

**CONCEPTS
and METHODS
used in MANPOWER STATISTICS
from the CURRENT POPULATION
SURVEY**

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UNITED STATES DEPARTMENT OF LABOR
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CONCEPTS AND METHODS USED IN MANPOWER STATISTICS FROM THE CURRENT POPULATION SURVEY

This report describes the concepts and methods used in the Census Bureau's Current Population Survey which is conducted each month with a scientifically selected sample representing the noninstitutional civilian population of the United States. This survey provides monthly statistics on employment, unemployment, and related subjects which are analyzed and published by the Bureau of Labor Statistics of the U.S. Department of Labor.¹

These monthly statistics are first issued in a summary press release within 2 weeks after completion of the survey. More detailed information is published in the Labor Department's Employment and Earnings and Monthly Report on the Labor Force. Both publications also incorporate data from surveys of business establishments and from the unemployment insurance system.

¹In addition to the collection of labor force data, the Current Population Survey is used by the Bureau of the Census to collect statistics on education, migration, family size and composition, income, fertility, and housing vacancies. On an increasing scale, it has also been used to collect information for many other Government agencies on a wide range of subjects which are best approached through household interviews.

NOTE: This report supersedes BLS Report No. 279 and Current Population Reports, Series P-23, No. 13, issued jointly by the Bureau of Labor Statistics and the Bureau of the Census in June 1964. It incorporates changes instituted in the program since that date.

Data Collected and Published

The Current Population Survey (CPS) provides a large amount of detail not otherwise available on the economic status and activities of the population of the United States. In general, it is not possible to develop one or two overall figures, such as the number of unemployed, that will be adequate to describe the whole complex of labor market phenomena. Consequently, the Current Population Survey is designed to provide a large amount of detailed and supplementary data which are available for use in interpreting and adjusting the broad totals to meet a wide variety of needs on the part of users of labor market information. It is the only source of monthly estimates of total employment, both farm and nonfarm; of nonfarm self-employed persons, domestics, and unpaid helpers in nonfarm family enterprises as well as wage and salaried employees; and of total unemployment, whether or not covered by unemployment insurance. It is the only comprehensive source of information on the personal characteristics of the total population (both in and out of the labor force), such as age and sex, race, marital and family status, veteran status, and educational background.

It provides the only available distributions of workers by the numbers of hours worked (as distinguished from aggregate or average hours for an industry), permitting separate analyses of part-time workers, workers on overtime, etc. The survey is also the only comprehensive current source of information on the occupation of workers. It also provides limited statistics on the industries in which they work.

Information is available in the survey not only for persons currently in the labor force but also for those who are outside the labor force. The characteristics of such persons --whether married women with or without young children, disabled persons, students, older retired workers, etc.--can be determined. Information on their past work experience and their intentions as to jobseeking are available for a subsample consisting of the incoming and returning rotation groups.

Monthly publication. Each month, a significant amount of information about the labor force is published by the Labor Department in Employment and Earnings and Monthly Report on the Labor Force.² The following major categories of data are provided:

1. Unemployment

- a. Number of unemployed persons and rates of unemployment by sex, age, color, marital status, and relationship to the household head.
- b. Rates of unemployment by industry and occupation.
- c. Unemployed persons by duration of unemployment, including a distribution of the long-term unemployed by sex, age, color, marital status, and major industry and occupation group.
- d. Unemployed persons by whether seeking full-time or part-time work, by sex, age, and major occupation group.

²Prior to July 1959, these data were issued in a report entitled Monthly Report on the Labor Force, published by the Bureau of the Census in Current Population Reports, Series P-57. From that time until February 1966, the Labor Department issued the data in the Monthly Report on the Labor Force.

- e. A measure of labor force time lost through unemployment and involuntary part-time employment.

2. Employment

- a. Persons employed in agriculture and in nonagricultural industries by sex, age, class of worker, occupation group (about 30 categories), color, and number of hours worked during the survey week.
- b. Total and nonagricultural employed persons by full- or part-time status and reasons for working part time.
- c. For persons at work in nonagricultural industries, distribution by full- or part-time status and number of hours worked, by major industry group (wage and salary workers only), major occupation group, sex and age, marital status, and color. In these distributions, part-time workers (reporting less than 35 hours) are further divided into those working limited hours because of economic factors and those on part time by choice or for other noneconomic reasons.
- d. Persons with a job but not at work during the survey week by reason for not working and whether paid for time off.

3. Labor force - Total and civilian labor force by sex, age, and color; and labor force participation rates.

4. Not in labor force - Persons not in the labor force by sex, age, and color, by main activity during survey week (keeping house, going to school, unable to work, and other).

5. Seasonally adjusted data - Adjusted data are provided for the major series, including unemployment rates for all civilian workers, adult men, adult women, teenagers, married men, and experienced wage and salary workers.

Other data published. The regular labor force survey is supplemented by a program of additional inquiries, coordinated with the monthly enumerations, designed to provide more detailed statistics on special aspects of economic activity. The results of these studies are usually published by the Department of Labor in a series of Special Labor Force Reports after appearing as articles in the Monthly Labor Review.³ Some examples of these are:

1. Work Experience of the Population. Number and characteristics of persons who worked at all during the course of a calendar year, including number of weeks worked, time lost because of unemployment and other reasons, characteristics of longest job held during the year, and related facts.

2. Multiple Jobholders. Number and characteristics of persons who hold two jobs or more during the survey week.

3. Employment of School Age Youth. Employment status of students and those not currently enrolled in school, 16 to 24 years of age.

4. Employment of High School Graduates and Dropouts. Employment status of high school graduates and dropouts, 16 to 24 years of age.

5. Marital and Family Characteristics of Workers. Labor force trends among married women and the family characteristics of workers.

6. Educational Attainment of Workers. Characteristics of labor force participants by years of school completed.

7. Income of Families and Persons in the United States. Annual personal and family income cross-classified by numerous personal and economic characteristics (issued by the Bureau of the Census in Current Population Reports, Series P-60).

8. The Unemployed: Why They Started Looking for Work. Periodic studies of entry and reentry into the labor force, job loss, and job leaving as causes of unemployment.

9. Poverty Areas of Our Major Cities. Comparisons of the employment situation of whites and nonwhites in the poverty and non-poverty sections of all metropolitan areas (combined) with a population of 250,000 or more inhabitants.

10. Occasional special reports on various topics such as the characteristics of non-white workers, detailed studies of hours worked and of duration of unemployment, job experience and disabilities of those not in the labor force, job mobility, job tenure, overtime hours and premium pay, and detailed findings on selected characteristics of women workers.

11. Special technical reports on seasonal adjustment, labor force projections, concepts, and similar topics.

THE SURVEY DESIGN

Concepts

Concepts of the labor force, employment, and unemployment similar to those now in use were introduced in the latter stages of the depression in the 1930's, chiefly in the interest of deriving more objective measurements of unemployment and employment than were previously available. These concepts have been modified but not substantially altered since the inception of the survey in 1940.

Prior to the 1930's, and aside from attempts in some of the decennial censuses, there were no direct measurements of the number of jobless persons. Because of the development of mass unemployment in the early thirties, the need for statistics became urgent, and widely conflicting estimates based on a variety of indirect techniques began to make their appearance.

³Earlier reports on these topics were issued by the Bureau of the Census in Current Population Reports, Series P-50.

As a result of dissatisfaction with these methods, many research groups, as well as State and municipal governments, began experimenting with direct surveys of the population or samples of the population. In these surveys, an attempt was made to classify the population as in or out of the labor force, or as employed or unemployed, by means of a varied series of questions addressed to each individual. In most of the surveys, the unemployed were defined as those who were not working but were "willing and able to work." This concept, however, did not meet the standards of objectivity that many technicians felt were necessary in order to measure not only the level of unemployment at one time but changes over periods of time. The criterion "willing and able to work," when applied in specific situations, appeared to be too intangible and too dependent upon the interpretation and attitude of the person being interviewed.

Out of this experimentation, a new set of concepts was developed in the late 1930's which sought to meet these criticisms. According to these concepts, the classification of an individual was to be dependent principally upon his actual activity within a designated time period, i.e., whether working or looking for work, or doing something else. These concepts were adapted for the national sample survey initiated by the Works Progress Administration in 1940. Although there have been improvements in measurement techniques, these concepts have been used in substantially unchanged form since that date, both in the Current Population Survey and in the decennial censuses.

In measuring activity and status, the time period selected for the monthly survey was a calendar week. Several considerations led to adopting a calendar week as the survey reference period. First, the period used must be short enough so that the data

obtained would be "current," and the time reference would not tax the memory of the person giving the information. Second, it must not be so short that the occurrence of holidays or other accidental events would cause extremely erratic fluctuations in the information obtained. A calendar week seemed to fulfill these conditions as well as being a convenient and easily defined period of time. Also, most employers pay on a weekly basis so that this is a natural unit of time for collecting data from establishments, which are frequently studied in conjunction with these data.

The official measures relate to persons 16 years old and over, although separate data are published for 14 and 15 year-olds. In the United States most children under 16 do relatively little work because of laws which restrict child labor, laws regarding compulsory school attendance, and general social custom.

The criteria used in classifying persons on the basis of their activity are described below:

Employed persons. Employed persons comprise (1) all civilians who, during the specified week, did any work at all as paid employees or in their own business or profession, or on their own farm, or who worked 15 hours or more as unpaid workers on a farm or in a business operated by a member of the family, and (2) all those who were not working but who had jobs or businesses from which they were temporarily absent because of illness, bad weather, vacation, or labor-management dispute, or because they were taking time off for personal reasons. Excluded from the employed group are persons whose only activity consisted of work around the house (such as own home housework, painting or repairing own home, etc.) or volunteer work for religious, charitable, and similar organizations.

Unemployed. Unemployed persons are those civilians who had no employment during the survey week, were available for work, and

1. Had engaged in any specific jobseeking activity within the past 4 weeks. Principal activities include: registering at a public or private employment office; meeting with prospective employers; checking with friends or relatives; placing or answering advertisements; writing letters of application; or being on a union or professional register,
2. Were waiting to be called back to a job from which they had been laid off, or
3. Were waiting to report to a new wage or salary job scheduled to start within the following 30 days.

Labor force. The civilian labor force consists of the total of all civilians classified as employed or unemployed in accordance with the criteria described above. These data are obtained from the monthly survey, which is confined to the civilian noninstitutional population. The published report also contains estimates of the total labor force, which includes members of the Armed Forces stationed either in the United States or abroad. Information on the size of the Armed Forces is obtained from the official records of the Department of Defense.

Not in labor force. All persons who are not classified as employed, unemployed, or in the Armed Forces are defined as "not in labor force." These persons are further classified as "engaged in own home housework," "in school," "unable to work" because of long-term physical or mental illness, and "other." The "other" group includes retired persons, individuals reported as too old or temporarily unable to

work, the voluntarily idle, seasonal workers for whom the survey week fell in an "off" season and who were not reported as looking for work, and persons who did not look for work because they believed that no jobs were available in the area, or that no jobs were available for which they could qualify. Persons doing only incidental unpaid family work (less than 15 hours in the specified week) are also classified as not in labor force. Inmates of institutions (such as penal institutions, homes for the aged, tuberculosis sanitoriums, etc.) are also sampled annually for purposes of special tabulations and comparisons with previous decennial census data. The inmate population, when covered, is classified as not in the labor force.

For persons not in the labor force, questions are asked about previous work experience, intentions to seek work, desire for a job at the time of interview, and reasons for not looking for work. The questions for persons not in the labor force are asked only in those households that are new entrants to the sample and in those that are reentering the sample after 8 months' absence.

The classification scheme. As discussed earlier, the basis of the labor force classification used in the Current Population Survey is the activity and status of an individual during a particular calendar week each month. Obviously, a person could have engaged in more than one activity during the period. Thus, in classifying persons, it is necessary to assign a priority to the various activities for which information was obtained. In this way, an individual is classified in only one group and unduplicated totals of the employed, the unemployed, and persons outside the labor force can be obtained.

In this classification system, the highest priority is assigned to the activity "work-

ing." Thus, if a person did any work--as defined in the concepts--during the survey week (that is, 1 hour or more for pay or profit, or 15 hours or more without pay in a family-operated enterprise), he is classified as "at work" and is included with the employed, even though he may also have looked for work, gone to school, or done something else.

Second priority is assigned to the remaining employed--those who during the survey week had a job or business from which they were temporarily absent. Although this required some modification of the "activity" concept, it was recognized that, if activity alone during a calendar week is considered, large numbers of persons who have definite job attachments but were temporarily absent from work in the survey week for reasons such as illness, vacation, or bad weather would be excluded from the labor force count. Because, in most cases, their absence would not exceed a week or two, it was believed that their exclusion from the labor force would result in an unrealistic count of the economically active population. Moreover, they most logically belong with the employed because they have jobs reserved for them in the economy. Therefore, a second category is set up within the labor force. This category consists of persons who were not working but who had jobs or businesses from which they were temporarily absent because of illness, vacation, bad weather, or some other such reason during the survey week. This group, "persons with jobs but not at work," is measured separately but is added to the "at work" group to derive estimates of the total number of employed persons.

The activity "looking for work" is given third priority in the classification scheme. If a person did not work at all or did not have a job during the survey week but had engaged in some specific jobseeking ac-

tivity within the past 4 weeks and was currently available for work, he is regarded as being in the market for a job and is classified as "unemployed." In defining this group, a slight departure was again made from the strict "activity" concept for some cases. Under certain circumstances, some persons, although unemployed in a realistic sense, might not be looking for work continuously. Thus the definition of unemployed persons was expanded to include those waiting to be recalled from layoff, as well as those waiting to start a new job within 30 days.

The classification of persons at work in the survey week as employed regardless of the number of hours they worked has been the subject of much discussion. It has been suggested that when hours of work fall below a certain level (less than 35 hours, for example) these persons are more properly classified as partially unemployed. Although the official definition continues to count all part-time workers as employed, very detailed information is provided in the published reports each month on hours worked by employed persons, so that the changes in the extent of full-time or part-time work and the characteristics of full-time and part-time workers can be readily observed. Furthermore, the questions asked each month of part-time workers show how many are working short hours because of economic factors and how many are doing so because they want, or are available for, only part-time employment.

The reference period. The use of a fairly short period of reference (1 week each month) imposes certain limitations on the interpretation of the data, particularly in trend analysis. Although the effects of factors such as adverse weather conditions, strikes, holidays, etc., are less marked in a 1-week period than they would be if the time reference were shorter, say 1 day, they

may nevertheless significantly influence the figures when they occur during the survey week. For example, unfavorable weather in some parts of the country may result in an apparent decline in farm employment in a given week as compared with the same period in the preceding year although no significant change in the underlying economic situation has actually taken place. A legal holiday during the survey week is not likely to affect employment levels appreciably, but reported hours of work will decline. Such factors must, consequently, be taken into account in any interpretation and evaluation of the published figures.

Sample Selection

The Current Population Survey sample is located in 449 sample areas comprising 863 counties and independent cities with coverage in every State and the District of Columbia. In all, some 60,000 housing units or other living quarters are designated for the sample each month; about 52,500 of them, containing about 105,000 persons 16 years and over, are occupied by households eligible for interview. The remainder are units found to be vacant, converted to non-residential use, containing persons with residence elsewhere, and others for which no interview is required. Of the occupied units eligible for enumeration, about 4 to 6 percent are not interviewed in a given month because the residents are not found at home after repeated calls, are temporarily absent, or are unavailable for other reasons.⁴

⁴The detailed description of the sample design and other technical phases of the program in U.S. Bureau of the Census, Technical Paper No. 7, "The Current Population Survey--A Report on Methodology," Washington, D.C., 1963, is still largely applicable to the present survey.

Selection of sample areas. The entire area of the United States consisting of 3,128 counties and independent cities was divided into 1,913 primary sampling units. With some minor exceptions, a primary sampling unit (PSU) consists of a county or a number of contiguous counties. Each of the 212 standard metropolitan statistical areas (SMSA's) constituted a separate PSU. Outside SMSA's, counties normally were combined, except where the geographic area of the single county was excessive. In combining counties to form PSU's each PSU was defined so as to be as heterogeneous as possible. Greater heterogeneity could be accomplished by including more counties. However, another important consideration was to have the PSU sufficiently compact in area so that a small sample spread throughout it could be efficiently canvassed without undue travel cost. A typical primary sampling unit, for example, included both urban and rural residents of both high and low economic levels and provided, to the extent feasible, diverse occupations and industries.

The PSU's were then grouped into 357 strata. Among these PSU's 107 of the largest standard metropolitan statistical areas (including all those with more than 250,000 inhabitants) and five other areas (not SMSA's) were strata by themselves. In general, however, a stratum consisted of a set of PSU's as much alike as possible in various characteristics such as geographic region, population density, rate of growth in the 1950-1960 decade, proportion nonwhite, principal industry, type of agriculture, and so on. Except for the 112 areas mentioned above, each of which is a complete stratum, the strata were established so that their sizes in terms of 1960 population were approximately equal. Where a PSU was a stratum by itself, it automatically fell in the sample. The other 245 strata were divided into two random halves, one half con-

taining 122 strata and the other half containing the remaining 123 strata. In each of the 122 strata, one PSU was selected in a random manner for inclusion in the sample, the selection having been made in such a way that the probability of selection of any one unit was proportionate to its 1960 population. For example, within a stratum the chance that a PSU with a population of 50,000 would be selected was twice that of a unit with a population of 25,000.

In each of the 123 strata, two PSU's were selected independently with replacement for inclusion in the sample, again in such a way that the probability of selection of each PSU was proportionate to its 1960 population. Since within each such stratum the two PSU's were selected with replacement, it sometimes happened that the same PSU was selected both times. This occurred in 31 cases; in the other 92 strata two separate PSU's were selected, giving a total of 184.

The resulting 449 areas are those in which the survey is being conducted. For the most part, these areas would remain in the sample until the results of the next decennial census are available.

Selection of sample households. The overall sampling ratio used at the present time (1967) in the 449-area design is 1 in 1,170. The sampling ratio is modified slightly over time, as the size of the sample is held relatively constant despite the overall growth of the population. The within-PSU sampling ratio is determined in such a way that the overall sampling rate for each household included in the survey is equal to 1 in 1,170.

Within each of the 449 PSU's, the number of households to be enumerated each month is determined by the application of the within-PSU sampling ratio rather than through the assignment of a fixed quota. This

procedure makes it possible for the sample to reflect any shifts in population. For example, if on the basis of the 1960 Census a sample ratio of 1 in every 150 is used in a sample area, the number of households found in the sample will be larger than that obtained by a fixed quota in areas where the number of households has increased since the census. In areas where the number of households has declined, the number of sample households selected will be smaller. In this way, the sample properly reflects the changing distribution of the population and avoids the distortion which would result from the application of fixed quotas of households, or persons, based on the population at an earlier date.

Within each designated PSU, several stages of sampling may be used in selecting the units to be enumerated. The first step is the selection of a sample of census enumeration districts (ED's), which are administrative units used in the 1960 Census and contain, on the average, about 250 households. These are selected systematically from a geographically arranged listing, so that the sample ED's are spread over the entire PSU. The probability of selection of any one ED is proportionate to its 1960 population.

The next step is to select a cluster of approximately six households to be enumerated within each designated ED. This is done, wherever possible, from the list of addresses for the ED compiled during the 1960 Census or, if the addresses are incomplete or inadequate, by area sampling methods. The address lists are used in about two-thirds of the cases, primarily in urban areas, whereas area sampling is applied in the remainder. Prior to the updating of the sample in 1961-1963, area sampling was used throughout. The change to list sampling, where feasible, was made because it permits a greater control over cluster size

and thereby results in somewhat reduced sampling errors; it is also a more economical procedure. In using the census lists, a systematic sample of clusters of 18 consecutive addresses is selected from the ED and every third address within the cluster is designated for the current sample. This provides a slightly more reliable sample than would be the case for a cluster of six consecutive units, and the remaining 12 units in the larger cluster are available for future samples.

The list sample is supplemented by a selection of the appropriate proportion of units newly constructed in the PSU since the census date, which is obtained mainly from records of building permits maintained by the offices responsible for issuing permits in that area. A special procedure of updating parts of the census lists is also followed to reflect units missed in the census or new construction in areas where there is no adequate system of building permits.

In those enumeration districts where area sampling methods are used--mainly rural areas--the ED's are subdivided into segments, that is, small land areas with well-defined boundaries having in general an expected "size" of about six housing units or other living quarters. Where roads, streams, and other terrain features that could be used to subdivide an enumeration district were insufficient, some of the resultant segments may be several times the desired average "size" of six households. For each subdivided enumeration district, one segment is designated for the sample, with the probability of selection proportionate to the estimated "size" of the segment. Where available advance information indicates that a selected segment contains about six households, all units within the segment boundaries are included in the sample. In cases where the advance information indicates a segment "size" of several

times six units, a field listing is made of all living quarters in the segment and a systematic sample drawn so as to achieve the equivalent of a segment which is canvassed completely.

Rotation of sample. Part of the sample is changed each month. A primary reason for rotating the sample is to avoid the problems of lack of cooperation which arise when a constant panel is interviewed indefinitely. Another reason for replacing households is to reduce the cumulative effect of biases in response which are sometimes observed when the same persons are interviewed indefinitely. To accomplish this rotation of the sample on a gradual basis, mapping and other materials for several samples are prepared simultaneously. For each sample, eight systematic subsamples (rotation groups) of segments are identified. A given rotation group is interviewed for a total of 8 months, divided into two equal periods. It is in the sample for 4 consecutive months one year, leaves the sample during the following 8 months, and then returns for the same 4 calendar months of the next year. In any one month, one-eighth of the sample segments are in their first month of enumeration, another eighth are in their second month, and so on, with the last eighth in for the eighth time (the fourth month of the second period of enumeration). Under this system, 75 percent of the sample segments are common from month to month and 50 percent from year to year. This procedure provides a substantial amount of month-to-month and year-to-year overlap in the panel (reducing discontinuities in the series of data) without burdening any specific group of households with an unduly long period of inquiry.

Measuring the accuracy of results. Modern sampling theory provides methods for measuring the range of errors due to sampling where, as in the case of the Current

Population Survey sample, the probability of selection of each member of the population is known. Methods are also available for measuring the effect of response variability in the Current Population Survey. A measure of sampling variability indicates the range of difference that may be expected because only a sample of the population is surveyed. A measure of response variability indicates the range of difference that may be expected as a result of compensating types of errors arising from practices of different interviewers and the replies of respondents; these would tend to cancel out in an enumeration of a large enough population. In practice, these two sources of error--sampling and response variability, as defined above--are estimated jointly from the results of the survey. The computations do not, however, incorporate the effect of response bias, that is, any systematic errors of response such as those that would occur if, by and large, respondents tended to overstate hours worked. Response biases occur in the same way in a complete census as in a sample, and, in fact, they may be smaller in a well-conducted sample survey because there it is feasible to pay the price necessary to collect the information more skillfully.

Estimates of sampling and response variability combined are provided in Employment and Earnings and Monthly Report on the Labor Force and in other reports based on the Current Population Survey, thus permitting the user to take this factor into account in interpreting the data. In general, smaller figures and small differences between figures are subject to relatively large variation and should be interpreted with caution.⁵

DATA COLLECTION AND PROCESSING

Field Procedures

The field organization of the Census Bureau consists of 12 Regional Offices,

⁵For a detailed description of the method of calculation of sampling errors, see Bureau of the Census, Technical Paper No. 7, op. cit., pp. 50-59.

each staffed by a regional director and a staff of program assistants. During CPS enumeration week each month and all or part of the preceding and following week, the majority of the supervisory staff members devote their time to preparations for control and supervision of this survey. During other periods, the staff collects statistics concerning business and various other subjects. They supervise, in total, a staff of about 1,350 part-time interviewers, of whom about 950 are Current Population Survey interviewers.

The interview. During the calendar week containing the 19th day of each month, these interviewers contact some responsible person in each of the sample households in the Current Population Survey. At the time of the first enumeration of a household, the interviewer visits the household and prepares a roster of the household members, including their personal characteristics (date of birth, sex, race, marital status, educational attainment, veteran status, etc.) and their relationship to the household head. This roster is brought up to date at each subsequent interview to take account of new or departed residents, changes in marital status, and similar items. The information on personal characteristics is thus available each month for identification purposes and for cross-classification with economic characteristics of sample population.

Personal visits are required in the first, second, and fifth month that the household is in the sample. In other months, the interview may be conducted by telephone if the respondent agrees to this procedure. Also, if no one is at home when the interviewer visits, the telephone may be used to obtain the information after the first month. Approximately 35 percent of the households are interviewed by telephone.

At each monthly visit, the interviewer asks a series of standard questions on economic activity during the preceding week (the calendar week containing the 12th day of the month, called the "survey week") for each household member of working age. The

primary purpose of these questions is to classify the sample population into three basic economic groups--the employed, the unemployed, and those not in the labor force.

Questions are asked in depth each month to help clarify the information on labor force status. For the employed, information is obtained on hours worked during the survey week, together with a description of the current job. If these persons worked less than 35 hours during the survey week, information is obtained on the reasons they were working part time, primarily to distinguish between those whose hours are restricted because of slack work conditions or other economic factors and those working part time by choice or for personal or noneconomic reasons. For those temporarily away from their jobs, the reason for not working during the survey week is obtained as well as information on whether they were paid for the time off, and whether they usually work 35 hours or more at their job.

For the unemployed, information is obtained on what they did during the last 4 weeks to find work, why they started looking for work, the length of time they have been looking for work, whether they are seeking full- or part-time work, when they last worked at a full-time job or business lasting 2 consecutive weeks or more, and a description of their last full-time civilian job.

For those outside the labor force, their principal activity during the survey week--whether keeping house, going to school, or doing something else--is recorded and information obtained on when they last worked, reasons for leaving their last job, a description of that job, whether they want to work at the present time and, if so, the reason they are not seeking work currently; and, finally, intentions to seek work in the next 12 months.

Quality Control Program

Classification errors in labor force surveys may be particularly large in the case of persons with marginal attachments to the labor force. These errors may be caused by

interviewers, respondents, or both, or may arise from faulty questionnaire design. The interviewers on the Current Population Survey are chiefly part-time workers, although most of the staff at any time consists of persons who have had repeated experience on the survey for some years. They are given intensive training when first recruited and also have either direct or home study training each month prior to the survey. Moreover, through editing of their completed questionnaires, repeated observation during enumeration, and a systematic reinterview of part of their assignments by the field supervisory staff, the work of the interviewers is kept under control and errors or deficiencies are brought directly to their attention.

In spite of these controls, interviewers may not always ask the questions in the prescribed fashion. To the extent that varying the wording of the questions results in differences in response, this factor may result in some errors or lack of uniformity in the statistics.

Similarly, the data are limited by the adequacy of the information possessed by the respondent and the willingness to report accurately. Usually a single respondent, generally the housewife, reports for the entire family. The respondent may not know all the facts about family members or may be unable to report adequately on their attitudes or intentions. For example, the housewife will probably know that her husband is working, but she may not always know exactly how many hours he worked or the precise nature of his job.

Because of the crucial role of the interviewers in securing accurate and complete returns, a great deal of time and resources are devoted to maintaining the quality of their work. The major aspects of this program are described briefly below:

1. Initial training. New interviewers recruited for the survey are given special intensive training the first 3 months they are on the job. The program includes approximately 10 hours of advance home study; 1-1/2

days of classroom lectures, discussions, and practice; at least 3 days of on-the-job training and observation; and, in subsequent months, special followup home-study and review materials.

2. Refresher training. Prior to each monthly enumeration, experienced interviewers are given 2 to 3 hours of home study, including review exercises and similar materials. Several times a year the interviewers are convened for day-long group training and review sessions.

3. Observation. At least once a year, each experienced interviewer is accompanied by a supervisor for about 1 day in the course of the actual survey, in order to determine how well he or she understands and applies the concepts and procedures. In addition to such corrective action and retraining as may be needed, a rating sheet is prepared in the course of observation which becomes part of the interviewer's record. Interviewers requiring additional attention are observed more frequently, at the option of the Regional Office.

4. Reinterview. On the average of twice a year, a subsample of the work of each interviewer is reinterviewed (through a second interview with the household) by a supervisor in order to determine whether the correct information was obtained. The interviewers do not know when their work will be checked or which units will be in the subsample, although they are aware of the general nature of the reinterview program. Where the information differs between the reinterview and the initial interview, the supervisor seeks to determine which answers were correct and (where the original information was incorrect) the reasons for the discrepancies. Errors attributable to the interviewers are brought to their attention and--where the discrepancies exceed certain prescribed limits--special training, observation, and further checking are provided. In addition to its value as a check on particular interviewers, this system pro-

vides some data on the quality of the survey in general.⁶

5. Inspection of returns. In addition to these other measures, the completed questionnaires are carefully inspected each month both in Regional Offices and in Washington. The results of this inspection, together with information from the observation and reinterview programs, serve as a basis for orienting training materials to the indicated needs of the interviewers. The results of these various checks may also lead to the replacement of interviewers who --in spite of special attention and training-- are unable to meet the prescribed standards of quality.

Data Processing

Coding techniques. The questionnaires used in the survey are of the so-called "FOSDIC"⁷ type, a process developed for and used in the 1960 Census. For most items, the interviewer fills in a small circle representing the correct answer. The questionnaires are microfilmed and the film is "read" by the FOSDIC machine, which translates the information directly to computer tape without requiring the preparation of punchcards. The procedure reduces subsequent office coding to a minimum since the position of each circle on the form represents a code signal. Of the standard monthly questions, coding is required only for occupation and industry, for which the interviewers enter a description.

⁶See Bureau of the Census, Technical Paper No. 6, "The Current Population Survey Reinterview Program--Some Notes and Discussion," March 1963.

⁷These are the initials of a reading device developed by the Bureau of Standards for the Bureau of the Census (Film Optical Sensing Device for Input to Computers).

Although there is a quality control program on coding and a close control on all other phases of processing and tabulation of the returns, some errors are almost inevitable in a substantial statistical operation of this type. It is likely, however, that the net error arising from processing is fairly negligible.

Estimation procedures. The questionnaire forms containing the information obtained for each person in the sample are received in the Washington office by the end of the week after enumeration. The raw data are transferred to computer tape and checked for completeness and consistency. Estimates could be prepared by tabulating the data for each person with a fixed weight (the reciprocal of the sample ratio--1,170 at present) after accounting for households that were not interviewed. However, to increase the reliability of the labor force statistics derived from the sample, two stages of ratio estimates and a "composite estimate" are used. The principal steps involved are as given below.

1. Adjustment for households not interviewed. The weights for all interviewed households are adjusted to the extent needed to account for units occupied by persons eligible for interview but for which no interview was obtained because of absence, impassable roads, refusals, or unavailability for other reasons. This adjustment is made separately by groups of PSU's and, within these, for each color (white, nonwhite) residence (urban, rural nonfarm, rural farm) group of households. This adjustment is made separately withing each rotation group. The proportion of sample households not interviewed for the above stated reasons is usually about 4 to 6 percent.⁸

⁸Although the survey is conducted on a strictly voluntary basis, refusals to cooperate have averaged only about 1 percent since its inception.

Although an adjustment is made in weights for interviewed households to account for noninterviews, they still represent a possible source of bias. Similarly, for a relatively few households, some of the information is omitted because of lack of knowledge on the part of the respondent or because the interviewer forgot to ask certain questions or record the answers. In processing the completed questionnaires, entries are usually supplied for omitted items on the basis of the distributions in these items for persons of similar characteristics.

2. Ratio estimates. The distribution of the population selected for the sample may differ somewhat, by chance, from that of the Nation as a whole in such basic characteristics as age, color, sex, and farm-nonfarm residence, among other things. These particular population characteristics are closely correlated with labor force participation and other principal measurements made from the sample. Therefore, some of the sample estimates can be improved substantially when, by appropriate weighting of the original returns, the sample population is brought as closely into agreement as possible with the known distribution of the entire population with respect to these characteristics. Such weighting is accomplished through two stages of ratio estimates as follows:

a. First stage. The first stage of ratio estimates takes into account differences at the time of the last census in the distribution by color and residence of the population estimated from the sample PSU's and that of the total population in each of the four major regions of the country. Independent distributions of the total population by residence, cross-classified by color, are not available on a current basis. Instead, using 1960 Census data, estimated population totals by color and residence for a given region were computed by appropriately weighting the census counts for PSU's in the CPS

sample. Ratios were then computed between these estimates (based on sample PSU's) and the actual population totals for the region as shown by the 1960 Census. Such a ratio estimate does not imply that the ratio existing in 1960 would be unchanged at a current date. In deriving these ratios, PSU's that comprised entire strata and were automatically selected for the sample (usually referred to as "self-representing" PSU's) were excluded from the computations, since they represent only themselves. In tabulations of the monthly results from the Current Population Survey, the weights for all sample households from non-self-representing PSU's in a given region are multiplied by the population ratio for that region for the appropriate color-residence group.

b. Second stage. The second stage of ratio estimates takes account of current differences between the population distributions of the sample and that of the Nation as a whole by age, color, and sex. Independent estimates of the entire population, by these characteristics, are prepared each month. They are calculated by carrying forward the most recent census data (1960) to take account of subsequent aging of the population, mortality, and migration between the United States and other countries.⁹ The CPS sample returns (taking into account the weights determined after the first stage of ratio estimates) are, in effect, used to determine only the percentage distribution within a given age-color-sex group by employment status and various other characteristics. In developing statistics in absolute numbers, these percentage distributions are multiplied by the independent population estimate for the appropriate age-color-sex group.

⁹See U.S. Bureau of the Census, Current Population Reports, Series P-25, No. 352, Nov. 18, 1966, for a description of the methods used in preparing these independent population estimates.

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

3. Composite estimate. The last stage in the preparation of estimates makes use of a composite estimate. In this procedure, a weighted average is obtained of two estimates for the current month for any particular item. The first estimate is the result of the two stages of ratio estimates noted above. The second estimate consists of the composite estimate for the preceding month to which has been added an estimate of the change in each item from the preceding month to the present month based upon that part of the sample which is common to the 2 months (75 percent). While the weights for the two components of such a composite estimate do not necessarily have to be equal, in this instance the weights used for combining these two estimates are each one-half. Equal weights in this case satisfy the condition that for virtually all items there will be some gain in reliability over the estimation procedure after the first two stages of ratio estimates.

This composite estimate results in a reduction in the sampling error for most important statistics from the survey beyond that achieved after the two stages of ratio estimates described above; for some items the reduction is substantial. The resultant gains in reliability are greatest in estimates of month-to-month change, although gains are also obtained for estimates of level in

a given month, change from year to year, or change over other intervals of time.

Chronology of Major Changes Made in the Current Population Survey

The major changes made in the Current Population Survey since 1942 are described briefly below:

1. Sample revision, 1943. In late 1943, the sample as taken over from the Works Progress Administration (WPA) was modified to make it more representative of the Nation as a whole and was converted entirely to a probability basis. The revised sample was spread over 68 sample areas comprising 125 counties and independent cities. By mid-decade the sample consisted of about 25,000 total units each month.

2. Revision of CPS schedule, July 1945. In July 1945, the questionnaire was revised to introduce four basic employment status questions. Before that time, the schedule did not contain specific question wording. Special studies showed that this and other defects resulted in the exclusion from the labor force statistics of large numbers of part-time and intermittent workers, particularly unpaid family workers. The question wording of these four items has been modified slightly on one or two occasions since 1945, but their basic content has been unchanged.

3. Revision in sample selection method, August 1947. In August 1947, the method of selecting sample units within a sample area was changed so that each selected unit would have the same basic weight in the tabulations. This change simplified tabulation procedures and estimation methods.

4. Introduction of special dwelling places, July 1949. In July 1949, the sample coverage was extended to special dwelling places--hotels, motels, trailer camps, etc. This led to improvements in the statistics since residents of these places have somewhat different characteristics from the remainder of the population.

5. Introduction of document sensing, February 1952. In February 1952, the CPS schedule was converted to a document-sensing card. In this procedure (replaced more recently by the FOSDIC system), entries were made by drawing a line through the oval representing the correct answer, using a special pencil with electrographic lead. Punchcards were automatically prepared from the schedules via a special document-sensing machine.

6. Shift to 1950 Population Census data for ratio estimates, January 1953. Starting in January 1953, population data from the 1950 Census were introduced into the computation of the ratio estimates used in the Current Population Survey estimation procedure. (See page 13 for description of these ratio estimates.) Prior to that date, the ratio estimates had been based on 1940 Census relationships for the first stage ratio estimate, and 1940 Population Census data brought forward to take account of births, deaths, etc., for the second stage ratio estimate. In September 1953, "color" was substituted for "veteran status" in the second stage ratio estimate, making it feasible to publish some separate absolute numbers for white and nonwhite persons, whereas only percent distributions had previously been provided.

7. Change to 4-8-4 rotation system, July 1953. In July 1953, the present sample rotation system was adopted, whereby households are interviewed for 4 consecutive months one year, leave the sample for 8 months, and return for the same period of 4 months of the following year. Prior to that time, households were interviewed for 6 consecutive months and then replaced. The new system provided some year-to-year overlap in the sample, thus improving the measurement of the statistics over time. (See page 9 for further details.)

8. Conversion of tabulations to high-speed electronic equipment, September 1953. In September 1953, the CPS tabulations were first transferred to high-speed elec-

tronic computers. This change speeded up the tabulations considerably and made possible improvements in estimation methods and a substantial expansion in the scope and content of the tabulations for basic data and computation of sampling variability. (A shift to more modern computers was made in 1959 and this process will continue as equipment is updated and replaced.)

9. Changeover to 230-area sample, February 1954. In February 1954, the CPS sample was expanded from 68 to 230 sample areas, although retaining the overall sample size of 25,000 total units. The 230 areas comprised 453 counties and independent cities. At the same time, a substantially improved estimation procedure (composite estimate) was introduced which took advantage of the large overlap in the sample from month to month. These two changes improved the reliability of most of the major statistics by an amount equivalent to that of doubling the sample size.

10. Addition of monthly questions on part-time workers, May 1955. In May 1955, monthly questions on the reasons for part-time work were added to the standard set of employment status items. This information had been collected quarterly or less frequently in the past and was found to be highly valuable in studying current labor market trends.

11. Changes in survey week, July 1955. In July 1955, the CPS survey week was changed to the calendar week containing the 12th day of the month for greater consistency with the time reference of other statistics in the employment field. Previously, the survey week had been the calendar week containing the eighth day of the month.

12. Expansion to 330-area sample, May 1956. In May 1956, the CPS was expanded from a 230-area to a 330-area sample. The overall sample size was increased by roughly two-thirds to a total of about 40,000 units (35,000 occupied units). The expanded

sample was located in 638 counties and independent cities with at least some households in every State. All of the former 230 areas were continued in the expanded sample. The expansion increased the reliability of the major statistics by around 20 percent and made possible publication of greater detail.

13. Change in employment status definition, January 1957. Starting in 1957, two relatively small groups of persons formerly classified as employed, under "with a job but not at work," were assigned to different classifications, as a result of a comprehensive interagency review of the Government's employment and unemployment data. These groups were persons on layoff with definite instructions to return to work within 30 days of the layoff date and persons waiting to start new wage and salary jobs within 30 days of interview. Most of the persons in these two groups were shifted to the unemployed classification. The only exception was the small subgroup in school during the survey week and waiting to start new jobs which was transferred to "not in labor force." The changes in definition did not affect the basic questions or enumeration procedures; the new classifications for the groups affected are determined by coding in Washington.

14. Seasonal adjustment, June 1957. Limited seasonally adjusted data on unemployment were introduced in "The Monthly Report on the Labor Force" early in 1955. Some extension of the data--using more refined seasonal adjustment methods programmed on electronic computers--was instituted in June 1957, including a seasonally adjusted rate of unemployment and charting of seasonally adjusted total employment and unemployment. Significant improvements in methodology grew out of research conducted at the BLS and Census Bureau in the ensuing years. The BLS began to publish seasonally adjusted data in much greater detail in the February 1963 issue of the Monthly Report on the Labor Force. At

the present time, extensive use is made of seasonally adjusted data in the textual analyses and charts of this monthly report, now known as Employment and Earnings and Monthly Report on the Labor Force, and in special analyses in other BLS publications. A short description of the present method of seasonal adjustment for labor force data was published in the February 1967 issue of Employment and Earnings and Monthly Report on the Labor Force. A technical description of the method, The BLS Seasonal Factor Method (1966), may be obtained (free, while the supply lasts) from the Division of Statistical Standards, Bureau of Labor Statistics, Washington, D.C. 20212.

15. Transfer of functions, July 1959. In July 1959, responsibility for analysis and publication of the labor force statistics from the Current Population Survey was transferred to the Bureau of Labor Statistics as part of a major exchange of statistical functions between the Commerce and Labor Departments. The Bureau of the Census continues to collect and tabulate these statistics as an agent of the Bureau of Labor Statistics.

16. Addition of Alaska and Hawaii to the population estimates and the CPS sample, January 1960. Upon achieving statehood, Alaska and Hawaii were introduced into the independent estimates of the population, and into the sample survey, thereby increasing the number of areas in the sample from 330 to 333. The addition of these two States affected the comparability of population and labor force data with previous years. This inclusion resulted in an increase of about half a million in the non-institutional population of working age and about 300,000 in the labor force, four-fifths of this in nonagricultural employment. The levels of other labor force categories were not appreciably changed.

17. Conversion to FOSDIC system, October 1961. In October 1961, the CPS questionnaire was converted to the FOSDIC type

used in the 1960 Census, whereby entries are made by filling small circles with an ordinary lead pencil. Microfilms of these questionnaires are scanned by a special mechanical reading device which transfers the information directly to computer tape. This system permits a larger-sized form and a more flexible arrangement of items than the previous document-sensing procedure and does not require the preparation of punchcards.

18. Updating of sample and population data used in ratio estimates, December 1961 - March 1963. During this period, the CPS sample was revised gradually to reflect the changes in population size and distribution revealed by the 1960 Census. The overall sample size was unchanged (40,000 total units and 35,000 households eligible for interview), but the number of sample areas was increased slightly to 357 PSU's to provide for greater coverage in fast-growing sections. Also, in a major part of the sample, selection of units from census lists was introduced to replace area sampling (see page 8 for an explanation). These changes resulted in a further gain in reliability, of about 5 percent, for most statistics. The use of updated population information from the census was introduced in April 1962 into the first and second stage ratio estimates used in the CPS (see pages 13 and 14).

19. New descriptive information, January 1963. In January 1963, in response to recommendations of a special review committee,¹⁰ two new items were added to the monthly questionnaire. The first was an item, formerly carried only intermittently, on

¹⁰For these and other recommendations and a thorough review and appraisal of the household survey system, see Measuring Employment and Unemployment, Report of the President's Committee to Appraise Employment and Unemployment Statistics, U.S. Government Printing Office, Washington, D. C., September 1962.

whether the unemployed were seeking full- or part-time work. The second was an expanded item on family relationship, formerly included only annually, to provide more detail on the level of family responsibility of unemployed persons.

20. Expansion to 449-area sample, January 1967. In January 1967, the CPS was expanded from a 357-area to a 449-area sample. The overall sample size was increased by roughly 50 percent to a total of about 60,000 housing units (52,500 occupied units). The expanded sample has households in 863 counties and independent cities with at least some coverage in every State. This expansion increased the reliability of the major statistics by about 20 percent and makes possible the publication of greater detail.

21. Change in the concepts of employment and unemployment, January 1967. In line with the basic recommendations of the President's Committee to Appraise Employment and Unemployment Statistics (the Gordon Committee), an experimental program was conducted for several years to develop and test proposed changes in the concepts. The principal improvements resulting from this research, which were put into effect in the household survey in January 1967, are as follows:

a. A specific jobseeking activity within the past 4 weeks must be reported in order to have a person counted as unemployed. Previously, the household interview questionnaire was ambiguous as to the time period for jobseeking, and there was no specific question concerning methods of seeking work.

b. A person must be currently available for work in order to be counted as unemployed. This revision in concept primarily affects the classification of students, who, for example, begin to look for work in the spring when they may not be available until June. They were previously counted as un-

employed but are now classified as not in the labor force.

c. Persons with a job are classified as employed, even though they were absent from their jobs in the survey week and were looking for other jobs. Previously, persons absent from their jobs because of strikes, bad weather, etc., who were looking for other jobs were classified as unemployed.

d. The new definition of unemployment excludes those who would have been looking for work except for the belief that no work was available (theoretically counted in the past, but without explicit questions).

Historical data have not been revised to take account of these changes because the differences between the old and the new series are relatively small. For most analytical purposes, the data may be regarded as reasonably comparable. Tables comparing the published figures for 1966 on an annual average basis with the estimates derived from the new definitions and procedures appeared in the February 1967 Employment and Earnings and Monthly Report on the Labor Force. Reprints are available from BLS on request.

22. Change in the age coverage of the labor force, January 1967. The lower age limit on employment, unemployment, and other labor force concepts was raised to 16 years of age from 14 years. This change reflects the fact that youngsters 14 and 15 years of age are barred from most occupations under the Child Labor Laws. Further, unemployment in this age group has little economic or social significance. Historical series have been revised monthly through January 1957 to provide consistent information based on the population 16 years of age and over.

23. Addition of selected monthly questions, January 1967. Beginning in January 1967, the questionnaire was revised to include new "probing" questions in order to increase the reliability of information on

hours of work, duration of unemployment, and the self employed. Research indicated that significant improvements in reporting were obtained by the addition of these questions and, therefore, they have been incorporated as regular monthly items.

Additional substantive questions on the potential availability for work of persons not in the labor force were also introduced monthly, beginning in January 1967.

About half of the major changes listed above relate to improved methods of sample selection, estimation, or processing of the data. Only two of these involved an expansion in the number of households in the sample--the May 1956 expansion to the 330-area sample, and the January 1967 expansion to the 440-area sample. However, many of the other changes increased the precision of the survey results and thus had the same effect as enlarging the sample, at a much smaller cost. If the same sampling and estimation methods were used in 1967 as in 1943 when the probability sampling methods were first introduced in the CPS, a sample from 1-1/2 to 3 times the current size would be necessary to produce estimates with the present level of reliability. The increase in efficiency varies somewhat from item to item. Among major labor force categories, the gain has been greatest for estimates of agricultural employment, for which the current reliability is equivalent to that of a sample 2-1/2 times as large, using the methods employed in 1943. For nonagricultural employment and unemployment, the gains are equivalent to an 80 and 70 percent increase in sample size, respectively.

Comparability with Related Data

Household and establishment employment statistics. Employment data from the Current Population Survey (CPS) are obtained by household interview and differ in some basic respects from related series

based on reports from business establishments and farms. First, the household approach provides information on the work status of the entire population 16 years of age and over, without duplication, since each person is classified as employed, unemployed, or not in the labor force. Payroll data from nonagricultural establishments count all employees regardless of their age and, consequently, may include some persons under 16 years of age. Excluded from this source, however, are such groups as proprietors, self-employed persons, unpaid family workers, and domestic servants, who would not appear as payroll employees. Persons who worked at more than one job during the survey week and appear on more than one payroll are counted more than once in the establishment series. Such persons are counted only once in the CPS and are classified in the job at which they worked the greatest number of hours.

Second, only part of the "with a job but not at work" group, included in the CPS employment total, is counted in establishment reports. Persons on paid vacation or sick leave are included in both series. But workers absent without pay, such as those on strike or on unpaid vacation or unpaid sick leave are not on payrolls and would therefore not be counted in establishment statistics.

Finally, the CPS and the current establishment statistics series are each subject to sampling variability and response errors which may result in differences in both trends and levels.

Household unemployment series and unemployment insurance data. For a number of reasons, the unemployment estimates from the Current Population Survey are not directly comparable with figure on unemployment insurance claims although the two series usually show similar general trends.

The CPS series includes all persons who did not have a job during the survey week and were looking for work or were waiting to be called back to a job from which they had been laid off, regardless of whether or not they were eligible for unemployment insurance. Figures on unemployment insurance claims exclude persons who have exhausted their benefit rights, new workers who have not earned rights to unemployment insurance, persons who were employed for less than a minimum amount of time in some States, and persons losing jobs not covered by unemployment insurance systems (agri-

culture, State and local government, domestic service, self employment, unpaid family work, nonprofit organizations, and firms below a minimum size).

In addition, the qualifications for drawing unemployment compensation differ from the definition of unemployment used in the household survey. For example, persons with a job but not at work, and persons working only a few hours during the week, are sometimes eligible for unemployment compensation but are classified as employed rather than unemployed in the household survey.