

Alternative Methods of Obtaining Family Income in RDD Surveys

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Abstract

Income is often a key demographic variable used in social science research. The importance of this item, as well as the sensitivity of the question, warrants that particular attention be given to refinement of the collection of income data. This paper will address the implications of conversion from a precoded series of income questions, designed to narrow down the income range, to an open-ended question requesting the exact amount. (The precoded series remained in the questionnaire as an alternative for those who would not or could not answer the exact-amount question, but the exact-amount question was asked first.)

The National Immunization Survey (NIS) is a random-digit-dialed survey designed to yield quarterly estimates of vaccination coverage of children in the target age range of 19-35 months in each of 50 states and 28 metropolitan areas that are designated as Immunization Action Plan (IAP) areas. Since 1994, the NIS has collected family income data using a series of precoded income questions.

As a result of increased interest in more detailed income data, a question asking for the exact income has been added prior to the NIS series of precoded income questions. For the respondents who answer the exact-income question, the series of precoded income questions are not asked. For those who do not provide an exact income, the series of precoded income questions is asked. Three groups will be compared: 1) respondents who provide an exact income; 2) respondents who do not provide an exact income, but do answer the series of precoded income questions; and 3) respondents who do not provide an exact income nor answer the series of precoded income questions. Data from these two versions of income questions will be analyzed with respect to item nonresponse (don't know and refusal answers, as well as breakoffs) and the resulting income distributions.

An intriguing outcome of the addition of the exact-income question to the NIS is that the income item nonresponse rate was reduced. When the only response option was the precoded income question, 82 percent of respondents answered; but when the exact-income question was the first response option and the series of precoded income questions was the second response option, then 67 percent of the respondents provided their exact income, and 18 percent answered the precoded question, for a total of 85 percent of respondents providing income data.

Introduction

Income is often a key demographic variable used in social science research. The importance of this item, as well as the sensitivity of the question, warrants that particular attention be given to refinement of the collection of income data. When the item is as analytically important as income, to the extent that item nonresponse can be reduced, the utility of the data is particularly enhanced. Item nonresponse is a concern in survey research since missing data limit the conclusions that can be made from the data. This paper will address the implications of conversion from a precoded iterative series of income questions, designed to narrow down the income range, to an open-ended question requesting the exact amount preceding the series of precoded income questions.

Previous Research

Income data are notoriously difficult to obtain. The topic is considered a sensitive and personal question by many respondents. The University of Chicago's recent landmark national survey of sexual behavior included a number of questions that were so sensitive that they had to be relegated to a special, self-administered component of the questionnaire, rather than asked by the interviewer face-to-face. Most of these questions were about the respondent's sexual practices, but one of them was the survey's item on total family income—which many respondents said was the most sensitive and personal question in the entire survey (Laumann, Gagnon, Michael, and Michaels, 1994). In another important study, when a national sample of adults were asked how uneasy it would make someone to be asked his or her income, 12.5% said very uneasy, and only a third (32.7%) said not at all uneasy (Bradburn and Sudman, 1979).

Even when respondents are in theory prepared to volunteer their total family income, they may not know what it is, or may be frustrated by the process of attempting to come up with the

information. Moore et al. (N.D., prepublication draft) cite a number of conceptual and cognitive issues involved in reporting total family income, ranging from definitional differences to recall problems.

Given the sensitive and difficult nature of the family income question, Sudman and Bradburn (1982) have suggested that the process be made easier for the respondents through the use of an income range, even though this is a less precise measure than simply asking for an exact amount: "Since people are often reluctant to report total family income (and often simply do not know the total), it has been found that providing the respondent with income ranges . . . is a satisfactory way of recording income information. While using income ranges does lose some information, respondents appear to be more willing to place themselves in a broad category of incomes than they are to report specific amounts."

The experience of other researchers supports this assertion. In a telephone study that examined the demographic characteristics associated with propensity not to answer income questions, Bell (1984) offered respondents essentially the same choices that were used in the National Immunization Survey. First, the interviewer asked respondents an exact-income question ("How much money did you earn from working during the past year?") If the respondent did not know, or refused to answer, the interviewer asked an income range question (" . . . under \$3,000, \$3,000 to \$5,999 . . ."). Bell found that 26% of respondents failed to answer the exact-income question; but of those 26%, only 13% failed to answer the income range question. While this is not a split sample design, making a precise comparisons between the number who responded to the exact-income question versus the range question impossible, it does appear that the respondents in Bell's study were more inclined to respond to the range question than they were to the exact-amount question.

Out of the total sample of 3,816, there were 1,019 respondents who did not answer the exact-amount question. But whereas only 133 of those nonrespondents to the exact-income question *also* did not respond to the range question, the remaining 886 *did* respond to the range question. This would tend to suggest that one way to reduce item nonresponse for income data is to offer respondents a range rather than asking them for anything more specific—even though, as Sudman and Bradburn pointed out, this means losing information at the detail level.

Policy makers increasingly need more detailed income data rather than less detailed income data, and it was this need which prompted the National Immunization Survey to add an exact-amount income question to its questionnaire, with somewhat surprising results.

Data

The National Immunization Survey (NIS) is a random-digit-dial survey designed to yield quarterly estimates of vaccination coverage of children in the target age range of 19-35 months, in each of 50 states and 28 metropolitan areas that are designated as Immunization Action Plan (IAP) areas. Since 1994, the NIS has collected family income data using an iterative series of precoded income questions. In the interest of obtaining more detailed income data, the NIS recently added a question asking the exact income of the family, which appears in the questionnaire just before a series of precoded income questions.¹ For those who do not provide an exact income for the last calendar year, the series of precoded income questions is still asked. For those who do answer the exact-income question, the series of precoded income questions is skipped.

This change was made at the beginning of the second quarter of the 1998 data collection

1 The wording of the new question is, “Please think about your total combined family income during (LAST CALENDAR YEAR) for all members of the family. Include money from jobs, social security, retirement income, unemployment payments, public assistance, and so forth. Also, include income from interest, dividends, net income from business, farm, or rent, and any other money income received. Can you tell me that amount before taxes?”

(called "Q2/98" in NIS nomenclature and in this paper). In the analysis below, data from the two quarters preceding this quarter are compared with the first two quarters incorporating this questionnaire revision.

Analysis

First, the impact of the new exact-income question on item nonresponse was analyzed. During the six months (or two quarters) prior to the addition of this question, the income item nonresponse rate was 17.3% (9.8% don't know, 7.1% refused, .04% breakoff during the income questions, and .4% breakoff at the beginning of the income series). With the addition of the exact-income question, the income item nonresponse rate fell to 14.4% (9.1% don't know, 4.6% refused, .1% breakoff during the income questions, and .6% breakoff at the beginning of the income series). Of those surveyed, 67.2% provided an exact income, while an additional 17.9% completed the precoded income question series. Thus, the addition of the exact-income question increased the overall number of cases with income data, and moreover, 79.0% of the respondents who provided income data gave an exact amount. This suggests that it may not be necessary to default to asking about this key continuous variable using questions that obtain merely categorical data. One reason for the overall increase in responses to the income questions might be that hearing the exact-income question prompted the respondent who was unable or unwilling to answer it to compromise with the interviewer, by answering the less demanding precoded income question series that immediately followed (Table 1).

It is also significant that the inclusion of this more demanding exact-income question did not affect the percentage of respondents who discontinue the interview at the income section. Respondents who balked at the exact-income question typically either responded that they would refuse to answer the question or else gave a don't know response, but they did not end the interview.

The same pattern appears with the precoded income series: once it is begun, a respondent is very unlikely to break off the interview.

What impact does the change from a precoded income question series to an exact-income question have on the income distribution for those responding? Table 2 shows that the exact-income question used in Q2/98 resulted in a higher percentage of cases in the lower income categories than did the precoded income question series that was used alone in Q1/98. With the addition of the exact-income question to the precoded income question series, the overall distribution has a higher percentage of responses in the lower income categories.

How do the respondents who answer the two types of income questions differ? That is, what types of respondents that do not answer the exact-income question respond to the precoded income questions? Table 3 compares income responses, grouped into the same categories that were used for the precoded series, for three groups: those who answered the exact-income question, the respondents who answered the precoded series, and the combined pool of both those who answered the exact-income question and those who answered the precoded question series. This comparison shows that including the precoded income question series following the exact-income question results in not only a reduction in the don't know and refusal responses, but also an income distribution that reflects a higher percentage of respondents in the lower income categories. This suggests that exact income information may be more difficult for lower-income respondents to provide and that being able to supply the information in a choice of two formats eases the interview burden for these respondents.

Table 4 presents the categorical income data for the respondents who answered don't know to the exact-income question, or refused to answer it. This table shows that a third (34.3%) of the respondents who answered don't know and refusal to the exact-income question gave the same

response to the precoded income questions (34.3% and 35.5%, respectively). To some extent, the don't know and refusal responses appear to be interchangeable, with 6.7% of the respondents who gave a don't know response to the exact-income question then refusing to answer the precoded income questions, while 13.5% of the respondents who refused to answer the exact-income question gave a don't know response to the precoded income questions. A response to the precoded income question series was provided by a higher percentage of the respondents who originally gave a don't know response (59.0%) than who refused the exact-income question (51.0%). This suggests that the precoded question series, rather than playing the role of convincing reluctant respondents to answer the precoded income question series, are helpful for the respondents who are unable to answer the exact-income question to provide their income.

Those who answer the precoded income question series after not having answered the exact-income question tend to have lower incomes, suggesting that the exact-income question is more difficult for these respondents. This might be due to a variety of factors, such as their employment income perhaps being on an hourly rather than salaried basis (and perhaps a variable work week). The pattern of response to the exact-income question may provide some insight into why the don't know responses are more prevalent among the lower-income respondents. Among respondents reporting an exact income below the median reported income, 87.7% provided a income that was a multiple of \$1,000, while among the respondents who gave an income above the median reported income, 99.7% reported an income that was a multiple of \$1,000. Respondents who have a lower income may be trying to be more precise regarding the income they report, thus making it more difficult for them to provide an exact income. This may account, partially, for the higher percentage of don't know rather than refusal responses among these survey participants.

Conclusion

There is increasing demand for precise income data in population-based surveys, especially surveys where the behavior and experience of low-income groups is of particular policy interest. However, previous research has suggested that exact-income questions are problematic: even more sensitive than range questions, and therefore likely to result in high levels of item nonresponse. In light of the experience of other researchers, it is somewhat surprising and indeed encouraging that by adding the exact-income question to the NIS we actually reduced the income item nonresponse rate. It is also encouraging that by adding the exact-income question we obtained more responses on income from lower-income sample members than we were able to obtain without it—and that the lower-income members of the sample were more inclined to provide exact data than just a range. All in all, our experience suggests that exact-income questions, when they are asked appropriately and in the right context, can be surprisingly helpful in eliciting policy-relevant income data, despite the threat, cognitive issues, and overall response burden they might pose.