

## HOW DO PEOPLE ANSWER INCOME QUESTIONS?

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### I. INTRODUCTION

This paper describes the results of a small-scale, exploratory research project investigating how survey respondents answer income questions in a demographic survey conducted by telephone. The Census Bureau's American Community Survey (ACS) served as the vehicle for the research. The ACS, which is currently in the field testing stage, is being designed as a likely replacement for the decennial census long form questionnaire for the year 2010 census. It is scheduled to be in the field as a national survey starting in 1999. [For a more detailed description of the ACS and the Census Bureau's "continuous measurement" program, see Alexander and Davis (1997).]

In the late summer and early fall of 1996, staff of the Census Bureau's Center for Survey Methods Research (CSMR) conducted a small-scale cognitive test of the ACS's CATI nonresponse follow-up instrument. The primary goal of this study was to compare the effectiveness of two different structures for the follow-up instrument -- a "person-based" format, which essentially conducts separate, individual interviews for each eligible member of the sample household, versus a "topic-based" format, which uses a single interview to capture data for all household members on each topic (e.g., sex, date of birth, marital status, race, education, etc.) in turn. [See Moore (1996) for a discussion of the instrument design issues and the results of the research as they pertain to instrument design.]

A secondary goal of the small-scale study was to better understand how respondents answer survey questions about income. Because of their policy relevance, income data comprise a key content area for the ACS, as they do for many government-sponsored demographic surveys. Previous research on the Survey of Income and Program Participation (SIPP) and the Current Population Survey (CPS), the two largest demographic survey programs of the U.S. Census Bureau, has demonstrated that income reporting is difficult for

respondents (Bogen, 1995) and error prone (Coder and Scoon-Rogers, 1996). Garner and Blanciforti (1994) suggest that a household respondent's characteristics, such as age, race, and education level, may affect the reporting of income data. Körmendi (1988) also demonstrates that conducting the interview over the telephone can contribute to problems of collecting income information. More recently, Moore, Stinson, and Welniak (1997) have reviewed the literature and summarized research on the cognitive factors which affect income reporting and the nature of the resulting errors in survey measurement of income.

### II. METHODS

We interviewed 45 respondents for the instrument design study. These respondents were selected from an existing pool of prior research respondents, or identified through special recruiting efforts, and consisted of adults (18 years of age or older) living in relatively large (4 or more person) households. Of the 45 respondents who were interviewed for the main study, the 37 who responded adequately to the ACS battery of income questions comprised the "sample" for the income question research. Respondents were paid \$30 for their participation in the 60-90 minute interview session. All respondents served as the "household respondent" in the mock nonresponse followup interview, answering questions for themselves and all other household members. Interviews were conducted in an observation room in the CSMR cognitive laboratory, where we were able to observe respondents unobtrusively (though with their knowledge and consent) as they answered the ACS questionnaire during a telephone interview conducted from another location. An observer made notes on behaviors during the interview and, at the end of the interview, returned to the respondent and administered the debriefing questions. The debriefing questions covered both the questionnaire design and the income reporting aspects of the research.

Of course, as is generally the case with small-scale laboratory investigations, our sample was not selected to be representative of any larger population. The following statistics summarize the major demographic characteristics of our respondents:

Race: 22 black  
 13 white  
 1 Asian/Pacific Islander  
 1 multiracial

Sex: 25 female  
 12 male

Age: 40 = approx median age

Educ: 14 high school education or less  
 23 more than high school

HH size: 30 4+ member households  
 7 less than 4 member households

Income: \$50,000 = approx median household income

confident at all,” were 4% for the respondents themselves, 20% for spouses, and 40% for others. Clearly, there is a great deal of felt uncertainty in the quality of reporting of the income of others, particularly non-spouses.

	Self (n=24)	Spouse (n=20)	Other (n=10)
very/pretty confident	83%	60%	30%
not very/not at all confident	4%	20%	40%

### III. RESULTS

For purposes of this paper, our primary interest is how people responded to the ACS income reporting task. The wage/salary question as it appears in the ACS instrument is as follows:

*Did {NAME/you} receive any income from an employer such as commissions, bonuses, tips, wages or salary?*

*Yes*      *What was the amount received for the PAST 12 MONTHS?*  
 \$\_\_\_\_\_00

*No*      *[go to next income source]*

The debriefing asked respondents a number of questions about their income reporting. The first question asked respondents how confident they felt regarding the accuracy of their reported income, their spouse's income, and the income for others in the household, within \$500 of the actual amount.

The results are perhaps not surprising: respondents voiced much less confidence in reporting wage/salary information for their spouse and for others than they did about reporting for themselves -- see Table 1. Overall, 83% of the respondents reported that they were “very confident” or “pretty confident” that their own reported wage/salary income was within \$500 of the true amount. Such confidence fell to 60% for reports of a spouse's income, and to only 30% for the income of household members other than a spouse. The corresponding percentages who were “not very confident,” or “not

There are some parallels with the confidence results in the next debriefing question, which asked respondents about the ease or difficulty of reporting income data in the telephone interview. See Table 2. The perceived level of difficulty of the task appears to steadily increase as we move from the respondent's own income (which 13% said was “difficult” or “very difficult”), to a spouse's (21%), to others' (28%).

	Self (n=24)	Spouse (n=24)	Other (n=14)
very easy/easy	79%	75%	50%
difficult/very difficult	13%	21%	28%

Although the trend for perceived difficulty recalls the confidence results, here the differences between self reports, reports for a spouse, and reports for others seem less marked. It is also notable that reports for both spouses and others -- particularly the latter -- were perceived as relatively easy to produce, despite respondents' lack of confidence in them. One possible (and somewhat troubling) implication is that the ACS interview procedures are not particularly effective at motivating respondents to devote increased effort to the more difficult task of reporting others' income -- that respondents are quite willing to satisfy the survey task by giving “easy” answers which they know to be of

questionable quality.

Of course, respondents' confidence in their answers, and the reported ease or difficulty with which they produced them, do not provide any evidence concerning the accuracy of their income reports. Unfortunately, our research design did not include a record check component, so we are unable to measure accuracy directly. However, we did ask a few debriefing questions geared towards understanding respondents' interpretations of the ACS income question. The extent to which respondents' interpretations match the survey designers' intent offers at least an upper limit on their ability to provide accurate income data.

One of the debriefing questions designed to learn how respondents interpreted the income question had to do with the time frame for the wage/salary question -- the "PAST 12 MONTHS." The intended meaning (although the phrase is not explicitly defined in the ACS instrument) was the immediately preceding 12 months -- for an interview we conducted in August 1996, for example, the relevant time period over which respondents were to report income would be August 1995 through July 1996. The "PAST 12 MONTHS" reporting period was adopted by the ACS designers in an attempt to accommodate to the ACS monthly sample design. They feared that a calendar year income reporting task would become increasingly difficult for respondents and increasingly subject to recall errors as the interviewing year progressed -- that is, that reports of income for calendar year 1995 would be much less accurate in November and December of 1996 than they would be ten months earlier, in January and February. Such thinking, however, considers only presumed "recall bias" effects, and fails to take into account the fact that a "past 12 months" income total may not ever enter a survey respondent's consciousness.

When presented with a confusing term or phrase in the context of a survey question, respondents often redefine the term for themselves in a way that is meaningful to them. Our results certainly indicate that respondents do not interpret the "past 12 months" phrase consistently as intended by the survey designers. As shown in Table 3, respondents used the "correct" months in calculating their wage/salary income -- that is, the most recent 12 month period -- in less than half of the cases. Not surprisingly, the most common "error" was to use the past calendar year; 10 of 28 respondents reported that they used this strategy, even though we were interviewing as late as the fourth quarter of the next year.

Time Period	Count (Percentage)
Preceding 12 calendar months	13 (46%)
Preceding calendar year (Jan-Dec)	10 (36%)
Other	5 (18%)

It is interesting to examine respondents' "past 12 months" reporting strategies in light of their confidence in the accuracy of their answers. Table 4 suggests that respondents who correctly interpreted the "past 12 months" instruction provided answers with less confidence than did those who re-interpreted "past 12 months" to mean something else. In other words, they were confident that they had provided an accurate response to a different question than the survey had posed to them!

	Correct — Past 12 Calendar Months	Incorrect — Past Calendar Year or Other
Confident	11 (52%)	20 (71%)
Not Confident	10 (48%)	8 (29%)

Why did respondents provide incorrect answers (or, perhaps, correct answers to incorrectly interpreted questions) with confidence? The debriefing interview asked respondents to report the strategies that they had used to formulate their income reports, and their answers provide some clues to understanding the disjuncture of answer confidence and correct interpretation of the survey task.

Respondents reported a myriad of strategies, from which, as shown in Table 5, three general "heuristics" emerge: (1) "Factoring" — the use of a known hourly, weekly or monthly income amount which was then multiplied by an appropriate factor to produce a report for the 12-month period. This strategy was most common for reporting one's own income. (2) "Annual" — the reporting of a known annual income amount, perhaps based on tax return familiarity, and perhaps including some adjustments. This strategy appeared most

commonly in spouse reports. (3) "Guessing" -- used primarily when reporting for others in the household. Except for the "guessers," it seems that respondents were confident in their answers because they were confident in their answering strategy, even though the strategy didn't lead them to answer for the time period that the question called for.

	Self (n=26)	Spouse (n=27)	Other (n=12)
Factoring	14 (54%)	4 (15%)	4 (33%)
Annual	11 (42%)	21 (78%)	3 (25%)
Guessing	1 (4%)	2 (7%)	5 (42%)

#### IV. SUMMARY AND RECOMMENDATIONS

When telephone respondents are presented the task of reporting wage and salary income for the past 12 months for themselves and others in their households, they understand that the task requires them to either know or remember an amount, calculate an amount, or guess an amount. The strategy that respondents use appears to be driven only in part by the specific response task with which they are presented. As expected, those who simply guess at the correct answer express little confidence that they have answered accurately. However, we find that expressed confidence is no indication that respondents have performed adequately according to the intent of the survey. It appears that a task judged to be too difficult will often be re-interpreted to be more readily answerable, and that respondents' confidence assessments seem to ignore their redefinition of the task.

At a minimum, we recommend that the ICM CATI followup instrument be programmed to explicitly define the time period referred to by the phrase the "past 12 months," and that accommodations to respondents' various non-guessing answer strategies be made in the instrument. For instance, the instrument should encourage and assist a reasonable "factoring" strategy by allowing for the reporting of the components of a 12-month income report -- which might be an hourly (or weekly, or bi-weekly, etc.) wage amount and the number of hours (or weeks, or pay periods, etc.) worked in the 12-month period. The Census Bureau's two primary income-focused surveys, the Current Population Survey and the Survey of Income and Program Participation,

both have adopted this approach, based in large part on the work of Rothgeb and Cohany (1992).

As questionnaire designers we are always concerned when survey questions masquerade as recall tasks, but in fact do not draw on memory-based information at all, or do so only indirectly. Thus, we recommend to the designers of the ACS program that they reconsider their data needs in light of what income information respondents can reasonably provide. Certainly, we recommend further research to assess the relative quality of "past 12 months" versus "last calendar year" annual income reports in interviews conducted throughout an entire year.

Regardless of the outcome of the reassessment of ACS's data needs, or the possible research on income reporting accuracy, the current study should serve as a further caution to data users not to assume that the question task as implied by overt question wording necessarily implies that the answering strategy intended by the survey designers will be the one used by respondents. Income reporting is a difficult survey task, and making the task a reasonable one may be the primary goal of the respondent.

#### NOTES:

1. The opinions expressed in this paper are the authors', and do not necessarily represent the official views or positions of the U.S. Census Bureau.
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