Data Watch
The Redesigned Current Population Survey

Anne E. Polivka

This section will offer a description of a particular data source that may be of interest to economists. The purpose is to describe what data are available from that source or in that subject area, what questions can be addressed because of the unique features of the data and how an interested researcher can gain access to the data. Suggestions for data sources that might be discussed here (or comments on past columns) should be sent to Greg J. Duncan, Center for Urban Affairs and Policy Research, Northwestern University, 2040 Sheridan Road, Evanston, Illinois 60208. His e-mail address is greg-duncan@nwu.edu.

Introduction

Some of the most important economic series published by the federal government, including the unemployment rate and earnings statistics, are derived from the monthly Current Population Survey (CPS), a national survey of approximately 50,000 households. Although minor revisions to the survey have been made from time to time since its inception in the 1940s, the basic content of the survey had remained virtually unchanged since 1967. However, the labor force has changed considerably over the last three decades, and techniques of survey design and data collection have advanced. To reflect these changes, a redesigned CPS was introduced in January 1994. This article reviews the motivation for the redesign,

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compares several key CPS estimates before and after the implementation of the new survey, and explains some of the new data collected in the redesigned CPS.

Motivation for the Redesign

The redesigned CPS was the result of a massive eight-year collaborative effort between the Bureau of Labor Statistics (BLS) and the Bureau of the Census. The impetus for the redesign came from several directions: changes in work patterns, changes in how questions were being interpreted, a desire to address problems that had become apparent in the survey over time, the ability to use laptop computers during interviews and a desire to make the data easier to use longitudinally.

The labor market has changed in some dramatic ways during the last few decades. For example, service sector employment has grown rapidly; the attachment of employees to their employers has evolved in various ways, including more part-time work; and the role of women in the labor force, particularly mothers, has become more important. Yet in the earlier CPS, interviewers were instructed to tailor the first labor force question based on the gender of the respondent. Specifically, if the respondent “appears to be a homemaker,” the manual instructed interviewers to ask, “What were you doing most of LAST WEEK—keeping house or something else?” Also the question asking why individuals were temporarily absent from a job did not include as response categories “child care problems” or “maternity/paternity leave.” With the tremendous increase of working mothers over the last quarter century, the tailoring of the first question and the lack of these response categories raised the probability of answers being inaccurately classified and reduced the usefulness of the data (Fracasso, 1989; Martin and Polivka, 1995).

To illustrate how the meaning of certain terms has changed over time, consider the question used to determine whether people were temporarily absent from a job. Prior to the revision, individuals who were not working were asked, “Did you have a job or business from which you were temporarily absent or on layoff LAST WEEK?” When this question was introduced to the CPS in 1967, the term “layoff” was commonly defined as a temporary spell of unemployment from which an individual expected to be recalled as soon as business conditions improved or retooling was completed. By the late 1980s and early 1990s, however, the majority of individuals used the term “layoff” to refer to permanent separations from which they did not expect to be recalled. This misunderstanding could lead to an incorrect labor force status (Rothgeb, 1982; Palmisano, 1989).

The unrevised CPS also could place needless burdens on respondents. For instance, individuals who indicated at the beginning of the survey that they were retired still were forced to answer the “temporarily absent” question along with as many as 13 other questions about such topics as their desire for work and current or planned job search activities. In addition, retired individuals were asked the majority of these questions every month even if they volunteered that they were still retired.
The effort to redesign the CPS was begun in 1986. From 1988 through 1991, a series of research projects and tests were conducted to guide the development of the revised CPS. As a result of this research, nearly every series of questions (except for those on union membership) was reworded. The questionnaire also was automated to allow computer-assisted interviewing, which helps to improve data quality by automatically directing interviewers to the correct questions, reducing the burden on respondents, incorporating internal consistency checks within the interview and permitting more complicated instructions to be built into the instrument. With the automation of the questionnaire, the majority of the data collection also was switched from paper and pencil forms to laptop computers.

Effects of the Redesign on Continuing CPS Estimates

Although the redesign undoubtedly improved the quality of the data, it also made the comparison of CPS estimates from before and after the revision potentially more difficult. To assess the effect of the redesign, the new procedures were tested in a field survey that ran parallel to the CPS from July 1992 through December 1993, prior to the implementation of the new procedures. Then, as an additional tool to assess the effect of the redesign, households in the sample used for the first part of the parallel survey were interviewed with the unrevised procedures from January 1994 through May 1994.

The first part of the parallel survey was conducted to estimate the effect of the redesign on a variety of statistics. However, the primary purpose of the second part of the parallel survey was to obtain an estimate of what the unemployment rate would have been under the old procedures. Based on comparisons between the first part of the parallel survey and the official CPS, it was estimated that the redesign would increase the overall unemployment rate 0.5 percentage point and the increase would be larger for women than for men (Cohany, Polivka and Rothgeb, 1994). But Figure 1, which plots the monthly unemployment rates estimated from the parallel survey and the CPS, shows what actually happened. To everyone’s

1 Copeland and Rothgeb (1990) summarize preliminary research identifying problems in the CPS. Polivka and Rothgeb (1993) present the motivation for specific questionnaire changes based on large-scale field tests.
2 Prior to the redesign, approximately 9 percent of interviews were conducted from centralized phone facilities with a computerized version of the paper and pencil survey. Since the redesign, approximately 15 percent of all interviews are conducted from centralized phone facilities. All other interviews are conducted using laptop computers. Approximately 25 percent of these interviews are done through personal visits, while the remainder are done from interviewers’ homes over the phone.
3 To obtain estimates for the entire nation, CPS data are adjusted to estimates of the population. At the same time the redesign survey was introduced, the population adjustments were switched from being based on the 1980 decennial census to the 1990 census. It was estimated that this switch increased the unemployment rate by 0.1 percentage point. Published estimates for 1990 to 1993 were reissued using 1990 census-based population controls. However, published CPS estimates will not be revised to account for the survey redesign.
Figure 1

Total National Unemployment Rates
(not seasonally adjusted)

The failure of the two plots to cross suggests that unanticipated differences between the parallel survey and the official CPS may have affected the results. Possibilities include differences in the samples, variation in the motivation and supervision of interviewers, or the knowledge on the part of respondents and interviewers that they were part of an experiment (Polivka and Miller, 1995; Tucker, 1994). The CPS is designed so that the estimated monthly unemployment rate would have a standard error of no more than 0.13 percentage points. The requirement for highly precise measurements increases both the necessity and the difficulty of reliably measuring the potential effect of revisions. Even small differences in samples, interviewer techniques or respondent behavior could lead to incorrect inferences about the effect of planned changes.

Using data from both parts of the parallel survey and the CPS and imposing some identifying assumptions, Polivka and Miller (1995) obtained a number of adjustment factors to make CPS statistics generated prior to 1994 comparable with those produced from January 1994 on. In addition, these adjustment factors can be used to quantify the percentage change in CPS statistics caused by the redesign.

For example, the CPS sample is designed to be representative at both the national and state levels. The parallel survey was only designed to be nationally representative.

Polivka and Miller (1995) estimated main-effects-linear models using generalized least squares. They provide 147 adjustment factors for various labor force statistics for the entire population and for specific demographic groups. The main identifying assumption is that the unrevised and, similarly, the revised methodologies were implemented the same way in the CPS and the parallel survey. This assumption allows a new methodology effect and a parallel survey effect to be estimated. A simplified explanation illustrates the logic behind the models. Given the assumptions, the difference between estimates from the parallel survey and the CPS prior to January 1994 equals the new method effect plus the parallel survey effect. The difference between estimates from the CPS and the parallel survey from January to May 1994 equals the new method effect minus the parallel survey effect. Therefore, an unbiased estimate...
The adjustment factors revealed that the redesign of the CPS did not have a statistically significant effect on the total unemployment rate. In fact, the redesign did not significantly alter the unemployment rate for any demographic group, except older workers. For workers 55 to 64 years old, it was estimated that the redesign raised the unemployment rate by 12 percent from 4.70 to 5.27 percent, while for workers 65 and older, the redesign raised the unemployment rate by 52 percent (Polivka and Miller, 1995).

While the redesign did not affect the unemployment rates for most groups, it did significantly alter many other statistics associated with unemployment. The adjustment factors revealed that the redesign decreased the estimated proportion of unemployed who had been without work for less than 5 weeks by 17 percent and decreased the proportion of unemployed classified as new entrants into the labor market by 38 percent. The redesign also increased women's employment-to-population ratio by 1.6 percent, increased the proportion of employed who were working part-time by almost 10 percent and decreased by 50 percent the proportion of those not in the labor force who were classified as discouraged workers—individuals who had given up looking for work because they believed no jobs were available or there were none for which they would qualify. Possible reasons for these changes are discussed in Polivka and Miller (1995).

One of the series that underwent the most significant changes in the redesign with respect to both question wording and data processing was the earnings series. Every month, earnings data are collected in the CPS from a quarter of the households in the sample. Prior to the redesign, all respondents were asked to report their earnings on a weekly basis, despite the fact that, according to an early test, only 24.3 percent of nonhourly workers found it easiest to report their earnings as a weekly amount (Polivka and Rothgeb, 1993). The wording of the unrevised earnings questions also was burdensome and complex, because the instructions to include any overtime pay, tips or commissions and to report gross earnings (before deductions) were all embedded in a single question. Hourly workers also were asked to report their earnings both hourly and weekly. Forcing respondents to report on a weekly basis, combined with the cumbersome question wording, resulted in errors on the part of both respondents and interviewers (Mellow and Sider, 1983).
Moreover, the structure of the paper form forced interviewers to record any reported earnings greater than $2,000 a week as $1,999.

In the redesigned series, respondents are first asked what periodicity (hourly, weekly, monthly or annually) they would prefer to use when reporting their earnings. Once a periodicity is identified, the wording of subsequent questions is adjusted appropriately. Individuals also are asked a specific question to determine if they receive overtime pay, tips or commissions. If individuals indicate that they do receive these “extra” earnings, a lead-in is included in the earnings amount question reminding respondents to include them. The accuracy of earnings data also should be improved through a series of range checks and verification procedures that were programmed directly into the survey instrument (Polivka and Rothgeb, 1993; Dippo et al., 1995). Finally, in the redesigned instrument, interviewers are permitted to record earnings amounts without a top code of $1,999 a week.

Using data from both parts of the parallel survey and the CPS and imposing the same identifying assumptions as in Polivka and Miller (1995), it is possible to quantify the effect of the redesign on the earnings data. When no top code was imposed on the redesign data, the estimated mean of usual weekly earnings increased for all wage and salary workers by 3.7 percent, for all full-time wage and salary workers by 4.2 percent, and for male full-time wage and salary workers by 5.6 percent. However, for female full-time wage and salary workers the increase was only 0.9 percent. These estimates are significantly different from zero at a 95 percent confidence level, except for the estimate for women. Estimates generated with a top code imposed on the redesign data indicate that the vast majority of the differences in mean earnings between surveys was due to the elimination of the top coding of $1999 in the redesigned CPS. With a top code of $1999 imposed on the data from the redesigned survey, the mean earnings of all wage and salary workers, full-time wage and salary workers, and men working full-time were estimated not to be significantly different between the surveys. Women’s earnings, however, were estimated to be 1.5 percent lower in the revised CPS than in the unrevised CPS when top coding was imposed. This difference was marginally significant. These findings suggest that the redesign could increase the gap between men’s and women’s earnings, even when top-coded or median data are used.

The perils of not accounting for the redesign when analyzing data can be illustrated by examining plots of the average annual proportion of working women who were self-employed (and unincorporated). In Figure 2 the solid line is the proportion of working women who were self-employed as measured by the CPS—that is, the unrevised CPS prior to 1994 and the revised CPS for 1994 forward. The dotted line in Figure 2 represents earlier data adjusted for the effects of the redesign. If no account were taken of the redesign of the CPS, analysts would incorrectly conclude that the incidence of self-employment among working women increased dramatically between 1993 and 1994. In fact, taking the revisions into account, the

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7 The methodology used here is a main-effects-linear model estimated by weighted least squares.
Figure 2
Self-Employed Women as a Percent of Employed Women,
Published vs. Adjusted Data

![Graph showing self-employed women as a percent of employed women.]

Proportion of working women who were self-employed actually declined slightly between 1993 and 1994 and continued to fall in 1995.

New Data Available Monthly from the Current Population Survey

The redesigned CPS collects some information that previously had not been available, at least not on a monthly basis. One such piece of new information is whether an individual had more than one job in the reference week. Individuals who indicate that they have more than one job are then asked about the number of jobs they have and about the industry and occupation of their second jobs.\(^8\) Prior to the redesign, information on multiple job holders was only collected in periodic supplements.

This regular information on multiple job-holding permits more frequent analysis of the demographic composition and employment dynamics of multiple job holders. For instance, data collected in 1970 and 1991 show that the multiple job-holding rate for women almost tripled, while the rate for men declined slightly. Monthly information on the number of multiple job holders also might serve as an additional macroeconomic indicator of the health of the economy. For example,

\(^8\) To be precise, multiple job holders are only asked about industry and occupation for their second job in their fourth and eighth interviews (see pattern described in note 4). Even though industry and occupation information are collected for individuals' primary jobs every month, to reduce respondent burden a decision was made not to collect industry and occupation information about second jobs every month or for third and fourth jobs in any month. Given that over 90 percent of multiple job holders only have two jobs, relatively little information is lost by collecting industry and occupation information only for second jobs.
the multiple job-holding rate may rise within certain industries or geographic areas prior to an overall expansion of employment.

Another new piece of information collected monthly in the redesigned CPS is the number of hours individuals usually and actually work on their jobs. For individuals who have more than one job, information on how many hours they work on their main job (the job where they work the most hours) is collected separately from the number of hours they work on all their secondary jobs combined. Prior to the redesign, usual hours were collected only from individuals who actually worked less than 35 hours in the reference week and from some wage and salary workers as part of the earnings questions. Information on the number of hours multiple job holders worked on their primary jobs as opposed to their secondary jobs had never been collected on a regular basis.

The monthly collection of usual hours information permits an examination of how individuals are altering their work schedules and an exploration of the dynamics between full-time work, part-time work and being out of the labor force. Information on usual hours in conjunction with the number of hours that multiple job holders work on their primary and secondary jobs permits an analysis of how individuals are combining jobs to obtain their desired hours and allows a more complete enumeration of the holders of part-time jobs. In 1994, for example, it was estimated that 860,000 workers obtained their full-time status (that is, working at least 35 hours per week) by combining two or more part-time jobs. While this number seems relatively small, it is equivalent to 3.7 percent of the number of part-time workers in 1994.

**Supplements and the Redesigned CPS**

Periodically, supplementary questions are appended to the monthly CPS questions to collect information on a variety of economic and social issues. While the majority of supplements are sponsored by BLS or the Census Bureau, other governmental agencies and occasionally private organizations also sponsor supplements. Table 1 lists the supplements conducted or scheduled to be conducted in 1995 and 1996, along with the month in which they were conducted and their frequency over time.

Besides improving the quality of the monthly data, the redesign, especially the computerization of data collection, made it easier to administer supplements to the CPS. A computerized instrument makes it far easier to target specific portions of the population to receive all or part of a supplement and to alter the wording or types of questions individuals receive based on previously provided information. Automation also makes it possible to embed complicated split panel tests—where some respondents are asked one set of questions and some another—within a single supplement. Two new supplements first conducted in 1995 illustrate these advantages.

The Contingent Worker/Alternative Work Arrangement supplement was conducted to estimate the number of contingent workers and also the number of
Table 1
CPS Supplements in 1995 and 1996

<table>
<thead>
<tr>
<th>Supplement Title</th>
<th>Coverage Includes</th>
<th>Month Conducted</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contingent Worker/Alternative Work</td>
<td>Characteristics of workers in contingent/alternative arrangements</td>
<td>Feb. 1995</td>
<td>First time, may be repeated</td>
</tr>
<tr>
<td>Arrangements</td>
<td></td>
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</tr>
<tr>
<td>Annual Demographic</td>
<td>Earnings, non-wage income, non-cash benefits, assets, work experience, health insurance</td>
<td>March 1995, March 1996</td>
<td>Annually since 1947</td>
</tr>
<tr>
<td>Food sufficiency</td>
<td>Food expenditures, participation in government food programs, hunger</td>
<td>April 1995, Sept. 1996</td>
<td>First time April 1995, plan to conduct annually</td>
</tr>
<tr>
<td>Race and Ethnicity</td>
<td>Responses to alternative race and ethnicity questions</td>
<td>May 1995</td>
<td>One time supplement</td>
</tr>
<tr>
<td>Marital History and Fertility</td>
<td>Marital history, number and timing of children, children’s living arrangements</td>
<td>June 1995</td>
<td>Marital history every 5 years since 1975</td>
</tr>
<tr>
<td>Educational Attainment</td>
<td>Tests of alternative methods of measuring educational attainment</td>
<td>July 1995</td>
<td>One time supplement</td>
</tr>
<tr>
<td></td>
<td>Service-connected disabilities, compensation and effect on labor force status</td>
<td>August 1995</td>
<td>Every two years since 1985</td>
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<tr>
<td>Veterans</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Enrollment</td>
<td>Enrollment in formal schools of all levels and types, with different supplemental questions each year</td>
<td>Oct. 1995, Oct. 1996</td>
<td>Annually since 1974</td>
</tr>
<tr>
<td>Telephone Availability</td>
<td>Telephone ownership by various household characteristics</td>
<td>March, Jul., &amp; Nov. 1995; March, Jul., &amp; Nov. 1996</td>
<td>First conducted Nov. 1983, Every March, Jul., and Nov. since 1984</td>
</tr>
<tr>
<td>Housing Vacancy</td>
<td>Characteristics of vacant housing by geographic area</td>
<td>Every month in 1995 and 1996</td>
<td>Conducted monthly since 1955</td>
</tr>
<tr>
<td>Displaced Workers/Job Tenure</td>
<td>Job displacement, job tenure, and employment stability</td>
<td>Feb. 1996</td>
<td>Displaced Workers conducted every 2 years since 1984, Job Tenure conducted periodically</td>
</tr>
<tr>
<td>Alimony and Child Support</td>
<td>Eligibility for child support and types of financial arrangements used</td>
<td>April 1996</td>
<td>First conducted in 1979, every two years since 1982</td>
</tr>
<tr>
<td>Voting and Registration</td>
<td>Voter and non-voter characteristics</td>
<td>Nov. 1996</td>
<td>Every two years (Congressional election years) since 1968</td>
</tr>
</tbody>
</table>

Workers who obtained their employment in an alternative manner. Contingent workers were defined as individuals who do not have an implicit or explicit contract for ongoing employment. Workers who obtained employment in an alternative manner included those working through intermediaries, such as temporary help agencies and contract companies, as well as those working as independent contractors, consultants or freelancers, and as on-call or day laborers. In the supplement, 

the computer-assisted interviewers asked different questions of different types of workers. For example, those identified as self-employed in the main CPS received one set of questions and those identified as wage and salary workers received another, while unpaid family workers were excluded from the supplement entirely.

In addition to collecting data to estimate the number of workers in different categories, interviewers also collected information on these workers' wages, health insurance coverage, pension plan participation and preferences for the current arrangement. In collecting some of this information for workers who obtained their employment through intermediaries, it was important to distinguish between the place where an individual was assigned to work and the employment intermediary. Automation of the questionnaire made it possible to verify whether industry information in the main CPS had been provided for the place individuals were assigned to work or for the employment intermediary. It also made it possible to insert the name of either the employment intermediary or the work assignment where appropriate, thus removing ambiguities and confusion that could arise due to varying interpretations of phrases such as "your employer." Including these instructions on a paper and pencil form simply would not have been feasible. For example, for a question about tenure at the place individuals were currently working, the computer's instructions for filling in the appropriate name were almost a page long and involved 13 different options.

Another new supplement was conducted in May 1995 to assess alternative measures of individuals' race and ethnicity, particularly for hard-to-enumerate groups such as those of mixed race or Hispanic origin. In attempting to devise appropriate questions for the CPS and for the decennial Census, four different sets of questions were administered. To insure a random sample for each set of questions, the supplement design took advantage of the fact that in the CPS sample households within small geographic areas are grouped into clusters of four. Each household within a cluster was randomly assigned a different version of the questionnaire. At the time a household was interviewed, the preassigned set of questions automatically appeared on interviewers' screens. Analysis of the data indicates that the sample design was implemented as intended and individuals' classifications were sensitive to question wording. For instance, the proportion of a panel classified as Hispanic ranged from 7.5 to 10.8 percent.

Using and Obtaining the Revised CPS Micro Data

The redesign also will influence the use of micro data from the CPS. Frequently, in the micro data, information from several questions is recoded into a

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10 For approximately 56 percent of temporary help workers, the industry information collected in the main CPS related to the customer rather than the temporary help agency. Only 18 percent of contract company workers reported their contract company as their employer in the main CPS.

11 Results of the Race and Ethnicity supplement can be found in Bureau of Labor Statistics Report 428.
single variable. Although the names of all recoded variables have been changed, analysts who primarily use these recodes should be affected relatively little by the redesign. Individuals who analyze specific questions within the CPS rather than recodes will experience more difficulties. In taking advantage of automation to reduce respondent burden and specifically tailor question wording, the complexity of the questionnaire increased. Consequently, when examining responses to a single question, users will have to be more aware of the universe of people who receive the question and of the various ways individuals could arrive at the given question.

On the other hand, implementation of the redesign should make it easier for users wishing to match individuals' CPS responses longitudinally from month to month. Prior to the redesign, users matching data had to use an algorithm based on individuals' age, race and gender. Use of an algorithm was necessitated by the fact that, across months, household identification numbers were not necessarily unique. For example, if one household moved out of an address and another household moved in, the household identification number would not be changed. The algorithm also had to be used to rectify errors introduced through interviewers' hand transcription of identification codes from master files to their paper interview forms. The revised instrument automatically records information about whether a household was replaced and any additions or deletions of members to a specific household. Automation also eliminated the need for interviewers to transcribe data. Consequently, complicated matching algorithms should no longer be needed.

Monthly CPS micro data and parallel survey data for 1993 and 1994 are available from the Data Development Staff at BLS. Micro data from CPS supplements can be obtained by contacting the Administrative and Customer Service Division at Census or BLS.

Conclusion

In January 1994, the CPS underwent one of the most important and substantive changes in its history. Both the improvement in data quality and the collection of additional information facilitated by the redesign should prove useful to those trying to obtain a clearer picture of the economy. Nevertheless, experience gained during the development and testing of the redesigned CPS indicates that, despite the benefits of adding and improving questions, changes in the CPS should be approached cautiously. BLS will continue to monitor the CPS; however, it is not anticipated that it will be significantly altered in the near future.

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