

Preliminary Laboratory Research on Current Population Survey Questionnaires
with Employed Persons

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Survey researchers and statistical methodologists have always been interested in improving the quality of survey data. Often such interest has centered on reducing sampling errors and improving sampling techniques. Recently there has been much interest in integrating the fields of survey methodology and cognitive psychology in an attempt to reduce non-sampling respondent error (e.g., Bradburn, Rips, & Shevell, 1987; Fathi, Schooler, & Loftus, 1984; Loftus & Fathi, 1985; Loftus, Fienberg, & Tanur, 1985). Such an approach furthers our understanding of the way in which people comprehend questions, and it helps improve current questionnaires.

One way to accomplish such research is to conduct surveys in a cognitive psychology laboratory. Respondents' verbalizations can be analyzed to help understand cognitive processes in a process known as "verbal protocol analysis" (Ericsson & Simon, 1984). Various techniques, such as think-aloud interviews, focus interviews, retrospective analyses, and the like, can be used in a laboratory. The general purpose of such research in an applied setting is to use respondents' verbal reports of their understanding of the questionnaire, along with some validation of the responses they provide, to learn how to improve the questionnaire to reduce respondent error. At the same time, such research allows for a broader understanding of the cognitive processes involved in responding to surveys, such as greater understanding of the processes underlying recall bias and memory.

One application of such cognitive psychology methodology is in the area of labor force surveys, such as the Current Population Survey (CPS) (Bienias, Dippe, & Palmisano, 1987; Martin, 1987; Schwarz, 1987). This is a national sample survey of the population, which is conducted monthly by the Census Bureau for the Bureau of Labor Statistics (BLS). The survey provides information from which many statistics are derived, including the monthly national unemployment rate. During the week including the 19th of each month (the interview week), respondents from the CPS sample of approximately 60,000 households are interviewed to obtain information about the work status of each household member during the previous week (the survey reference week).

Based on answers to a series of questions in the CPS, respondents are classified as employed, unemployed, or "not in the labor force" (e.g., retired). Additional characteristics of persons in each of these categories are also collected, such as the number of hours worked (if employed) and the methods of looking for work (if unemployed). Each household participates in the survey for 4 consecutive months, is out of the survey for the next 8 months, and returns for another 4 months. If the original members of the household move, the new residents (if any) are surveyed, as the sampling units are dwellings, not respondents. The results are weighted to independent estimates of the civilian population 16 years old and older.

Currently, the CPS is conducted via personal and telephone interviews by Census Bureau interviewers. BLS and the Census Bureau are conducting research on converting these interviews to computer-assisted personal and telephone interviews in the future, which provide for more efficient and controllable interviewing. In connection with this, it was decided that general research on questionnaire wording and respondent interpretation should be undertaken.

In November, 1986, the BLS-Census Bureau Questionnaire Design Task Force issued a report summarizing potential areas of research for improving the Current Population Survey. A revised version of the CPS was offered as an appendix. Martin (1987) has detailed some of these areas of research. In addition, in January, 1987, advisory members from professional associations and academia met at the Questionnaire Design Advisory Conference to discuss potential research on, and changes to, the CPS (Bienias, Dippe, & Palmisano, 1987).

Revisions to the wording of the questionnaire to accommodate a 2-week delay between the reference week and the interview week (i.e., interviews would be conducted during the week including the 26th of each month) are also being investigated. Such a version of the CPS could be used in addition to a standard, one-week recall questionnaire if the sample is supplemented to provide monthly estimates of unemployment for each state.

The current study focuses on the issues raised and recommendations made by Martin (1987) and the Questionnaire Design Advisory Conference for revising the CPS questions for employed people.

Retrospective interviewing procedures were used, rather than concurrent think-aloud procedures, to keep the interviews as realistic as possible. That is, respondents were asked questions after the interview about their thought processes during the interview. Narrative analyses were made of transcriptions of respondents' verbal behavior, or protocols. As a first step in this integrative research approach, BLS employees were chosen as volunteer respondents. Aside from the convenience of using in-house employees, choosing participants from a homogeneous group allowed for a complete comparison of their responses to certain questions. For example, it was known that all of the employees tested were salaried, were paid biweekly, and were scheduled to work 40 hours per week, so it was possible to analyze their responses to questions about their usual hours and pay scale, while knowing the "true" answers.

Furthermore, using this sample allowed for a study of how people report "flex" working hours. Most of the employees interviewed are on "flexitime," in which they must account for a total of 80 hours during a two-week period. They may build up to 10 "credit hours" during one pay period, which can then be used to make up the 80 hours in the following pay period. One half-hour lunch is not included in the hours worked so employees are "at work" 8 1/2 hours in a standard day. The current study allowed for an exploration of respondents' understanding of credit hours. Also, because these flexitime employees are required to keep a daily log of their time, it was possible to validate their reported data. After the interview, respondents were asked to check their flexitime logs and report the number of hours logged. This method does not capture hours that the employee may have worked but failed to log. However, it does provide far better control than would be possible by interviewing people from the general population.

Several issues raised by the earlier reports were addressed in the current study, some concerning respondents' definitions of terms and some concerning respondents' recall of information. The CPS begins with the question, "What were you doing most of last week, working, keeping house, going to school, or something else?" For the purpose of the survey, the reference period of "last week" is defined as beginning on Sunday and extending through the following Saturday. However, the period is not explicitly mentioned to the respondents. Thus, they may construe the reference week differently, as meaning, for example, the 7-day period ending with the interview day. If that is so, their responses will vary considerably, as the CPS interviews are conducted every day

during the interview week. As Sudman and Bradburn (1982:40) point out, it is best to mention specific dates when asking respondents about their activities during a particular time period, such as "last week." Thus, respondents in the current study were asked to provide their own definitions of "last week," either before or after the survey and, in some versions, were provided with the reference dates explicitly.

In addition to focusing respondents' attention on the correct reference week, the accuracy of their recall is also important. One manner in which the accuracy of the data is adversely affected is by a process known as "telescoping" (Sudman & Bradburn, 1982). To telescope is to misremember the timing of an event, either forward (to think a past event occurred more recently than it did) or backward (to push an event backward in time). One purpose of the current study was to determine if telescoping were indeed occurring in employees' reports of their hours worked. The use of reference periods of "last week" and "the week before last" in the experimental versions of the CPS allowed for a preliminary examination of this issue.

Another issue that was raised by the Questionnaire Design Advisory Conference (Bienias, Dippo, & Palmisano, 1987) concerned the wording of the questions regarding the number of hours worked. Current respondents to the CPS are asked to report the total number of hours they worked at all jobs "last week." Later in the interview, respondents in the fourth and eighth months (only) of the survey are asked, "How many hours per week do you usually work at this job?", where "this job" is understood to mean the main job the respondent holds.

The effect of these questions on respondents is unknown at present. First, there is no evidence pertaining to the impact of first asking respondents to report the number of hours they worked last week and then asking for their usual hours. Second, respondents' understanding of "usual" is not known. Asking respondents to report "typical" or "usual" behavior is often problematic. Belson (1981) argues that researchers should test respondents' interpretations of words like "usual" and that defining the meaning explicitly will help reduce the variability in such interpretations. As straightforward as this may appear, it is not a common practice in survey research. Thus, respondents in the experimental setting were asked to define "usual."

Finally, a respondent in the current CPS who indicates that he/she was not working last week is asked, "Did you have a job or business from which you were temporarily absent or on layoff last week?" There are several potential problem areas with this question. For example, the 1986 BLS-Census Bureau Task

Force (see Martin, 1987) questioned whether the meaning of the term "layoff" is understood in the same way by all respondents. The official BLS definition is that a person is on layoff if his or her job is temporarily or indefinitely interrupted, but the person expects to be recalled to work. It is believed that a significant portion of the general public considers the term layoff to mean a permanent separation from a job, for either disciplinary or other reasons, with no hope or promise of being re-hired (e.g., when a plant is closed permanently). One study conducted in 1982 by the Census Bureau indicated that people with both temporary and permanent separations from their jobs considered themselves on layoff. To begin testing people's understanding of this concept in the context of the CPS questions using verbal protocol analysis, BLS employees were asked to define layoff.

In addition to the CPS questions discussed above, respondents in the experimental setting were asked a series of questions about their earnings that would ordinarily be asked only of respondents in the 4th and 8th months of the survey. The various revisions included different response categories and skip patterns for these questions, which are described in more detail in the Results section.

Method

Respondents

Volunteer test respondents for the experimental CPS interviews were recruited from among BLS employees whose work did not involve the CPS. Advertisements distributed to administrators specifically invited employees with unusual working arrangements, such as flexitime schedules or multiple jobs, to volunteer. Nineteen employees were interviewed.

Materials

Four forms of the CPS questions for employed people were used. (see Note) Assignment of forms to participants was randomized. The original version (ORIG, N = 5) is the current field version. Three alternative versions were also tested. Two of the revised versions (REV1, N = 2; REV2, N = 7) are based on the questionnaire proposed by the BLS-Census Bureau Task Force in 1986. The third alternative is an "extended recall" version (XT, N = 5) and is essentially identical to the original, except that the respondent is asked to report his or her work status for the week prior to the previous week. All of the alternative versions begin with an introduction in which the reference week is explicitly defined: "Now I would like to ask a few questions about your work-related activities last week (the week before last). This refers to the

week extending from Sunday, (month, date), through Saturday, (month, date)."

In three of the versions (ORIG, XT, and REV1), the questions on the respondent's wages begin with, "Are you paid by the hour on this job?" Because several BLS employees reported that, technically, they were paid by the hour (although it was known they had an annual salary), and because these employees could not provide the hourly rate, this question was revised during the study. In the second revised version (REV2), the respondent is first asked the rate at which he/she is paid on the job and then asked for the pay at that rate.

Procedure

Once in the laboratory (a conference room), participants were interviewed as they would be in the field. All interviews were conducted by the author. Questions were asked of the respondent for each member of his or her household, using introductions and appropriate skip patterns.

The interviews were audio- or videotaped with the informed consent of the respondents for later review by researchers. Respondents were asked several questions during and after the interview designed to help better understand their responses and their interpretation of the questions. Those respondents given the REV1 and REV2 forms were asked to define "last week" before being told explicitly what it meant. Those given the ORIG form were asked to define "last week" after the interview. After being asked about their earnings all respondents were asked whether or not they were reporting a gross or net amount. Similarly, all respondents were asked how they define "layoff" in the context of the CPS question which was read to them and whether that definition implies a temporary and/or permanent separation from a job. Other questions were asked as necessary to probe certain responses. Respondents were also asked for their comments on the survey. Finally, after the interview, respondents who had flexitime logs were requested to check the number of hours logged and report back to the researcher.

Results

Respondents' responses and post-interview comments were descriptively coded and are summarized below for each survey question or set of questions examined. Throughout the course of the interviews, several respondents had the same difficulties with questions as were noted by the members of the Task Force. Most respondents were able to report their hours with ease because they had recently filled out timesheets or tallied their flexitime logs.

Meaning of "last week"

Fourteen respondents (all respondents except those given the XT form) were asked to define "last week." One respondent interviewed on Friday reported his hours from the previous Saturday up to and including the day of the interview. Eleven respondents defined "last week" as "Monday through Friday," often because they knew the questions concerned work-related activities and they didn't work on the weekend. Four such respondents indicated they would have included the weekend if they had worked. Two respondents defined the week as desired as "Sunday through Saturday." One respondent said "last week" was vague and might or might not include Sunday and Saturday.

As determined by later probing, two respondents reported their work for the wrong weeks. Thus, there was some evidence of telescoping (forward for one respondent, backward for the other). These respondents were relatively accurate when recalling their hours, however (see Hours-worked section below).

Hours-worked questions

Across all forms, eleven respondents reported working the same number of hours as they had logged on their time-sheets. Four more respondents were within one hour of their logged time, and the remaining four were off by between 1 and 4 hours.

Hours worked on a flexitime schedule were difficult to measure consistently. Only the hours worked in a given week (not any credit hours worked in an earlier week and "carried over" to this week) should be reported. When asked about this, most respondents stated they would report only hours actually worked. However, one woman said she would always report 40 hours; she would not have subtracted from 40 hours any leave of absence taken if she had worked less than 40 hours (e.g., if she had worked 35 hours and had taken 5 hours leave of absence, she would have reported working 40 hours).

Usual hours

Sixteen respondents reported usually working 40 hours. Many respondents said they based their reports on the hours that they work in a "typical" week, which was 40 or more. Some respondents said "forty" because that is what is expected of them (i.e., they are paid for 40 hours per week). Several respondents reported thinking of the average over the year. Three respondents reported various ways of deciding what "usual" meant, including averaging 40-hour week with vacation periods to obtain a lower estimate of 36 hours.

Definition of layoff

Some respondents were familiar with the official BLS definition of layoff,

and thus the responses of the general public might differ from those described here.

Overall, respondents' definitions of "layoff" were not consistent. All respondents felt the term included temporary separations from a job, but eight respondents felt it also allowed for permanent separation. One respondent said the term was very vague and included both temporary and permanent separation from the job. Another respondent gave a broad definition, saying layoff occurred when one was "fired or quit or out on strike." Other respondents indicated that layoff might take on different meanings depending on the circumstances.

Earnings questions

Respondents to the current version are asked initially: "Are you paid by the hour on this job?" If the answer is "yes," then the respondent is asked for the hourly rate. All respondents are asked: "How much do you usually earn per week at this job before deductions? Include any overtime pay, commissions, or tips usually received." The revised versions allow respondents to report their incomes for any rate, including hourly, biweekly, and yearly. REV1 begins with "Are you paid by the hour on this job?", after which respondents are either asked for the hourly rate or asked, "How are you paid on this job? For example, are you paid at a daily, weekly, monthly, or annual rate, on a piecework or commission basis, or at some other rate?" Then the pay at the given rate is obtained. If they are not paid at a consistent rate (e.g., commission work), they are asked to report a "usual" weekly amount. REV2 presents only the question with the choices for pay rate, including "hourly" as a choice.

Because of the sensitive nature of these questions, no attempt was made to validate the amounts respondents could report, and their self-reports of their knowledge of their earnings were accepted. In responding to the ORIG, XT, and REV1 forms of the questionnaire, four respondents reported that they were paid an hourly rate. However, all but one were unable to provide the hourly wage without doing complicated division mentally. When respondents were asked after the interview which way they would prefer to report earnings information, ten respondents preferred to report a yearly gross, whereas four knew their weekly gross and two reported biweekly amounts. By their own admission, several respondents knew only an approximate figure.

Discussion

Stating the dates for the reference week proved to be an improvement. At least two respondents made an error in

this regard, by providing responses for the wrong week. In addition, one woman stated after the interview that this introduction helped focus her attention on the reference period. Thus it would seem that the dates should be repeated often, throughout the interview, to keep respondents thinking of the correct week. This was not done here, because the interest was in detailing the errors made. Future research should concentrate on working the reference dates into the interview in the most effective manner, without irritating the respondent. Interviewers should also be instructed to remind the respondent of the reference dates whenever necessary.

The respondents varied in their understanding of the meaning of "usual" hours worked. "Usual" could mean the average of all weeks worked in a year or the number of hours one is expected to work, if there are standard scheduled hours. Flexitime creates a special problem for respondents describing the number of hours they usually work. Perhaps the meaning of "usual" should be explicitly defined for the respondent. For example, for flexitime employees, the interviewers could be instructed to clarify that "usual hours" means "the number of hours expected of you" or "the number of regularly scheduled hours."

There were many different definitions of "layoff," even in this small homogeneous sample, suggesting that further clarification is needed. Evidently the context of the question, "Did you have a job or business from which you were temporarily absent or on layoff" is not sufficient to prevent people from thinking of permanent layoff. Perhaps the interviewer should try defining "layoff" in the question, by saying, for example, "By layoff, I mean..."

Based on this study, the newly revised form of the wage questions, asking initially for the respondent's rate of pay, should be kept. Testing this question with a random sample of people drawn from the general population should help determine the best way to ask it.

The respondents in this study may have been more accurate than other people about their hours worked, in part because several respondents said they had just completed their timesheets. Future research might examine these questions with other types of people, especially those without jobs. Applied research should initially concentrate on the current and revised versions, as any recall problems that might be found with those versions would be exacerbated by using a longer recall period. More basic research using an extended recall period will allow for further examination of recall errors, such as telescoping. Future studies could also examine variables such as response latency, as some research indicates that time-to-respond is related to the com-

plexity of the cognitive process involved in responding. Other techniques should be explored, such as concurrent think-aloud interviews and focus (group) interviews. Finally, to determine the level of respondent error, more validation methods must be devised, such as sampling people from specific companies where hours worked can be verified or from unemployment rosters.

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Note

Actually, five forms of the questionnaire were administered. Two of the revised forms differed in the order of the hours-worked questions, in an attempt to address issues regarding possible cuing effects of the different questions. As the sample size proved to be too small to draw any meaningful conclusions, these issues are not discussed further here.

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