

# Current Population Survey (CPS) – October Supplement

Website: <https://nces.ed.gov/surveys/cps/>

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## 1. OVERVIEW

The Current Population Survey (CPS) is a monthly survey of 50,000–60,000 households conducted by the Bureau of the Census, part of the U.S. Department of Commerce, for the Bureau of Labor Statistics (BLS), U.S. Department of Labor. The basic monthly CPS collects data about the employment, unemployment, and other characteristics of the civilian noninstitutionalized population in the United States; it excludes military personnel and their families living on post, inmates of institutions, and residents of homes for the aged. Since the late 1960s, the National Center for Education Statistics (NCES) has sponsored the October Supplement to the CPS to capture additional information on school enrollment status and related topics for household members 3 years old and over, thus providing current estimates of school enrollment as well as of the social and economic characteristics of students.

### Purpose

The October Supplement is designed to collect information on the school enrollment of household members in any type of public, parochial, or other private school in the regular school system. Such schools include nursery schools, kindergartens, elementary schools, high schools, colleges, universities, and professional schools. Additional supplementary questions are designed to collect information on various topics of interest.

### Components

The October Supplement is an annual addition to the basic monthly CPS. The information collected is described below. A member of each household who is at least 15 years old provides information for all members of the household.

**October Supplement.** The October Supplement collects information on the school enrollment status and educational attainment of household members 3 years old and over, including highest grade completed, level and grade of current enrollment, attendance status, number and type of courses taken, degree or certificate objective, and type of organization offering instruction for each member of the household. A dozen core questions in the interview instrument for the October Supplement have remained unchanged since 1967. Since 1987, additional questions have been included on business, vocational, technical, secretarial, trade, and correspondence courses; on the grade the student was attending in the previous year; on the calendar year that the student received his or her most recent degree; on whether or not the student completed high school by means of an equivalency test (such as a General Educational Development [GED] credential); and on whether or not children ages 3 to 5 are enrolled in any kind of nursery school, kindergarten, or elementary school. From time to time, additional items address such topics as private school tuition, adult education, vocational education, computer and internet use, language proficiency library use, disability status, and student mobility.

**Basic CPS.** The basic CPS collects monthly data on household membership, household characteristics, demographic characteristics, and labor force participation of the civilian noninstitutionalized population 15 years of age and over. However, published data focus on those ages 16 and over. The basic CPS is collected each month from a probability sample of approximately 50,000–60,000 occupied households.

## SUPPLEMENTS TO THE CPS

### September Supplement:

- Conducted only in 2001
- Collected data on the availability and use of computers and the Internet at school, home, and work.

### October Supplement:

- Conducted annually
- Collects data on household members 3 years old and over on school enrollment status.

**Periodicity**

The basic CPS is conducted monthly. The October Supplement to the CPS is an annual supplement.

**Data Availability**

Current data for CPS can be located at <https://www.bls.gov/cps/data.htm>. The data are updated monthly. Historical CPS data are also available beginning in 1947 through present at <https://www.bls.gov/cps/cpsdatabs.htm>.

**2. USES OF DATA**

The October Supplement provides important education data to policymakers and researchers on school enrollment and educational attainment. Data from the October Supplement, together with data from the basic CPS and the March Supplement (Annual Social and Economic Supplement), provide the basis for descriptive and analytic reports that portray the social and economic characteristics of students in relation to the specifics of their school enrollment. From these sources, it is possible to retention rates and completion rates for various levels of education, and high school dropout. In some years, the October Supplement also provides policy-relevant data on private school tuition, adult education, vocational education, early childhood education, and student mobility.

**3. KEY CONCEPTS**

Some of the key concepts in the CPS October Supplement are defined below. For additional terms relevant to the October Supplement, as well as to the basic CPS, refer to *School Enrollment—Social and Economic Characteristics of Students: October 1996 (Update). Detailed Tables and Documentation for P20-500* (U.S. Department of Commerce 1998).

**Household.** All persons who occupy a housing unit. A house, an apartment or other group of rooms, or a single room is regarded as a housing unit when it is occupied or intended for occupancy as separate living quarters; that is, when the occupants do not live and eat with any other persons in the structure and there is direct access from the outside or through a common hall. A household includes the related family members and all the unrelated persons, if any, such as lodgers, foster children, wards, or employees who share the housing unit. A person living alone in a housing unit, or a group of unrelated persons sharing a housing unit as partners, is also counted as a household.

**School Enrollment.** School enrollment includes anyone who has been enrolled at any time during the current term or school year in any type of public, parochial, or other private school in the regular school system. Such schools include nursery schools, kindergartens, elementary schools, high schools, colleges, universities, and professional schools. Attendance may be either full time or part time, during the day or night. Regular schooling is that which may advance a person toward an elementary or high school diploma, or a college, university, or professional school degree. Enrollment is excluded if in schools that are not in the regular school system or that do not advance students to regular school degrees (e.g., enrollment in trade schools, business colleges, and schools for the mentally handicapped).

**Level of School.** Nursery school, kindergarten, elementary school (1<sup>st</sup> through 8<sup>th</sup> grades), high school (9<sup>th</sup> through 12<sup>th</sup> grades), and college or professional school. The last level includes graduate students in colleges or universities. Persons enrolled in elementary school, middle school, intermediate school, or junior high school through the 8<sup>th</sup> grade are classified as in elementary school. All persons enrolled in the 9<sup>th</sup> through 12<sup>th</sup> grades are classified as in high school.

**Nursery School.** A group or class that is organized to provide educational experiences for children during the year or years preceding kindergarten. This includes Head Start programs or similar programs sponsored by local agencies to provide preschool education to young children.

**Public or Private School.** A public school is defined as any educational institution operated by publicly elected or appointed school officials and supported by public funds. Private schools include educational institutions established and operated by religious bodies, as well as those that are under other private control. In cases where enrollment is in a school or college that is both publicly and privately controlled or supported, enrollment is counted according to whether it is primarily public or private.

**Modal Grade.** For descriptive and analytic purposes, enrolled persons are classified according to their relative progress in school; that is, whether the grade or year in which they were enrolled was below, at, or above the modal (or typical) grade for persons of their age at the time of the survey. The modal grade is the year of school in which the largest proportion of students of a given age are enrolled.

**Vocational School Enrollment.** Vocational school enrollment includes enrollment in business, vocational, technical, secretarial, trade, and correspondence courses not counted as regular school enrollment and not for recreation or adult education classes.

**Educational Attainment.** Highest level of school a person has completed or highest degree a person has received.

## 4. SURVEY DESIGN

### Target Population

All household members age 3 and older in the civilian noninstitutionalized population of the 50 states and the District of Columbia. Excludes military personnel and their families living on post, inmates of institutions, and residents of homes for the aged.

### Sample Design

The CPS sample is a multistage stratified sample of approximately 72,000 assigned housing units from 824 sample areas designed to measure the demographic and labor force characteristics of the civilian noninstitutionalized population 15 years of age and older. Published data, however, focus on those ages 16 and over. Currently, the CPS samples housing units from lists of addresses obtained from the 2000 Decennial Census of Population and Housing. The sample is updated continuously for new housing built after the 2000 Census.

To improve the reliability of estimates of month-to-month and year-to-year change, eight panels of housing units are used to rotate the sample each month. A sample unit is interviewed for 4 consecutive months and then, after an 8-month rest period, for the same 4 months a year later. Every month, a new panel of housing units, or one-eighth of the total sample, is introduced. Thus, in a particular month, one panel is being interviewed for the first time, one panel for the second, and so on.

The first-stage sample selection is carried out in three major steps: definition of the primary sampling units (PSUs), stratification of the PSUs within each state, and selection of the sample PSUs in each state. There are currently (after the 2000 Decennial Census) 2,025 defined PSUs in the United States from which to draw the CPS sample. The CPS sample design calls for combining PSUs into strata within each state and selecting one PSU from each stratum. The CPS currently uses the Stratification Search Program (SSP), created by the Demographic Statistical Methods Division of the Census Bureau, to perform

the PSU stratification. CPS strata in all states except Alaska are formed using the SSP. (A separate program performs the stratification for Alaska.) A total of 824 PSUs are selected for the sample. Using a procedure designed to maximize overlap, one PSU is selected per stratum with probability proportional to its 2000 population. This procedure uses mathematical programming techniques to maximize the probability of selecting PSUs that are already in sample while maintaining the correct overall probabilities of selection.

The second stage of the CPS sample design is the selection of sample housing units within PSUs. These ultimate sampling unit (USU) clusters consist of a geographically compact cluster of approximately four addresses, corresponding to four housing units at the time of the census. Each month, about 72,000 housing units are assigned for data collection, of which about 60,000 are occupied and thus eligible for interview. The remainder are units found to be destroyed, vacant, converted to nonresidential use, containing persons whose usual place of residence is elsewhere, or ineligible for other reasons. Of the 60,000 housing units, about 5 percent are not interviewed in a given month due to temporary absence (vacation, etc.), other failures to make contact after repeated attempts, the inability of persons contacted to respond, unavailability for other reasons, and refusals to cooperate (which make up about half of the noninterviews). Information is obtained each month on for approximately 110,000 persons 15 years of age or older and on approximately 30,000 persons under the age of 15.

Since 2005, the CPS sample has been selected based on 2000 census information. From 1995 to 2004, the sample was based on 1990 census information; samples prior to 1995 similarly used earlier censuses. The number of PSUs, housing units, and persons interviewed are also different in samples prior to 2005. Specifics on each given CPS sample can be found in the technical documentation report for the year's CPS.

### Data Collection and Processing

The U.S. Bureau of the Census is the collection agent for the CPS and its supplements. Additional details on data collection and processing are provided in *The Current Population Survey: Design and Methodology* (Technical Paper 66) (U.S. Department of Commerce 2006).

**Reference Dates.** The reference period for the October Supplement is the current school year, which is assumed to be in progress in the interview month

of October. The CPS labor force questions ask about labor market activities for 1 week each month. This week is referred to as the “reference week.” The reference week is defined as the 7-day period, Sunday through Saturday, which includes the 12<sup>th</sup> of the month.

**Data Collection.** Each month, Bureau of the Census field representatives attempt to collect data from the sample units during the week containing the 19<sup>th</sup> of the month. For the first month-in-sample interview, the interviewer visits the sample address to determine if the sample unit exists, if it is occupied, and if some responsible adult will provide the necessary information. If someone at the sample unit agrees to the interview, the interviewer uses a laptop computer to administer the interview. In most cases, the interviewer conducts subsequent interviews by telephone (use of telephone interviewing must be approved by the respondent) and does not actually visit the sample unit again until the fifth month-in-sample interview, the first interview after the 8-month resting period. Fifth-month households are more likely than any other household to be a replacement household; that is, a household in which all the previous month’s residents have moved out and been replaced by an entirely different group of residents. However, any person can change his or her household status during the time in sample: a person who leaves the household is deleted from the roster; a person who moves into the household is added to the roster.

Most month-in-sample 2 through 4 and 6 through 8 interviews are conducted by telephone. (For instance, 78.8 percent of the interviews for the October 2004 Supplement were conducted by telephone, which is highly consistent with the usual monthly results for telephone interviews.) Interviewers continue to visit households without telephones, with poor English language skills, or that decline a telephone interview.

The interview begins with questions about the housing unit and the people who consider this address their usual residence. Basic demographic information is collected for each household member. Labor force information is collected for each civilian 15 years of age or older, although the data for 15-year-olds are not used in official BLS estimates. After the labor force information has been collected for all eligible household members, supplemental questions particular to that month’s interview may be asked of specific family members or the entire household.

**Editing.** Completed interviews are electronically transmitted to a central processor where the responses are edited for consistency and various codes are

added. The edits effectively blank out all entries in inappropriate questions and ensure that all appropriate questions have valid entries.

### **Estimation Methods**

Weighting is used in the CPS to adjust for sampling and unit nonresponse, and imputation is used to adjust for item nonresponse.

**Weighting.** For the basic CPS, the estimation procedure involves weighting the data from each sample person by the inverse of the probability of the person’s housing unit being in the sample. With some exceptions, sample persons within the same state have the same probability of selection. The CPS uses raking ratio estimation to derive the weights used to tabulate total U.S. and state estimates. The goal is to control the survey estimates of the population in specific subgroups to match independently obtained estimates of the civilian noninstitutionalized population in the 50 states and the District of Columbia. These population estimates are prepared monthly to agree with the most current set of population estimates that are released as part of the Census Bureau’s population estimates and projections program. In addition, household and family weights provide a basis for household-level estimates and estimates for married couples living in the same household.

For all CPS data files, a final weight is prepared and used to compute the monthly labor force status estimates. The final weight, which is the product of several adjustments, including a nonresponse adjustment, is used to produce estimates for the various characteristics covered in the full monthly CPS. This weight is constructed from the basic weight for each person, which represents the probability of selection for the survey. For supplements, such as the October Supplement, separate data processing is required, not only to edit responses for consistency and impute for missing values, but also to incorporate special weighting procedures to account for the fact that the supplement is targeting a special universe, such as school-age children, in contrast to the working-age labor force emphasis of the basic CPS.

Starting with the data collected in the October 1994 CPS, independent estimates have been based on civilian noninstitutionalized population controls for age, race, and sex established by the decennial census and adjusted to compensate for an undercount. These independent estimates are based on statistics from decennial censuses; statistics on births, deaths,

immigration, and emigration; and statistics on the size of the Armed Forces.

**Imputation.** When a response is not obtained for a particular data item, or an inconsistency in reported items is detected, an imputed response is entered in the field. Before the edits are applied, the daily data files are merged and the combined file is sorted by state and PSU within state. This sort ensures that allocated values are from geographically related records; that is, missing values for records in Maryland will not receive values from records in California. This is an important distinction since many labor force and industry and occupation characteristics are geographically clustered. The edits are run in a deliberate and logical sequence. Demographic variables are edited first because several of these variables are used to allocate missing values in the other modules. The labor force module is edited next, since labor force status and related items are used to impute missing values for industry and occupation codes and so forth.

CPS edits use three imputation methods: relational imputation, longitudinal edits, and hot-deck imputation. Relational imputation infers the missing value from other characteristics in the person's record or within the household. Longitudinal edits are used primarily in the labor force edits. If a question is blank and the record is in the overlap sample, the edit looks at the previous month's data to determine whether the person had responded then for that item. If so, the previous month's entry is assigned; otherwise, the item is assigned a value using the appropriate hot deck. The hot-deck method assigns a value from a record with similar characteristics. Hot decks are always defined by age, race, and sex. Other characteristics used in hot decks vary depending on the nature of the question being referenced. The imputation procedure is performed one item at a time. In a typical month, the imputation rate for demographic items is less than 1 percent. The rates for labor force items are slightly over 1 percent. Over all earnings items, the imputation rate is near 10 percent, with some items having much higher and others much lower nonresponse rates. In October 2005, the imputation rate for the basic school enrollment items ranged from 4 to 7 percent per item.

#### **Future Plans**

The October Supplement will always include the traditional school enrollment questions; questions on other topics will be added as occasion warrants. For example, over the last several decades NCES has funded additional items on education-related topics such as language proficiency, disabilities, computer

use and access, student mobility, and private school tuition. Plans for additional questions in future years have yet to be determined.

## **5. DATA QUALITY AND COMPARABILITY**

### **Sampling Error**

Although the estimation methods used in the CPS do not produce unbiased estimates, biases for most estimates are believed to be small enough so that the confidence interval statements are approximately true. Standard error estimates are computed using replicate variance techniques and reflect contributions not only from sampling error but also from some types of nonsampling error, particularly response variability and intra-interviewer correlation. Because replicate variance techniques are somewhat cumbersome, simplified formulas called generalized variance functions (GVFs) have been developed for various types of labor force characteristics. The GVF can be used to approximate an estimate's standard error, but this only indicates the general magnitude of its standard error rather than a precise value. Standard error estimates computed using generalized variance functions are provided in *Employment and Earnings* and other BLS publications.

### **Nonsampling Error**

Although the full extent of nonsampling error in the CPS is unknown, special studies have been conducted to quantify some of the possible sources. The effect of nonsampling error should be small on estimates of relative change, such as month-to-month change. Estimates of monthly levels would be more severely affected by nonsampling error.

**Coverage Error.** The concept of coverage in the survey sampling process is the extent to which the total population that could be selected for the sample "covers" the survey's target population. Undercoverage in the CPS results from missed housing units and missed persons within sample households. Overall CPS undercoverage for households was estimated to be about 10 percent for October 2005 and about 11 percent for October 2006. It is known that the CPS undercoverage varies with age, sex, race, and Hispanic origin. Generally, undercoverage is larger for men than for women and larger for Blacks, Hispanics, and other races than for Whites. Ratio adjustment to independent age/sex/race/origin population controls, as described previously, partially corrects for the biases due to survey undercoverage. However, biases exist in the estimates to the extent that missed persons in missed households or missed persons in interviewed households have different characteristics

than interviewed persons in the same age/sex/race/origin group.

The independent population estimates used in the estimation procedure may be a source of error although, on balance, their use substantially improves the statistical reliability of many of the figures. Errors may arise in the independent population estimates because of underenumeration of certain population groups or errors in age reporting in the decennial census (which serves as the base for the estimates) or similar problems in the components of population change (mortality, immigration, etc.).

### **Nonresponse Error.**

*Unit Nonresponse.* Unit nonresponse may have a number of components. A respondent may refuse to participate in the survey, may not be capable of completing the interview, or may not be available to the interviewer during the specified survey period. If the entire household does not participate, this situation is referred to as a “Type A noninterview.” There is also another type of (partial) unit nonresponse, namely, that one or more individual persons within the household refuse to be interviewed. This is not a major problem in the CPS since any responsible adult may be able to report information for other persons as a proxy reporter. There are other variations on unit nonresponse; detailed consideration of these may be found in *The Current Population Survey: Design and Methodology* (Technical Paper 66) (U.S. Department of Commerce 2006).

For the October 2005 basic CPS, the nonresponse rate was 7.4 percent, and the nonresponse rate for the October supplement was an additional 3.4 percent. These two nonresponse rates led to a combined nonresponse rate of 10.5 percent. For the October 2006 basic CPS, the household-level nonresponse rate was 8.1 percent, and the person-level nonresponse rate for the October supplement was an additional 3.9 percent. Since the basic CPS nonresponse rate was a household-level rate and the School Enrollment supplement nonresponse rate was a person-level rate, these rates couldn’t be combined to derive an overall nonresponse rate. Since it is unlikely the nonresponding households to the basic CPS had the same number of persons as the households successfully interviewed, combining these rates would have resulted in an overestimate of the “true” person-level overall nonresponse rate for the October supplement (for more information, see *The Current Population Survey October 2006: School Enrollment Supplement Technical*

*Documentation*, U.S. Department of Commerce 2006).

*Item Nonresponse.* Although an imputation procedure is implemented for item nonresponse in the CPS, there is no way of ensuring that the errors of item imputation will balance out and that any potential bias has been avoided.

**Measurement Error.** The main sources of nonsampling variability in the responses to the October Supplement are those inherent in the survey instrument. The question of current school enrollment may not be answered accurately for various reasons. Some respondents may not know current grade information for every student in the household, a problem especially prevalent for households with members in college or in nursery school. Confusion over college credits or hours taken by a student may make it difficult to determine the year in which the student is enrolled. Problems may occur with the definition of nursery school (a group or class organized to provide educational experiences for children), where respondents’ interpretations of “educational experiences” vary.

### **Data Comparability**

NCES collects preschool, elementary school, secondary school, and postsecondary education enrollment and completion data through a wide range of studies including the National Household Education Surveys Program (NHES, see NHES chapter), the Common Core of Data (CCD, see CCD chapter), the Private School Survey (PSS, see PSS chapter), the Integrated Postsecondary Education Data System (IPEDS, see IPEDS chapter), and the National Postsecondary Student Aid Study (NPSAS, see NPSAS chapter). In addition, the Bureau of the Census collects the American Community Survey (ACS), which is another household survey that includes some school enrollment and educational attainment data.

Because of differences in data collection modes, respondent selection, interviewer training, collection and reference periods, and differing survey processes, data obtained from the CPS and other sources are not entirely comparable. This is an example of nonsampling variability that is not reflected in the standard errors. Therefore, caution should be used when comparing results from different sources.

## **6. CONTACT INFORMATION**

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