                     | Average hours spent on activities<br>Percent engaged in activities   |
| <b>How the data are obtained</b>        | Survey of households   |
| <b>Classification system</b>            | Demographic  |
| <b>Periodicity of data availability</b> | Annual   |
| <b>Geographic detail</b>                | National   |
| <b>Scope</b>                            | Civilian noninstitutional population   |
| <b>Key products</b>                     | <ul style="list-style-type: none"> <li>• <a href="#">ATUS news release</a></li> <li>• <a href="#">Microdata files</a></li> <li>• <a href="#">Unpaid Eldercare in the United States news release</a></li> <li>• <a href="#">Historic data series</a></li> </ul> |
| <b>Program webpage</b>                  | <a href="http://www.bls.gov/tus">www.bls.gov/tus</a>   |



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## Concepts

The major purpose of the American Time Use Survey (ATUS) is to develop nationally representative estimates of how people spend their time. The survey was developed in the late 1990s and early 2000s as a way to measure the amount of time Americans spend doing unpaid, nonmarket work, such as unpaid childcare, eldercare, housework, and volunteering. The survey also provides information on the amount of time people spend in many other activities, such as paid work, religious activities, socializing, exercising, and relaxing. To collect this information, interviewers ask each respondent to recall their activities over a full 24-hour day, beginning at 4 a.m. on the day prior to the interview and ending at 4 a.m. on the day of the interview. Interviews are conducted nearly every day of the year by U.S. Census Bureau interviewers using computer assisted telephone interview technology. Interviewers ask respondents to report every activity they took part in during that 24-hour period, including where they were and whom they were with for most activities. Additional information, such as whether an activity was done for one's job or business, also is collected. After the interview is completed, each activity is assigned a six-digit code according to the activity classification system described in the subsection "Activity Definitions." Annual data are available beginning with 2003.

The next two sections provide definitions of terms related to ATUS operations and estimation, and definitions of the ATUS major activity categories. ATUS industry codes use the Census Bureau's Industry Classification System, and ATUS occupation codes use the Census Bureau's Occupation Classification System; for more information on these codes, see [Occupation and Industry Codes in the American Time Use Survey](#).

### Terms related to operations and estimation

The key concepts and definitions that follow are used to create ATUS estimates and publications. For a complete list, see the Concepts and Definitions section of the [American Time Use Survey User's Guide](#).

*Average day.* The average-day measure reflects an average distribution across all people in the reference population and all days of the week.

*Average hours per day.* The average number of hours spent in a 24-hour day (between 4 a.m. on the diary day and 4 a.m. on the interview day) doing a specified activity.

*Condition related to aging.* An ongoing ailment or physical or emotional limitation that typically affects older people, such as becoming more frail; having difficulty seeing, hearing, or physically moving; becoming more forgetful; tiring more quickly; or having specific medical ailments that are more common among older adults. The term also refers to existing conditions that become progressively worse as one ages.

*Day of the week.* Estimates of time spent in activities on weekdays are an average of reports about Monday through Friday, excluding major weekday holidays. Estimates of time spent in activities on weekend days and holidays are an average of reports about Saturdays, Sundays, and the following holidays: New Year's Day, Easter, Memorial Day, the Fourth of July, Labor Day, Thanksgiving Day, and Christmas Day.

*Designated day.* The day of the week on which a designated person will be called for an interview. For example, a person with a designated day of Tuesday will be called for up to eight consecutive Tuesdays to secure one interview about what she did on Monday.

*Designated person.* A person selected to participate in ATUS.

*Diary day.* The diary day is the day about which the designated person reports. For example, the diary day of a designated person interviewed on Tuesday is Monday. Diary days are assigned, and designated individuals may not substitute another day of the week on which to report.

*Eldercare.* Eldercare consists of providing unpaid care or assistance to an individual who needed help because of a condition related to aging. This care can be provided by a family member or a non-family member. Care can be provided in the recipient's home, the provider's home, or a care facility, such as a nursing home. Eldercare can involve a range of care activities, such as assisting with grooming and feeding, preparing meals, arranging medical care, and providing transportation. Eldercare can also involve providing companionship or being available to assist when help is needed; thus, it can be associated with nearly any activity.

*Eldercare provider.* Someone who provided eldercare more than one time in the 3 to 4 months prior to the interview day.

*Employed.* All persons who:

1. At any time during the 7 days prior to the interview did any work at all as paid employees; worked in their own business or profession or on their own farm; or
2. Were not working during the seven days prior to the interview but had jobs or businesses from which they were temporarily absent because of illness, bad weather, vacation, childcare problems, labor-management disputes, maternity or paternity leave, job training, or other family or personal reasons, whether or not they were paid for the time off or were seeking other jobs; or
3. Usually worked 15 or more hours as unpaid workers in a family-operated enterprise.

*Employed full time.* Full-time workers are those who usually worked 35 or more hours per week at all jobs combined.

*Employed part time.* Part-time workers are those who usually worked fewer than 35 hours per week at all jobs combined.

*Not employed.* People are not employed if they do not meet the conditions for employment. People who are not employed include those classified as unemployed as well as those classified as not in the labor force (as defined in the Current Population Survey).

*Household children.* These are children under age 18 residing in the household of the ATUS respondent. The children may be related to the respondent (such as their own children, grandchildren, nieces or nephews, or brothers or sisters) or not related (such as foster children or children of roommates or boarders).

*Own children.* The respondent's own children, whether they live in the respondent's household or in another household. Biological, step-, and adopted children are considered own children; foster children are not.

*Population measures.* These estimates refer to all people having a quality or characteristic in common. Estimates that refer to a population—such as all people or all employed people—account for every respondent in the population. Population estimates about an activity include all people, even those who did not engage in a specified activity on the diary day. For example, the population measure *average hours per day that employed people worked* includes all employed people and is an average of the days they did and the days they did not work.

*Participant measures.* These estimates refer only to individuals who engaged in a particular activity on the diary day. For example, the participant measure *average hours per day that employed people worked on days they worked* is an average for employed people on days they spent time working.

*Primary activity.* A primary activity is the main activity a respondent was doing at a specified time.

*Secondary activities.* A secondary (or simultaneous) activity is an activity done at the same time as a primary activity. With the exception of the care of children under age 13, information on secondary activities is not collected in ATUS.

*Secondary childcare.* Secondary childcare is care for children under age 13 that is done while doing something else as a primary activity, such as cooking dinner. Secondary childcare estimates are derived by summing the durations of activities during which respondents had at least one child under age 13 in their care while doing other things. The time individuals spend providing secondary childcare to household children is further restricted to the time between when the first household child under age 13 woke up and when the last household child under 13 went to bed. It is also restricted to times the respondent was awake. If respondents report providing both primary and secondary care at the same time, the time is attributed to primary care only.

## Activity definitions

ATUS uses a unique activity classification system to categorize the different primary activities respondents engage in throughout the course of a day. The ATUS coding lexicon uses a 3-tiered system, with 17 major, or first-tier, categories, each having 2 additional levels of detail. Descriptions of each of the major lexicon activity categories follow.

Further details on the structure of ATUS activity categories are presented in the next section, [Data sources](#). Complete single-year and multiyear coding lexicons are available in PDF and Excel formats at [www.bls.gov/tus/lexicons.htm](http://www.bls.gov/tus/lexicons.htm).

*Caring for and helping household members.* Time spent doing activities to care for or help any child (under age 18) or adult in the household, regardless of the person's relationship to the survey respondent or the physical or mental health status of the person being helped, is classified here. Caring and helping activities for household children and adults are coded separately in subcategories.

Primary childcare activities include time spent providing physical care; playing with children; reading with children; assistance with homework; attending children's events; taking care of children's health care needs; and dropping off, picking up, and waiting for children. Passive childcare done as a primary activity (such as "keeping an eye on my son while he swam in the pool") also is included. A child's presence during the activity is not enough by itself to classify the activity as childcare. For example, "watching television with my child" is coded as a leisure activity, not childcare.

Caring for and helping household members also includes a range of activities done to benefit adult members of households, such as providing physical and medical care or obtaining medical services. Doing something as a favor for or helping another household adult does not automatically result in classification as a helping activity. For example, a report of "helping my spouse cook dinner" is considered a household activity (food preparation), not a helping activity, because cooking dinner benefits the household as a whole. By contrast, doing paperwork for another person usually benefits the individual, so a report of "filling out an insurance application for my spouse" is considered a helping activity.

*Caring for and helping nonhousehold members.* This category includes time spent in activities done to care for or help others—both children (under age 18) and adults—who do not live in the household. When done for or through an organization, time spent helping nonhousehold members is classified as volunteering rather than as helping nonhousehold members. Care of nonhousehold children, even when done as a favor or helping activity for another adult, is always classified as caring for and helping nonhousehold children, not as helping another adult.

*Purchasing goods and services.* This category includes time spent purchasing consumer goods, professional and personal care services, household services, and government services. Consumer purchases include most purchases and rentals of consumer goods, regardless of the mode or place of purchase or rental (in person, online, via telephone, at home, or in a store). Gasoline, grocery, other food purchases, and all other shopping are further broken out in subcategories.

*Eating and drinking.* All time spent eating or drinking (except that done as part of a work or volunteer activity), whether alone, with others, at home, at a place of purchase, or somewhere else, is classified as eating and drinking. Time spent purchasing, or talking related to purchasing, meals, snacks, and beverages is not counted as part of this category but is counted instead as time spent making consumer purchases.

*Educational activities.* Time spent taking classes for a degree or for personal interest (including taking Internet or other distance-learning courses), time spent doing research and homework, and time spent taking care of administrative tasks related to education (such as registering for classes or obtaining a school ID) are included in this category. For high school students, before-school and afterschool extracurricular activities (except sports) also are classified as educational activities. Educational activities do not include time spent for classes or training

received as part of a job. Time spent helping others with their education-related activities is classified as an activity involving caring for and helping others.

*Government services and civic obligations.* This category captures time spent obtaining and using government services (police, fire, social services), such as applying for welfare, and time spent purchasing government-required licenses or paying fines or fees. Civic obligations include government-required duties—such as serving on a jury or appearing in court—as well as activities that assist or influence government processes, such as voting and attending town hall meetings.

*Household activities.* Household activities are activities done by people to maintain their households. This category includes time spent in housework; cooking; lawn and garden care; pet care; vehicle maintenance and repair; home maintenance, repair, decoration, and renovation; and household management and organizational activities (such as filling out paperwork, balancing a checkbook, and planning a party). Food preparation, whether or not reported as done specifically for another household member, is always classified as a household activity, unless it was done as a volunteer, work, or income-generating activity. For example, “making breakfast for my son” is coded as a household activity, not as childcare.

*Household services.* Time spent arranging for and purchasing household services provided by someone else for pay is classified here. Household services include housecleaning; cooking; lawn care and landscaping; pet care; tailoring, laundering, and drycleaning; vehicle maintenance and repairs; and home repairs, maintenance, and construction.

*Personal care.* Personal care activities include sleeping, grooming (such as bathing or dressing), health-related self-care, and personal or private activities. Receiving unpaid personal care from others (e.g., “my sister put polish on my nails”) also is captured in this category.

*Professional and personal care services.* Time spent obtaining, receiving, and purchasing professional and personal care services provided by someone else for pay is classified into this category. Professional services include childcare, financial services and banking, legal services, medical and adult care services, real estate services, and veterinary services. Personal care services include services received from day spas, hair salons and barbershops, nail salons, and tanning salons. Activities classified here include time spent paying, meeting with, or talking to service providers, as well as time spent receiving the service or waiting to receive the service.

*Religious and spiritual activities.* Religious activities include activities normally associated with membership in or identification with specific religions or denominations, such as attending religious services; participating in choirs, youth groups, orchestras, or unpaid teaching (unless identified as volunteer activities); and engaging in personal religious practices, such as praying.

*Socializing, relaxing, and leisure.* This category includes face-to-face social communication and hosting or attending social functions. Time spent communicating with others via telephone calls, texting, mail, or email is not part of the category. Leisure activities include watching television; reading; relaxing or thinking; playing computer,

board, or card games; using a computer or the Internet for personal interest; playing or listening to music; and other activities, such as attending arts, cultural, and entertainment events.

*Sports, exercise, and recreation.* Participating in—as well as attending or watching—sports, exercise, and recreational activities, whether team or individual and competitive or noncompetitive, falls into this category. Recreational activities include yard games like croquet and horseshoes, as well as activities like billiards and dancing.

*Telephone calls.* This category captures time spent in telephone communication; it also includes texting and Internet voice and video calling. Telephone and Internet purchases of consumer goods are classified into the category of consumer purchases. Telephone calls identified as related to work or volunteering are classified as either work or volunteering.

*Traveling.* Nearly all time spent traveling is classified here. When a respondent reports doing another activity while traveling—for example, eating breakfast while riding the bus to work—the travel activity is recorded as the main activity. Walking and biking are considered traveling when they are used to get from one destination (an address or a building) to another, but not when the primary purpose is exercise. Travel done as an essential part of one’s job—for example, driving a taxi—is recorded as work, not travel. [Exhibit 5.1](#) in the ATUS User’s Guide has examples of how travel activities are classified; typically, they are dependent upon the activities that immediately follow and precede them.

*Volunteer activities.* This category captures time spent volunteering for or through an organization.

*Working and work-related activities.* This category includes time spent working, doing activities as part of one’s job, engaging in income-generating activities not as part of one’s job, and job search activities. “Working” includes hours spent doing the specific tasks required of one’s main or other job, regardless of the location or time of day. “Work-related activities” include activities that are not obviously work but are done as part of one’s job, such as having a business lunch and playing golf with clients. “Other income-generating activities” are those done “on the side” or under an informal arrangement and are not part of a regular job. Such activities might include selling homemade crafts, babysitting, maintaining a rental property, or having a yard sale. These activities are those for which people are paid or will be paid.

## Data quality

Statistics based on the ATUS are subject to both sampling error and nonsampling error. When a sample, rather than an entire population, is surveyed, estimates differ from the true population values they represent. The component of this difference that occurs because samples differ by chance is known as *sampling error*, and its variability is measured by the standard error of the estimate.

Sample estimates from a given survey design are unbiased when an average of the estimates from all possible samples would yield, hypothetically, the true population value. In this case, the sample estimate and its standard error can be used to construct approximate confidence intervals, or ranges of values that include the true population value accompanied by known probabilities. If the process of selecting a sample from the population

were repeated many times, an estimate made from each sample, and a suitable estimate of its standard error calculated for each sample, then approximately 90 percent of the intervals from 1.645 standard errors below the estimate to 1.645 standard errors above the estimate would include the true population value.

The ATUS data also are affected by *nonsampling error*, which is the average difference between population and sample values for samples generated by a given process. Nonsampling error can occur for many reasons, including the failure to sample a segment of the population, inability to obtain information from all respondents in the sample, inability or unwillingness of respondents to provide correct information, and errors made in the collection or processing of the data. Nonsampling error can also occur if nonresponse is correlated with time use. The average annual response rates for the ATUS can be found in [chapter 3.6](#) of the ATUS *User's Guide*. The ATUS statistical weights in part adjust for nonsampling error, and quality assurance procedures are used to minimize nonsampling, data entry, and coding errors in the survey estimates.

Although attempts have been made to collect the most accurate data possible, the ATUS data do have limitations. For example, with the exception of childcare, information on secondary activities (activities that are done at the same time as the primary activity) is not collected. This decision not to collect such information could lead to underestimates of the amount of time people spend doing activities that are frequently done in combination with other activities. For instance, ATUS estimates likely underestimate the amount of time people spend listening to music, because so many people listen to music while doing other things.

Estimates appearing in ATUS tables must meet reliability standards before being presented to the public. In 2010, a new standard was developed that takes into account the coefficient of variation, standard error, and number of observations available before reporting an estimate. Prior to 2010, a standard was in place that included only the sample size or population base for the estimate.

Beginning with 2010 data, ATUS estimates of average hours per day and participation rates are not published unless there are a minimum number of respondents representing the given population. Additional publication criteria are applied that include the number of respondents who reported doing a specified activity and the standard error or coefficient of variation for the estimate. Estimates that are considered “close to zero” or that round to zero (e.g., 0.00 for estimates of hours) are published as approximately zero, or “~0.”

[Chapter 10](#) of the *User's Guide* has additional information on ATUS data quality. For a detailed description of the statistical reliability criteria necessary for publication, please email the ATUS staff at [ATUSinfo@bls.gov](mailto:ATUSinfo@bls.gov).

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## *Data Sources*

The American Time Use Survey (ATUS) universe consists of the civilian noninstitutional population ages 15 and older and residing in occupied households in the United States. ATUS sample members are drawn from the population of households that participated in the Current Population Survey (CPS), a separate survey carried out for BLS by the U.S. Census Bureau. Two months after households complete their eighth CPS interview, they become eligible for selection into the ATUS sample. Because the ATUS uses the CPS as its sample frame, some information—such as age, gender, race, ethnicity, educational attainment, employment status, and household composition—has already been collected before the ATUS interview is conducted. Some of this information is updated in the ATUS interview. Respondents are asked to confirm that each member of the household still lives there; if a former household member has moved or passed away—or, alternatively, if someone new has been born or moved into the household—the information on household members is updated accordingly. Respondents also are asked to provide updates on any changes in employment for themselves and for their spouses or unmarried partners. ATUS respondents ages 15 to 49 are asked about school enrollment. Information on educational attainment, race, and ethnicity is not asked again in the ATUS, but their CPS values are used to generate estimates, and this information is included in the ATUS microdata files. A PDF of the ATUS questionnaire is available online at [www.bls.gov/tus/questionnaires.htm](http://www.bls.gov/tus/questionnaires.htm).

All ATUS interviews are conducted over the phone, using Computer Assisted Telephone Interview (CATI) software. For all parts of the interview except the collection of the time-use diary data, the interviewer reads scripted text on the CATI screen and enters the responses reported. For the time-use diary—the core component of the ATUS—the interviewer takes a conversational interviewing approach rather than asking scripted questions. The interviewer begins by asking, “At 4 a.m. yesterday, what were you doing?” and then continues to collect 24 hours of time-use activity data. Conversational interviewing is a flexible interviewing technique, intended to allow the respondent to report on his or her activities comfortably and accurately. This technique also allows the interviewer to use methods to guide respondents through memory lapses, to probe for the level of detail required to code activities, and to redirect respondents who are providing unnecessary information. As each activity is reported, the interviewer records the responses verbatim and, for most activities, also collects information about where the respondent was and who was with the respondent while he or she was engaged in the activity. Interviewers are trained to ensure that respondents report activities (and their durations) actually done on the previous (diary) day, not activities done on a “usual” day. One way they do so is by placing continual emphasis on the word “yesterday” throughout the interview.<sup>[1]</sup> After the interview is completed, each activity reported is coded according to the activity lexicon so that it can be aggregated into the ATUS time-use estimates.

After completing the time-use diary, ATUS respondents are asked general questions on secondary childcare, eldercare, paid work, and income-generating activities, as well as on volunteering. The questions on secondary childcare ask whether there were any times during the diary day when the respondent had a child under the age of 13 in his or her care while the respondent was doing another primary activity. Similarly, the questions on eldercare ask whether any of the activities the respondent reported doing on his or her diary day were done as care activities for someone who needed help because of a condition related to aging. Responses to the questions about paid work, income-generating activities, and volunteering assist ATUS coders in accurately identifying and coding the activities. The questions on work ask whether any activities done on the diary day were performed for one’s job(s)

or for some other purpose but still for pay; if so, they are classified as work or income-generating activities in the ATUS classification system. For example, babysitting and making crafts intended for sale would be identified as income-generating activities. Similarly, the questions on volunteering ask whether any activities done on the diary day involved volunteering for or through an organization; if so, they are classified as volunteer activities in the ATUS classification system.

In some years, an additional set of module questions is added at the end of the ATUS interview. Each module consists of a series of questions that take the respondent no more than 5 minutes to complete and that are fielded for a full year. Before a module is implemented, several requirements must be met: the survey matter must fall within the public interest, there must be a relevance to time use, and the questions must be tested for comprehension. Information on previous modules—including the questionnaires and microdata files—can be found at <https://www.bls.gov/tus/modules.htm>.

All activities reported in the time-use diary are assigned a six-digit code in the ATUS Coding Lexicon. Originally based on the Australian Bureau of Statistics 1997 time-use survey lexicon,<sup>[2]</sup> the ATUS Coding Lexicon uses a three-tiered system with 17 major, or first-tier, activity categories, each having two additional levels of detail. (See table 1.) An additional category is used to classify activities that cannot be coded. Codes are periodically evaluated and updated. (See the [Concepts](#) section for definitions for each major activity category.)

**Table 1. Major activity categories in the ATUS**

| Activity number | Activity description                                       |
|-----------------|--|
| 01              | Personal care  |
| 02              | Household activities                                       |
| 03              | Caring for and helping household members                   |
| 04              | Caring for and helping those who are not household members |
| 05              | Work and work-related activities                           |
| 06              | Education  |
| 07              | Consumer purchases   |
| 08              | Professional and personal care services                    |
| 09              | Household services   |
| 10              | Government services and civic obligations                  |
| 11              | Eating and drinking  |
| 12              | Socializing, relaxing, and leisure                         |
| 13              | Sports, exercise, and recreation                           |
| 14              | Religious and spiritual activities                         |
| 15              | Volunteer activities                                       |
| 16              | Telephone calls  |
| 18              | Traveling  |
| 50              | Data codes   |

Census Bureau coders assign a six-digit classification code to each diary activity. The first two digits represent the major activity category, the next two represent the second-tier level of detail, and the final two digits represent the third, most detailed, level of activity. For example, the ATUS code for making the bed is 020101. Making the bed is

an example of a third-tier category, interior cleaning, which is part of the second-tier category housework, which falls under the major activity category household activities. The hierarchy of coding is as follows:

## 02 Household Activities

### 01 Housework

01 Interior cleaning

02 Laundry

03 Sewing, repairing, and maintaining textiles

04 Storing interior household items, including food

99 Housework, not elsewhere classified

The final code in all second and third tiers is 99, which represents miscellaneous activities that are included in a given tier but that cannot be assigned separate four- or six-digit codes.

Each time-use diary is coded by two coders working independently, and any discrepancies are adjudicated by a third party. All coders are also ATUS interviewers. This dual role helps the interviewers during data collection, giving them a full understanding of the types of activities that are able to be coded and how much probing they may need to do if a respondent does not provide a suitable description of an activity. Interviewers are monitored to ensure that they are following ATUS interviewing protocol: probing when appropriate, building a rapport with the respondent, and so on. These data quality checks reduce total survey error.

For more information on data sources for the ATUS, see [chapters 4 and 5](#) of the ATUS User's Guide. Chapter 4 of the [User's Guide](#) provides details about how ATUS data are collected, including information on advance materials sent to those in the sample, incentives offered to respondents, strategies for making telephone calls, and how the interviews are structured. Chapter 5 of the [User's Guide](#) explains how ATUS data are coded. To learn more about the full ATUS classification system and definitions of activities—including examples—see the Coding Lexicons and additional resources available at [www.bls.gov/tus/lexicons.htm](http://www.bls.gov/tus/lexicons.htm).

## NOTES

<sup>[1]</sup> For more information on conversational interviewing, see Michael F. Schober and Frederick G. Conrad, "Does conversational interviewing reduce survey measurement error?" *Public Opinion Quarterly* 61, December 1997, pp. 576–602.

<sup>[2]</sup> For more information on the development on the ATUS coding system, see Kristina J. Shelley, "Developing the American Time Use Survey activity classification system," *Monthly Labor Review*, June 2005, [www.bls.gov/opub/mlr/2005/06/art1full.pdf](http://www.bls.gov/opub/mlr/2005/06/art1full.pdf).

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## *Design*

The American Time Use Survey (ATUS) sample is a stratified three-stage sample drawn from the population of households that participated in the eighth interview of the Current Population Survey (CPS). In the first stage of selection, the CPS oversample in the less populous states is reduced. Unlike the CPS, the ATUS does not have a state reliability requirement. To improve the efficiency of the national estimates derived from the survey, the ATUS sample is chosen from the population of households that responded to the CPS. In that way, the sample is distributed across states so that it is representative of the proportion of the national population that each state represents. The second stage of selection stratifies households according to race and ethnicity, the presence and age of children in the household, and the number of adults in adults-only households. Sampling rates vary within each stratum. Eligible households with a Hispanic or non-Hispanic Black householder are oversampled to improve the reliability of time-use data for these demographic groups. To ensure adequate measures of childcare, households with children are also oversampled; equivalently, households without children are undersampled. In the third stage of selection, an eligible person from each household selected in the second stage is randomly selected to be the designated person for the ATUS. Civilian household members at least 15 years of age are eligible. All eligible persons within a sample household have the same probability of being selected the designated person.

The monthly sample is divided into four randomly selected panels, one for each week of the month. To ensure good measures of time use on weekdays and weekend days, the sample is also split evenly between weekdays and weekend days. Ten percent of the sample is allocated to report about each weekday, and 25 percent of the sample is allocated to report about each weekend day. Designated persons from each household are randomly assigned a day of the week about which to report.

For more information on the ATUS survey design, see chapter 3 of the [User's Guide](#).

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# Calculation

## Data processing

After American Time Use Survey (ATUS) raw data are collected and coded, they go through an editing and imputation process that allows them to be used to produce estimates of time spent in daily activities. Many of the edits performed on ATUS data deal with item nonresponse. Imputation is a common way of treating item nonresponse, and many ATUS variables are imputed if missing. [Chapter 6](#) of the User's Guide specifies the different imputation methods used for different variables, and the ATUS [data dictionaries](#) have further information on how to identify edited variables and their allocated values. In addition to the various imputation procedures, data edits are performed for confidentiality (any data elements identifying the respondent are removed from the microdata files) and consistency, some variables are recoded, and the data are weighted. ATUS weights are designed to reduce any bias in the estimates that is due to differences in sampling and response rates across subpopulations and days of the week. For more information about the weights, see [chapter 7](#) of the User's Guide. Once the data have been through processing, editing, and imputation, the edited data sets are ready for analysis and eventual publication. Annual and multiyear ATUS microdata files are available for free from the ATUS website at [www.bls.gov/tus/data.htm](http://www.bls.gov/tus/data.htm).

## Estimation

[Chapter 7](#) of the ATUS User's Guide contains information about the types of estimates that can be generated with the ATUS data and the formulas needed to produce those estimates. Numerous types of estimates and analyses can be produced with the ATUS data; however, there are three main types of ATUS estimates: average hours, participation rates, and number of people. ATUS estimates are representative of the civilian noninstitutional population ages 15 and older and of various subpopulations. Official ATUS estimates are published annually. In addition, historic time-use estimates for over 100 activities, by gender and day of week, age group, employment status, and the presence and age of own household children are available from the [BLS database](#).

To generate estimates, researchers and others may use ATUS microdata files together with a statistical software package, such as SAS, Stata, or SPSS. Researchers use the data in a variety of ways. For example, one can examine the time use of particular subpopulations, look at time use patterns throughout the course of the day, investigate trends in time use over the course of several years, or explore particular activities or combinations of activities. ATUS microdata files also can be linked with CPS data files for further research.

Tables with published time-use estimates are available at [www.bls.gov/tus/tables.htm](http://www.bls.gov/tus/tables.htm). An archive of all ATUS news releases is available at [www.bls.gov/tus/news.htm](http://www.bls.gov/tus/news.htm).

ATUS estimates are available as time series from the ATUS data base at <https://www.bls.gov/tus/labstattips.htm>.

## Data quality

Statistics based on the ATUS are subject to both sampling error and nonsampling error. When a sample, rather than the entire population, is surveyed, estimates differ from the true population values they represent. The component of this difference that occurs because samples differ by chance is known as sampling error, and its variability is measured by the standard error of the estimate.

Sample estimates from a given survey design are unbiased when an average of the estimates from all possible samples would yield, hypothetically, the true population value. In this case, the sample estimate and its standard error can be used to construct approximate confidence intervals, or ranges of values that include the true population value accompanied by known probabilities. If the process of selecting a sample from the population were repeated many times, an estimate made from each sample, and a suitable estimate of its standard error calculated for each sample, then approximately 90 percent of the intervals from 1.645 standard errors below the estimate to 1.645 standard errors above the estimate would include the true population value.

The ATUS data also are affected by nonsampling error, which is the average difference between population and sample values for samples generated by a given process. Nonsampling error can occur for many reasons, including the failure to sample a segment of the population, inability to obtain information from all respondents in the sample, inability or unwillingness of respondents to provide correct information, and errors made in the collection or processing of the data. Errors can also occur if nonresponse is correlated with time use. The average annual response rates for the ATUS can be found in [chapter 3.6](#) of the ATUS User's Guide. The ATUS statistical weights in part adjust for nonsampling error, and quality assurance procedures are used to minimize nonsampling, data entry, and coding errors in the survey estimates.

Although attempts have been made to collect the most accurate data possible, the ATUS data do have limitations. For example, with the exception of childcare, information on secondary activities (activities that are done at the same time as the primary activity) is not collected. This decision not to collect such information could lead to underestimates of the amount of time people spend doing activities that are frequently done in combination with other activities. For instance, ATUS estimates likely underestimate the amount of time people spend listening to music, because so many people listen to music while doing other things.

Estimates appearing in ATUS tables must meet reliability standards before being presented to the public. In 2010, a new standard was developed that takes into account the coefficient of variation, standard error, and number of observations available before reporting an estimate. Prior to 2010, a standard was in place that included only the sample size or population base for the estimate.

Beginning with 2010 data, ATUS estimates of average hours per day and participation rates are not published unless there are a minimum number of respondents representing the given population. Additional publication criteria are applied that include the number of respondents who reported doing a specified activity and the standard error or coefficient of variation for the estimate. Estimates that are considered "close to zero" or that round to zero (e.g., 0.00 for estimates of hours) are published as approximately zero, or "~0."

[Chapter 10](#) of the User's Guide has additional information on ATUS data quality. For a detailed description of the statistical reliability criteria necessary for publication, please email the ATUS staff at [ATUSinfo@bls.gov](mailto:ATUSinfo@bls.gov).

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## Presentation

Each year since 2004, BLS has published news releases containing time-use estimates from the previous year's survey. In addition, BLS occasionally publishes news releases on special topics, such as married parents' use of time ([Married Parents' Use of Time, 2003–06](#)); workers' access to, and use of, leave ([Access to and Use of Leave—2011 Data from the American Time Use Survey](#)); and time spent providing eldercare ([Unpaid Eldercare in the United States—Data from the American Time Use Survey](#)). All annual and special news releases are available on the [ATUS website](#). The releases include descriptive highlights and several tables of time-use estimates. The ATUS website also contains [charts](#) showing different uses of ATUS data, [tables](#) of detailed time use by year and for specific populations, [time series data](#) available from LABSTAT, and a [list of papers](#) that have used ATUS data.

In addition to appearing as published estimates, ATUS data are compiled in numerous unpublished tables that show time use for selected subpopulations. These tables include data on time use for various combinations of an individual's demographic characteristics, marital status, employment status, educational attainment, geographic location, and the presence and age of household children. These unpublished tables are available in PDF format upon request by [emailing the ATUS staff](#) at [ATUSinfo@bls.gov](mailto:ATUSinfo@bls.gov).

Files containing ATUS microdata are published annually, along with documentation about the files. Microdata files and documentation also are created and published for ATUS modules. The microdata files contain respondents' answers to the survey questions, as well as characteristics about the respondent and his or her household. These data are intended for users who wish to do their own tabulations and analyses. Both single- and multiyear ATUS microdata files are available. The single-year files contain data for interviews conducted in a 1-year period; the multiyear files contain data for many years, with some adjustments made to account for changes that occurred over those years. For example, some activity codes have been adjusted to account for changes to the activity lexicon over the years. The files are released in comma-delimited formats and are downloadable for free from the [ATUS website](#). Also provided are SAS, Stata, and SPSS programs to read the data into these statistical software packages. In accordance with BLS and U.S. Census Bureau policies that protect respondents' privacy, identifying fields were removed from the data and some responses were edited to protect the confidentiality of ATUS respondents.

If an error is found in a published ATUS news release, the publication is corrected and republished. Corrected news releases clearly note that a correction was made. A record of the error is added to the [list of BLS errata](#), and data users who have signed up to receive notifications from the ATUS are alerted via email. If an error is identified in a published microdata file, a notification is posted to the relevant ATUS webpages and sent to data users via email. Notifications also are sent via email when the problem has been resolved. All relevant documentation is updated, and, if appropriate, new webpages are created to document the error and its correction.

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# History

## Key developments

- **October 24, 1991:** Unremunerated Work Act is introduced in Congress by Representative Barbara-Rose Collins (it later died in committee)
- **1997:** Pilot time-use survey is conducted
- **November 20–21, 1997:** Time Use, Nonmarket Work, and Family Well-Being conference takes place
- **1999:** First budget request is presented to the Office of Management and Budget
- **2000–02:** Survey testing begins
- **2003:** Data collection begins
- **Sept 14, 2004:** First annual news release is published
- **2005–10:** Questions on trips taken are included in the survey
- **2006–2008:** Eating and Health Module is fielded
- **May 8, 2008:** "Married Parents' Use of Time" news release is published
- **2010:** Well-Being Module is fielded
- **2011:** Questions on eldercare are added to the survey
- **2011:** Leave Module is fielded
- **August 16, 2012:** "Access to and Use of Leave" news release is published
- **2012–13:** Well-Being Module is fielded for the second time
- **September 18, 2013:** First eldercare news release is published
- **2014–16:** Eating and Health Module is fielded
- **October 2016:** ATUS data series first becomes available
- **2017–18:** Leave and Job Flexibilities Module is fielded

The concept of a national time use survey arose in 1991, when it was first discussed at BLS as a statistical policy issue. Development of the idea continued until American Time Use Survey (ATUS) data collection officially began in January 2003. Early interest in time-use data appeared with a bill that was proposed (but never passed) in Congress in 1991: the Unremunerated Work Act. At the time, Congress expressed interest in collecting data on unpaid labor, with BLS and the Bureau of Economic Analysis collaborating to collect and analyze the data. Through the early 1990s, BLS began to see the absence of time-use data as a gap in the U.S. Federal Statistical System, as conferences hosted by Statistics Canada and the United Nations featured data on international efforts to incorporate time-use measures into official statistics or national accounts.

In 1997, BLS took action, conducting a pilot time-use survey and cosponsoring a conference with the MacArthur Foundation entitled "Time Use, Nonmarket Work, and Family Well-Being." These initiatives helped introduce BLS to the international community of time-use researchers, demonstrated the importance of time-use data, and allowed BLS to learn from the best practices of other organizations. In 1998, BLS established a working group to develop a more detailed plan for the collection of time-use data; the final report became the blueprint for the ATUS. The following year, BLS made the first budget request to the Office of Management and Budget for funding to collect time-use data. From 2000 to 2002, the survey became fully operationalized: detailed testing, design work, software development, training, the development of an activity classification scheme, and the drafting of call center procedures all began. Finally, the survey was officially launched in January 2003. A full summary of the ATUS

development process can be found in the Monthly Labor Review article "[Planning, designing, and executing the BLS American Time-Use Survey.](#)"

To provide for the comparability of estimates from year to year, the ATUS strives for consistency at every stage of the survey process. For this reason, changes to the sample design, weights, variables, the lexicon, and other technical aspects of the survey occur infrequently. Any changes made are noted in all relevant documentation, as well as in a separate "[Changes](#)" document. A summary of notable changes follows.

## Changes to the sample

As a cost-saving measure, the monthly sample size was reduced by 35 percent after 2003. No additional changes to the sample have been made.

## Changes to the Questionnaire

Because the ATUS asks respondents only about "yesterday," the survey may underestimate activities that occur on overnight trips away from home. Therefore, from 2005 to 2010, ATUS respondents were asked a series of questions about trips they took away from home for 2 or more nights in a row during a specific reference month. Questions were asked about the number, duration, and purpose of overnight trips. Because the data on trips were little used, the associated questions were discontinued in 2011; the decision allowed the ATUS to add questions on eldercare without increasing the cost of the survey or respondent burden.

Prior to 2011, the ATUS did not collect data on time spent providing eldercare. Recognizing the need for quality eldercare data, BLS developed questions to collect this information. The extensive development process included a subject-matter expert panel, a review of existing statistical measures designed to capture information about eldercare, focus groups with caregivers, feedback from the subject-matter experts and from survey methods experts, internal testing and refinement of the questions, and cognitive testing of the questions. Beginning in 2011, questions on eldercare replaced questions on trips away from home. The ATUS eldercare questions were designed specifically to identify eldercare providers and to measure the time they spent providing eldercare on the diary day. Additional information, such as the relationship between the care provider and care recipient, and the age of the care recipient, also are collected. For more information on the steps taken to add eldercare to the ATUS, see the article "[Adding Eldercare Questions to the American Time Use Survey,](#)" published in the Monthly Labor Review.

## Modules

As mentioned in the [Data sources](#) section, modules consist of a series of questions about a special topic related to time use. Module questions come at the end of the ATUS interview and last no more than 5 minutes. The Eating and Health Module was added to the ATUS and fielded from January 2006 through December 2008. The U.S. Department of Agriculture's Economic Research Service and the National Institutes of Health's National Cancer Institute sponsored this module, which consisted of questions designed to examine relationships between time

use; purchasing, preparing, and consuming food; and obesity. The module was re-added to the ATUS with a few modifications and fielded from January 2014 through December 2016.

The Well-Being Module, sponsored by the National Institute on Aging, was added to the ATUS and fielded from January through December 2010 and again in a slightly modified format from January 2012 through December 2013. This module used the ATUS diary to capture how happy, tired, sad, stressed, and in pain respondents felt during their participation in selected activities. The module also captured how meaningful the activity was to the respondent and whether the respondent was interacting with anyone during the performance of the activity. Such information can be used to better understand the quality of life in the United States and to develop a measure of society's well-being.

The Leave Module, sponsored by the Department of Labor Women's Bureau, was added to the ATUS and fielded from January through December 2011. This module asked wage and salary workers about their use of, and access to, paid and unpaid leave and about the flexibility of their work schedules. The data provide a richer description of work, including information about the types of leave that are available to workers, the reasons for which workers are able to take leave, the workers' leave activity, and whether workers can adjust their schedules to balance personal and work obligations instead of taking leave. In 2017–18, a modified version of the Leave Module, called the "Leave and Job Flexibilities Module," was sponsored by the Department of Labor Women's Bureau. During the 2017–18 iteration, the module asked wage and salary workers, with the exception of self-employed workers, about their use of, and access to, paid and unpaid leave, their work schedules, and job flexibility.

More information about ATUS modules is available online at: <https://www.bls.gov/tus/modules.htm>.

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## More Information

Further information on the American Time Use Survey (ATUS) can be found through the ATUS website:

[www.bls.gov/tus/](http://www.bls.gov/tus/).

ATUS estimates are available at multiple locations on the BLS website and in a number of formats:

- Time series data from the BLS LABSTAT database: [www.bls.gov/tus/labstattips.htm](http://www.bls.gov/tus/labstattips.htm)
- Archive of ATUS news releases: [www.bls.gov/tus/news.htm](http://www.bls.gov/tus/news.htm)
- Published tables with ATUS estimates: [www.bls.gov/tus/tables.htm](http://www.bls.gov/tus/tables.htm)
- Charts with the most recent annual ATUS estimates: [www.bls.gov/tus/charts.htm](http://www.bls.gov/tus/charts.htm)
- Unpublished tables of time-use estimates by age, ethnicity, employment status, educational attainment, marital status, presence and age of household children, and other categories, available by [emailing ATUS staff](mailto:ATUSinfo@bls.gov) at [ATUSinfo@bls.gov](mailto:ATUSinfo@bls.gov)

Researchers and others interested in working directly with ATUS microdata files can download these files for free from [www.bls.gov/tus/data.htm](http://www.bls.gov/tus/data.htm). The ATUS questionnaires, User's Guide, data dictionaries, activity coding lexicons, and coding rules manuals, as well as other documentation, are available at [www.bls.gov/tus/documents.htm](http://www.bls.gov/tus/documents.htm).

Analyses of ATUS data and survey methods have appeared in numerous publications, including peer-reviewed journals and government reports. The ATUS website contains an index (with links when available) of published articles, working papers, and reports at [www.bls.gov/tus/research.htm](http://www.bls.gov/tus/research.htm).

Many other countries have carried out time-use surveys, and more are planning to conduct them in the future. Although the ATUS is the first federally funded, national, continuous time-use survey in the United States, several smaller scale studies have been conducted. Early efforts at collecting time-use data included U.S. Department of Agriculture—sponsored studies of the time use of farm housewives during the 1920s and 1930s, along with time-use studies conducted by the University of Michigan in the 1960s through the 1980s and by the University of Maryland in the 1990s and 2001. The ATUS was designed to be comparable, at broad levels, with information from other countries and with earlier time-use studies conducted in the United States. The Centre for Time Use Research at the University of Oxford maintains an index of all international time-use data and research at [www.timeuse.org/](http://www.timeuse.org/). In addition, Integrated Public Use Microdata Series (IPUMS) provides American Heritage Time Use Study (AHTUS) and Multinational Time Use Study (MTUS) microdata for research purposes. The microdata can be accessed at [www.ipums.org/timeuse.shtml](http://www.ipums.org/timeuse.shtml).

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