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The Effects of Questionnaire Design Changes on Asset Income Amount Nonresponse in Waves 1 and 2 of the 2004 SIPP Panel

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Abstract

Three new procedures were introduced in the 2004 panel SIPP questionnaire in an attempt to reduce asset income amount nonresponse: (1) a flexible approach to the reporting period, which allows respondents to choose the option most convenient for them; (2) an expanded use of closed-ended "range" questions for use as follow-up probes in the event of an initial nonresponse; and (3) the capability to use dependent interviewing procedures for nonresponse follow-up after wave 1. This report summarizes the impact of the new procedures on nonresponse to asset income amount items in waves 1 and 2 of the 2004 SIPP panel, through a comparison with the same estimates from the preceding (2001) SIPP panel. Major findings are as follows:

(1) The introduction of flexible reporting period options in 2004 seems to have had little beneficial impact on item nonresponse for asset income amounts.
(2) Extending the "range"-type follow-ups to cover all assets resulted in major nonresponse benefits. Asset types which acquired the range follow-ups for the first time in 2004 showed substantial declines in final wave 1 item nonresponse in 2004 compared to 2001.
(3) The dependent nonresponse follow-up option added in 2004 wave 2 also had a major positive impact on final nonresponse. On the negative side, however, is evidence of improper use of the dependent follow-up procedures by SIPP interviewers, resulting in very high rates of initial nonresponse.

Keywords: dependent interviewing, income amount item nonresponse, interviewer behavior, questionnaire design

The Effects of Questionnaire Design Changes on Asset Income Amount Nonresponse in Waves 1 and 2 of the 2004 SIPP Panel

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Executive Summary

As indicated by their typically very high item nonresponse rates, asset income amounts are generally the most difficult types of amounts to collect in surveys (Moore, Stinson, and Welniak, 2000). Three new procedures were introduced in the 2004 panel SIPP questionnaire in an attempt to reduce asset income amount nonresponse:

(1) A flexible approach to the reporting period. Respondents may choose the most convenient option – reporting an annual amount, a quarterly amount, or reporting for each month separately or all four months combined over SIPP's 4-month reference period.
(2) An expanded use of closed-ended "range" questions for use as follow-up probes in the event of an initial nonresponse – "Was it less than $100? Between $100 and $500? [etc.]" In contrast to the 2001 questionnaire, which employed a closely related form of follow-ups, but only for the six interest-earning asset types, the 2004 questionnaire uses them for all 12 asset types for which SIPP collects income amounts.
(3) The capability for the use of dependent procedures for nonresponse follow-up after wave 1 – "I have recorded from last time that [asset] produced [dollars] in income. Does that still sound about right?"

This report summarizes the impact of the new procedures on nonresponse for asset income amount items in waves 1 and 2 of the 2004 SIPP panel, through a comparison with the same estimates from the preceding (2001) SIPP panel. Major findings are as follows:

(1) The flexible reporting period options introduced in 2004 seem to have had little beneficial impact on item nonresponse. This result is not completely surprising – small gains from the flexible reporting period options were observed in one of the three SIPP Methods Panel field tests, but not in the other two (Moore and Griffiths, 2003) – but does run counter to more positive results for other types of income (job and business earnings).
(2) Extending the "range"-type follow-ups to cover all assets resulted in major nonresponse benefits. Asset types which acquired the range follow-ups for the first time in 2004 showed substantial declines in wave 1 final item nonresponse in 2004 compared to 2001.
(3) The dependent nonresponse follow-up option added in 2004 wave 2 also had a major positive impact on final nonresponse. On the negative side, however, the very high rates of initial nonresponse in 2004 wave 2 and other data also suggest improper use of the dependent follow-up procedures by FRs. This finding is consistent with observation reports which have shown that FRs too often use the availability of the dependent nonresponse follow-up option to "peek ahead" at what the respondent reported in the last interview, before the respondent even has a chance to report an amount on his/her own.

1. Introduction and Overview

As indicated by their typically very high item nonresponse rates, asset income amounts are generally the most difficult types of amounts to collect in surveys (Moore, Stinson, and Welniak, 2000); the U.S. Census Bureau's Survey of Income and Program Participation (SIPP) is by no means immune to this problem. A new SIPP core questionnaire was introduced at the start of interviewing for the 2004 SIPP panel, following several years of development and testing through the SIPP Methods Panel project (Doyle, Martin, and Moore, 2000; Moore, Pascale, Doyle, Chan, and Griffiths, 2004). Although the primary goal of the Methods Panel project was to reduce unnecessary burden and improve the SIPP interview process, some of the new procedures focused on income amount item nonresponse as well. This paper examines the impact of those procedures on asset income item nonresponse in the 2004 panel. The three new procedures of primary interest are described briefly below. The first was implemented primarily to serve the interview process improvement purposes of the Methods Panel project, but was also expected to have a beneficial impact on nonresponse; the second two new procedures were directly targeted at item nonresponse:

(1) A flexible approach to the reporting period. Whereas in the past respondents were forced to report their asset income as a four-month total amount[1], respondents in the new panel may now choose the most convenient option from an array of explicit possibilities – reporting an annual amount, a quarterly amount, or reporting for each month separately or all four months combined over SIPP's 4-month reference period.

(2) An expanded use of closed-ended "range" questions for use as follow-up probes in the event of an initial nonresponse – "Was it less than $100? Between $100 and $500? [etc.]" In contrast to the 2001 questionnaire, which employed a similar style of follow-ups, but only for the six interest-earning-account asset types covered in the SIPP interview (checking accounts, savings accounts, etc. – see Table 1, Part 1), the 2004 questionnaire uses them for all 12 asset types for which SIPP collects income amounts.

(3) The capability for the use of dependent procedures for nonresponse follow-up after the initial interview wave – "I have recorded from last time that [asset] produced [dollars] in income. Does that still sound about right?" No such dependent procedures were used in earlier SIPP panels.

This paper evaluates the effectiveness of the new procedures at reducing asset income item nonresponse, by comparing nonresponse levels in the new panel to those of the most recent panel before the new procedures were introduced, the 2001 SIPP panel. The remainder of this paper is organized as follows: Section 2 provides a brief description of the SIPP survey, and the research and development program which led to a new core questionnaire in the 2004 SIPP panel. Section 3 describes in some detail the new procedures introduced into the 2004 SIPP

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[1] An annual reporting option has been available since the advent of computer-assisted interviewing in 1996, although its availability was never overtly revealed to respondents.

questionnaire in an attempt to reduce nonresponse to asset income amount items. Section 4 summarizes the analysis procedures used, and presents and discusses their results – noting, of course, the limitations of the research. And finally, section 5 draws some conclusions concerning the implications of this research, as well as directions for future research.

2. SIPP Background

2.1. Basic SIPP Design Features

SIPP is a nationally-representative, interviewer-administered, longitudinal survey conducted by the U.S. Census Bureau. It provides data on income, wealth, and poverty in the United States, the dynamics of program participation, and the effects of government programs on families and individuals. The current (2004) SIPP panel is expected to consist of fifteen waves (or rounds) of interviewing, with waves administered three times a year, at four month intervals. (Historically, panel length has varied from less than a year to up to four years, depending on such factors as budget constraints, redesign schedules, coordination with decennial census activities, etc.). The SIPP sample is split into four equivalent subsamples, called “rotation groups;” each rotation group’s interview schedule is staggered by one month, in order to maintain a constant workload for field staff. As has been the case since the 1996 SIPP panel, all SIPP interviews are conducted with a computer-assisted questionnaire; the first interview is administered in-person, subsequent interviews are often conducted via telephone. The SIPP core instrument, which contains the survey content that is repeated in every survey wave, is detailed, long, and complex, collecting information about household structure, labor force participation, income sources and amounts, educational attainment, school enrollment, and health insurance over the prior four-month period. A wide variety of other specific topics are addressed in the survey’s “topical modules,” which are appended to the core interview and which may appear once per panel, or biennially, or annually. A typical SIPP interview takes about 30 minutes per interviewed adult. See U.S. Census Bureau (2001) for a more complete description of the SIPP program.

2.2. Testing and Refining New Questionnaire Procedures in the SIPP Methods Panel

Motivated primarily by concerns about increasing nonresponse/attrition, and by a desire to bring known data quality problems under better control, in the mid-1990’s the Census Bureau launched a research and development program to create an improved SIPP questionnaire for implementation in the new SIPP panel to begin in 2004. The SIPP Methods Panel Project was created to design improved procedures and to test and refine them in a series of split-panel field tests. For the most part, the Methods Panel’s efforts focused on “interview process” improvements that would yield a less burdensome interview for both interviewers and respondents. An important secondary focus, however, was improved data quality in selected areas. One particular such improvement goal was a reduction in nonresponse to income amount items, especially for asset income sources, where nonresponse rates as high as 40 to 50 percent are not uncommon (Moore, Stinson, and Welniak, 2000).

The Methods Panel project included a series of three field experiments to evaluate and refine an experimental SIPP questionnaire in preparation for its implementation as the production instrument in the 2004 panel. The first of these tests was carried out in the late summer of 2000 (MP2000), and included only a wave 1 interview. The second two field tests – MP2001 and MP2002, carried out in the summer and fall of 2001 and 2002, respectively – included both a wave 1 and a wave 2 interview. The Methods Panel field experiments employed an experimental design, with random assignment of sample cases to test and control groups. Sample households assigned to the control treatment were administered the standard 2000/2001 panel SIPP questionnaire; those in the test treatment were interviewed with the experimental instrument. Interviewers' assignments included a mix of both the control and experimental instruments, so they could provide feedback on the relative merits of each, and also to avoid confounding staffing differences with instrument treatments. The sample size for each test was set at a level which was expected to yield about 2000 completed wave 1 interviews (i.e., 1000 per treatment). Based on post-test evaluations, adjustments and refinements were made to the experimental questionnaire after each field test. (See Doyle, Martin, and Moore (2000) for a more complete description of the design of the field experiments; Moore, et al. (2004) also covers field test design issues in some detail, and provides more general information concerning the changes implemented in the SIPP questionnaire.)

The results of the field tests with regard to item nonresponse for asset income amounts were sufficiently positive (Moore and Griffiths, 2003) that the new procedures were implemented in the redesigned production instrument developed for the 2004 SIPP panel. The next section describes those new procedures in some detail.

3. Description of New Procedures in the 2004 SIPP Panel

3.1. Flexible Reporting Period for Asset Income Amounts

The previous SIPP questionnaire focused almost exclusively on capturing a four-month income total from each type of asset; this was made very explicit in the introduction to the asset income amounts section of the questionnaire:

ASSTINTRO1 (2001)	Now I'm going to ask about any interest earned from assets from *[reference period month 1]* 1st to the end of *[reference period month 4]*.

Although it was not mentioned in the official interview script read to respondents, some (but not all) of the asset types covered in the SIPP interview also allowed an annual income report. Here, for example, is the question about interest income from individually-owned savings accounts:

OINT (2001)	(REFERENCE PERIOD = *[reference period month 1]* 1^{ST} TO THE END OF *[reference period month 4]*) What is the total amount of interest you earned on your savings accounts? ENTER (A) FOR ALTERNATIVE ANNUAL REPORTING ENTER (N) FOR NONE/NO MORE Total: \$___________

and here is the screen elicited by an “A” entry:

AOINT (2001)	ENTER THE INTEREST AMOUNT EARNED PER YEAR \$____________

The annual option in the 2001 questionnaire was not only subtle, it was also limited to only 8 of the 12 asset types covered in the SIPP interview. It was available for reporting interest from interest-earning accounts (checking, savings, CDs, etc.) and for reporting dividends from stocks or mutual funds, but not for rental property income, interest received from mortgages, royalty income, or income from “other” financial investments.

In contrast, the new questionnaire for the 2004 panel no longer pushed respondents toward a 4-month total amount, but instead explicitly encouraged them to choose a reporting period that would afford the greatest ease in reporting their asset income:

OINT_PD (2004)	[Earlier I recorded that you owned savings accounts in your own name.] What is the easiest way for you to tell me about the interest or dividend income from those savings accounts? READ ANSWER CATEGORIES IF NECESSARY (1) 4-month total (2) Monthly amounts (3) Quarterly amount (4) Annual amount (5) DO NOT READ – None of these

The flexible reporting period feature was available for all asset types except for the catch-all “other financial investments” category. As noted, the primary intent in implementing this change was to reduce the burden of the respondent’s reporting task, and thereby improve the interview process. We also hypothesized, however, that it might have a salutary effect on item nonresponse to the extent that some nonresponse might be caused by respondents’ lack of knowledge (their quite understandable lack of knowledge, in fact) concerning their asset income over an arbitrary one-third of a year.

3.2. Use of Closed-Ended Income Range Nonresponse Follow-up Questions

For a limited number of asset types – specifically, the six different asset types that can be characterized as interest-earning accounts (checking accounts, savings accounts, certificates of deposit, etc.; see Table 1, Part 1) – the 2001 panel SIPP questionnaire followed up an initial "D" (don't know) or "R" (refused) nonresponse to an income amount item with an additional two-stage process designed to yield information from which an income amount could be approximated. The first stage was a follow-up question which attempted to elicit from the respondent the approximate balance or value of the account, e.g., for a savings account owned jointly with a spouse:

JTAMT (2001)	What is the average amount that you and your spouse had in this/these jointly held savings accounts? $______________

If this question was successful, and yielded an account balance report, the follow-up effort ended. If, however, the first stage follow-up question itself elicited a nonresponse, then an additional follow-up question was administered, e.g.:

JCAT1B	FR NOTE: ASSET IS *[asset type]*. Is it:
(2001)	(1) Less than $500 (2) $500 to $1,000 (3) $1,001 to $5,000 (4) More than $5,000

Because of its demonstrated success in the interest-earning account sub-group of assets[2], the Methods Panel project was eager to extend the follow-up concept to the other asset types. Two important barriers stood in the way, however. First, we were not eager to add questions to the survey when the primary purpose of the whole Methods Panel effort was to reduce burden. Second was the fundamental weakness of the balance/value approach, which (a) requires additional strong assumptions about rates of return in order to allow a balance/value to be translated into an income amount, which is the primary target statistic of interest to SIPP, and (b) doesn't have an appropriate counterpart concept for use with some asset types (e.g., income from rental property, mortgage interest received, royalties – even mutual funds and stocks pose conceptual difficulties).

Thus, the new procedures adopted a single nonresponse follow-up approach appropriate for all asset types, which was to retain a range-type follow-up question but to simply drop the first stage balance/value question. While we maintained the overt structure of the existing range questions, we modified them to ask about the income amount directly, rather than indirectly via a balance/value from which income would have to be inferred. And, as noted, we extended their use to all asset types. Thus, in the 2004 wave 1 questionnaire, an initial nonresponse to any asset income amount question elicited a follow-up question of the following sort:

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[2]For example, compare the "initial" and "final" nonresponse rates for these asset types in the 2001 panel, shown in the first data column of Table 1.

JDIVSP2Y (2004)	Was the annual amount less than 100 dollars, between 100 and 500 dollars, between 500 and 1,000 dollars, or more than 1,000 dollars? (1) Less than $100 (2) $100 to $499.99 (3) $500 to $999.99 (4) $1,000 or more

As noted, this was the nonresponse follow-up procedure for all asset types[3] in wave 1 of the 2004 panel. In all cases, the range values were selected to approximate the 25th, 50th, and 75th percentile points in the 2001 SIPP panel distribution of reported amounts for each asset type, adjusted appropriately for the reporting period chosen by the respondent (e.g., an annual amount vs. a quarterly amount). A new form of follow-up, using dependent interviewing techniques (see below) was developed for use after wave 1, and was the first option in those later waves in the event of a nonresponse to an amount question. In some situations, however, dependent interviewing is simply not possible – for example, if a respondent has taken ownership of an asset recently, and is reporting about it for the first time – in which case the wave 2+ questionnaire is designed to revert to the "range" follow-up question approach.

3.3. Use of Dependent Nonresponse Follow-up Questions

Unlike a one-time survey, a longitudinal survey such as SIPP carries the potential of being able to use information obtained in a prior survey wave to assist the current interview. As many have pointed out (e.g., Brown, Hale, and Michaud, 1998), the advent of computer-assisted interviewing has greatly expanded this potential. Since its earliest days SIPP has made use of prior wave information to ask dependent questions about income sources, including assets, but has not made similar use of prior wave income amount information. Given research evidence suggesting the potential benefits of dependent questions (Mathiowetz and McGonagle, 2000), the Methods Panel developed dependent procedures for the use of prior wave amount information as a nonresponse follow-up strategy.

One particular feature of the new dependent follow-up procedures was the addition of a new response option to the asset income amount questions. SIPP interviewers have long noted a common tendency among respondents to reply to an amount question, and particularly an assets amount question, by reporting that "nothing has changed," or "it's the same as last time," or other words to that effect. Because it is not directly responsive to the question, this sort of answer must technically be considered a form of nonresponse, somewhat akin to a "don't

[3]The only intended exception was gross income from rental property. SIPP has traditionally asked about both gross rental property income, and net or "cleared" income. Since the latter is the key concept from the point of view of real income, we decided to focus our follow-up efforts there, and forgo following up nonresponse to the gross amount question. Additionally, although there was a nonresponse follow-up range question for the catch-all "other financial investments" category, an instrument error resulted in no "hits" of this item in wave 1. The error was corrected midway through wave 2, in time for the range follow-up question to be available for about half of the D/R nonresponders to the initial amount question in wave 2.

know."[4] And yet the strong signal it sends of a willingness to be responsive makes it a very odd form of nonresponse, which is no doubt why it has in the past presented a problem for interviewers. The Methods Panel provided a solution, since the new questionnaire now had the means to accept such a reply and follow-up with the new dependent questions. Thus, if circumstances permitted a dependent follow-up – that is, if there was a non-missing report from the previous wave, and if the new "RIP" procedures did not preclude mention of that report in the current wave[5] – a new response option, the "L" option, was displayed on the interviewer's computer screen:

OWNDIV (2004)	Including both dividend checks and credited or reinvested dividends, how much dividend income is produced annually by the mutual funds you owned in your own name? ENTER (N) FOR NONE OR NO MORE ENTER (L) FOR SAME AS LAST INTERVIEW $________________

Starting in wave 2 of the 2004 panel, the first option in the event of a nonresponse to an initial asset income amount item of the sort shown above – an L, a D, or an R – is to ask a dependent question such as the following:

PWOINT (2004)	Things may have changed, but I have recorded from last time that the CDs that you owned in your own name produced *[previous wave dollar amount]* in interest or dividend income over the 4-month period from last *[previous wave month 1]* through *[previous wave month 4]*. Does that still sound about right for the last four months as well?

A "no" response to the dependent follow-up elicits the following correction screen:

PWOINTFIX (2004)	What is the correct income amount over the past 4 months – since *[month 1]* 1st? $_____________

As noted, the dependent form became the primary nonresponse follow-up option as soon as it became possible to use dependent questions, starting in wave 2. (The dependent follow-up option was available for all asset types except the miscellaneous "other assets" category.) As noted above, however, there are circumstances when use of this option is not feasible – such as when the asset in question has only recently been acquired, or when the respondent was not interviewed in the preceding wave, or failed to provide amount information in the prior wave, or

4 In fact, observations and interviewer reports suggest that respondents who give this reply often do so with an explicit "don't know" preface, e.g.: "I dunno – whatever I said before."

5 The 2004 SIPP panel saw the first implementation in SIPP of the Respondent Identification Policy (RIP). The goal of RIP is to extend the Census Bureau's confidentiality protections so that they apply within a respondent's own household. With the implementation of this policy, survey information reported by one member of a household cannot be shared with other household members without the consent of the original respondent.

when the prior wave respondent did not consent to the "RIP" request to allow his/her answers to be revealed to another member of the household. In such circumstances the 2004 questionnaire is designed to revert to the wave-1-style income range nonresponse follow-up approach.

4. Analysis

4.1. Analysis Strategy and Construction of Nonresponse Estimates

This section summarizes the evaluation of the 2004 panel instrument changes, described above, on nonresponse to asset income amount questions. The basic evaluation strategy involves a comparison of nonresponse to those questions in waves 1 and 2 of the 2004 panel with similar estimates from the 2001 panel. The analysis looks at both initial nonresponse, before implementation of any nonresponse follow-up questions, and final nonresponse, after any nonresponse follow-ups, for each asset type individually, for several subgroups of assets, and for all asset types combined.

The 2001 and 2004 panel questionnaires differed in many ways, which complicates somewhat a nonresponse comparison. To cite but two examples: For most asset types in 2001 there were only two amount questions – one about income from assets held jointly with a spouse, and one for assets owned individually. The 2004 questionnaire, in contrast, recognized many different forms of joint ownership – joint with spouse (and possibly others), joint only with a child (or children) under age 15, and joint with an adult (or adults) other than the person's spouse – and each of these (mutually exclusive) ownership arrangements had its own amount question. In each panel a respondent might have been asked both the individually-owned and a jointly-owned question, or he or she might have been asked only one of the two questions. Another example: The 2001 questionnaire asked separate questions about mutual fund or stock dividends received in the form of dividend checks and those that were credited to an account or reinvested. The 2004 questionnaire first determines the form of the dividend income, and then asks a single question about dividend amounts, regardless of their form.

Because of design differences such as these, and for other reasons as well, a simple, item-by-item nonresponse comparison is not possible. (Nor is it necessarily desirable. Wood (2005), for example, argues for global, multiple-item-based item nonresponse investigations in general, due to the many benefits they offer compared to the individual-item-by-individual-item approach.) Therefore, this analysis ignores differences (both across panels, and across asset types within a panel) in the set of questions that were asked, and instead constructs an asset-specific nonresponse estimate for each respondent as follows: For each asset type, each respondent who was presented with at least one asset amount question for that asset type was assigned an <u>initial</u> nonresponse "score," calculated as the number of nonresponses divided by the number of questions asked. A respondent who was presented with two questions (e.g., both a joint amount question and an individual amount question), and who answered both, would receive a nonresponse score of 0; one who answered one of the two questions would receive a score of 0.5; and so on. His or her <u>final</u> nonresponse score was calculated as the number of initial nonresponses minus the number of successfully answered nonresponse follow-up questions, divided by the number of initial amount questions asked. Thus, a non-missing response to a follow-up question[6] is assumed to negate the initial nonresponse that elicited the follow-up.

(Note that this method of estimating nonresponse differs from the one used by Bruun (Bruun and Moore, 2005) to evaluate nonresponse follow-up outcomes in 2004 wave 1 as a function of the form of the initial nonresponse, D or R. Bruun uses the simple number of asset questions asked as a denominator, which leads to slightly different estimates than those generated by the current research, which are based on an individual nonresponse rate averaged across all respondents.)

The final nonresponse estimates for the 2004 panel ignore an instrument bug which caused the "wrong" follow-up range question to be asked in some circumstances. For example, a respondent who offered an initial nonresponse to a question about, say, stocks, might receive the nonresponse follow-up range question intended for owners of mutual funds. (This problem is documented more fully in Bruun and Moore (2005).) The analyses reported here ignore these errors, and accept respondents' follow-up responses wherever they are found, without regard to whether or not they are in the intended place.

4.2. Data Sources

The analysis uses the "TransCASES" data files from the first two waves of the SIPP 2001 and 2004 panels, unweighted. These data files are derived directly from the survey instrument without any data editing (except for those "edits" performed as part of the operation of the instrument itself) or imputation. Thus, the estimates in this report may not match exactly with those derived from subsequent datasets which have been edited, and which include imputed data.

4.3. Results

Table 1 presents the basic nonresponse estimates for each panel – the mean initial and final nonresponse "scores" (expressed as percents), by asset type, averaged across all respondents whose interview included at least one amount question for that asset type. Table 1 is split into four parts, one for each of three general sub-categories of types of assets, as well as a summary section collapsing across sub-category members and across all asset types combined. (The sub-categories have some substantive meaning, but primarily they define groups of assets which shared the same set of questionnaire changes across the 2001 and 2004 panels.) According to the results of simple t-tests, virtually all relevant comparisons show a statistically significant difference at the $p<.10$ level or beyond; matching superscripts indicate where that is not the case.

[6] "Follow-up question" refers to the special questions asked during the same interview to try to get some information from people who initially said "DK" or refused to answer; the term does not refer to any subsequent call-back interviews. There is no distinction here between getting an answer (or not) during the interview proper, and getting an answer (or not) during a callback interview. That is, a person who answers an amount question during a call-back interview is considered to have provided an "initial" response.

The "initial" rows show the rates of nonresponse before any nonresponse follow-up question was asked; "final" rows show the remaining nonresponse after any nonresponse follow-up questions.

Table entries may be read as follows (referring, for example, to the results for checking accounts): In wave 1 of 2001 the rate of nonresponse to initial questions about checking account interest was 28.7%. This rate does not differ significantly from the 28.9% rate of initial nonresponse observed in 2004 wave 1. About two-thirds of the initial 2001 nonresponders provided an answer to one of the nonresponse follow-ups (i.e., gave the account balance/value, or reported a balance/value range), so at the end the remaining nonresponse rate was down to 9.9%. The final nonresponse rate in 2004, after the administration of the single closed-ended "range" question about the interest amount, dropped to 8.6%, which is significantly lower than the 2001 estimate. The number of respondents on whom the wave 1 estimates are based is 13,877 and 19,195 in 2001 and 2004 respectively[7].

The wave 2 results can be read the same way, the major difference being the addition of the dependent nonresponse follow-up procedures in 2004, with the wave-1-style "range" question as a fall-back follow-up option, if the dependent question could not be used for some reason. Again using the checking account results as an example, we see that within wave 2, initial nonresponse in 2001 was significantly lower than initial nonresponse in 2004, while the reverse is true for final nonresponse. Statistical significance (or its absence) can also be read in the table across waves. Specifically, the table indicates that nonresponse rates for checking account interest amounts rose significantly from wave 1 to wave 2 in 2001, regardless of whether one considers initial response or final nonresponse. In 2004 this is only the case for the initial nonresponse estimates; the 2004 wave 2 final estimate (6.1% nonresponse) is actually significantly lower than the final wave 1 estimate (8.6%).

4.4. Examination of the Impact of Specific 2004 Panel Questionnaire Changes

This section assesses the impact of the new procedures, described above, on asset income amount item nonresponse in the 2004 SIPP panel.

4.4.1. Flexible reporting period

As described above, 2004 panel respondents are no longer tightly bound to reporting the traditional 4-month total asset income amount, but can choose a reporting period that is most convenient for their circumstances. Respondents appear to have eagerly welcomed the new reporting period options. In wave 1 of the 2001 panel, for example, an annual amount was

[7] The number of respondents to the amount questions is substantially lower than the number of owners of each asset type – for example, the TransCASES data file for 2001 wave 1 identifies approximately 18,000 owners of joint interest-earning checking accounts; the comparable figure for 2004 is about 25,000 checking account owners (e.g., see Moore, 2005). This is due to SIPP's procedures with regard to assets owned jointly with a spouse. In such circumstances, both spouses are recorded as owners of the asset, but only one is called on to report the income from that asset.

reported only about 4% of the time in response to an amount question about an interest-earning account, and slightly less than that for mutual fund and stock dividend amounts. In 2004, when the various options were explicitly offered to respondents, 46% of those reporting about an interest-earning account indicated a preference for the annual option (40% for mutual funds/ stocks), and only 14% chose the traditional 4-month-total reporting period (9%). These results make it very clear that, with regard to tailoring the reporting task to the respondent's needs and preferences, the 2004 questionnaire was a substantial improvement over 2001.

Did the flexible reporting period options yield any beneficial impact on item nonresponse? If they were to have had a positive impact, we should see in Table 1 lower rates of wave 1 initial nonresponse in 2004 than in 2001. In fact we do not – there is generally not much difference between the two panels' rates of initial nonresponse in wave 1. This is shown perhaps most clearly in part 4 of the table: for the first sub-group of assets (interest-earning accounts) the rates are almost identical (34.6% in 2001, 34.5% in 2004); the second sub-group (mutual funds and stocks) actually shows a significantly lower nonresponse rate in 2001 (37.0%, vs. 45.7% in 2004), where there were no reporting period options; and the difference in the third sub-group (other/miscellaneous) is again trivial and non-significant.

These negative results are perhaps not too surprising in light of the fact that the Methods Panel field tests of this new feature showed inconsistent results: a small gain from the flexible reporting period options in one of the three Methods Panel field tests, but non-significant (and inconsistent) differences in the other two (Moore and Griffiths, 2003). On the other hand, they do seem to run counter to a recent analysis of 2004 wave 1 job earnings amounts. Flexible reporting period options were also added to the earnings section of the 2004 questionnaire, and a preliminary comparison of 2001 and 2004 imputation rates for monthly job earnings suggests they may have had a substantial positive impact – on average, about 16% of wave 1 monthly earnings amounts were imputed in 2001, compared to only about 10% in 2004 (Bates, 2005). Nevertheless, the bottom line here is that there is little evidence of any similar positive impact of this new procedure on asset amount nonresponse.

4.4.2. Modified/expanded income range nonresponse follow-up questions

For the first group of assets, characterized as the interest-earning accounts, the change in the 2004 wave 1 questionnaire procedures involved a shift in focus of existing amount nonresponse follow-ups, rather than their addition where there were none before. Instead of asking about the balance or value of the account (and, if that was not successful, a balance/value range), the new 2004 procedure involves only an income (as opposed to a balance/value) range question. Of the two follow-up options – 2001's balance/value vs. 2004's income amount – the "final" wave 1 nonresponse results shown in Table 1 suggest that there may be a slight advantage to the 2004 approach in terms of reduced nonresponse. The difference (if any) is small, and not completely consistent across all asset types, but does appear in the summary estimates for that sub-group of assets as a whole (which, of course, is dominated by the first two asset types, checking accounts and savings accounts – see part 4).

But nonresponse improvement was not a goal for this particular subset of assets, for which the existing procedures were performing quite well. (Note as evidence of the latter contention the large initial-to-final nonresponse improvement in 2001 wave 1 for each of the asset types shown in part 1 of Table 1). We modified the procedures in part to reduce burden, by eliminating the initial balance/value amount follow-up, but primarily to allow a consistent nonresponse follow-up approach, focusing on the income amount, to be used throughout the asset income reporting section of the questionnaire. So the real gain in quality for the first subset of assets probably has less to do with a slight improvement in item nonresponse rates than with the fact that the nonresponse follow-up data themselves are now of better – or more useful – quality. Processing the data to produce a specific income amount from the reports of initial nonrespondents can now be direct and straightforward, whereas before it required an additional key assumption about an asset's rate of return.

Parts 2 and 3 of Table 1 offer strong evidence that extending the "range"-type questions to asset types which before 2004 had not had any nonresponse follow-up procedures had a major positive impact on final nonresponse. It is hardly a surprising outcome, but it is clearly the case that having nonresponse follow-up procedures is an improvement over not having them. Note the wave 1 "final" comparisons in Parts 2 and 3. The final rate in 2004, where there were "range" follow-ups, is consistently significantly lower than the 2001 initial/final rate, without follow-ups.[8] And the improvement is often not just statistically significant but substantively important as well – in several cases the 2004 final nonresponse rate is about half of what it was in 2001.

4.4.3. Adding dependent nonresponse follow-up procedures in wave 2+

Table 1 provides much evidence of the positive impact of the new dependent follow-up procedures on final rates of item nonresponse. This is especially clear in Part 1 of the table. For each of the six types of assets summarized in Part 1, final nonresponse in 2001 increased significantly from wave 1 to wave 2. In 2004, with addition of the dependent procedures in wave 2, exactly the opposite is true, and all wave 2 nonresponse estimates are lower than they were in wave 1 (only the "US Government Securities" difference is non-significant). Additional evidence of the positive impact of the new procedures can be seen in the large and consistent final nonresponse rate differences within wave 2 – in every case the 2004 estimate is significantly lower than the 2001 rate.

Parts 2 and 3 of Table 1 continue to show the same general patterns (with one notable outlier – see the "rental property" category). Of course for these asset types, the improvements in final nonresponse in 2004 wave 2 compared to 2001 wave 2 are not directly attributable to the dependent procedures, since the 2004 questionnaire had the advantage of both types of follow-

[8]The "other assets" category is the only exception, but recall that an instrument bug rendered the "range" follow-up unavailable in wave 1 – see footnote 3. Note that when it became available in wave 2 of 2004, where it was the only follow-up procedure ("other assets" did not have a dependent follow-up option), it produced a significant improvement in item nonresponse compared to 2001.

ups, the "range" and the dependent, which are confounded in these data.[9] Still, the consistent wave-1-to-wave-2 reduction in final nonresponse within the 2004 panel (not statistically significant for the very rarest asset types) stands in marked contrast to what appears to be the general trend in the absence of any follow-up procedures, and is additional support for the notion that the dependent procedures had an extra impact above and beyond the range follow-ups.

Another unmistakable feature of the results in Table 1 is the extremely high rate of initial nonresponse in wave 2 of the 2004 panel, which is in every case but one (see "other assets") significantly higher than the initial wave 1 rate, and in every case but one (see "mortgages") significantly higher than the 2001 wave 2 initial rate. The major difference in wave 2 of the 2004 panel, of course, and a very likely factor in the increase in initial nonresponse, is the presence of the dependent nonresponse follow-up questions. Although definitive proof is lacking, several trails of evidence point to interviewer behavior as an important cause of the major jump in initial nonresponse. One such trail is comprised of several 2004 panel wave 2+ interview observation reports (Bruun, 2005; Davis, 2005; Gilbert, 2005; Moore, 2004), each of which independently notes interviewers' misuse of the dependent nonresponse follow-up option as a means to "peek ahead" at what the respondent reported in the last interview, before he/she even had a chance to report an amount on his/her own. For example:

> There were a significant number of questions ... which the FR did not even ask... The FR frequently skipped the question asking how much an individual earned from a given asset. He used the 'L' option and asked the respondent whether or not that value was still the case. [Bruun (2005), p1]
>
> The FR [said] that he is hesitant to offer the "L" option, but it seemed that he was always prepared to offer it. ... he would always check to see if there was an amount from last time before the respondent could answer. [Gilbert (2005), p2]
>
> Any time a respondent hesitated even for an instant to provide an answer to an amount question – well before an explicit "I don't know" or "It hasn't changed" issued from the respondent's lips – [the interviewer] voluntarily offered to check to see if there was an amount from last time which could be used as a prompt. [Moore (2004), p3]

The data shown in Table 2 offer strong confirmatory evidence that the high rate of initial nonresponse is a result of interviewer behavior, and not respondent conditioning. This table summarizes initial 2004 wave 2 responses to the income amount questions for the interest-

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[9] An analysis covering just the six interest-earning accounts subset of assets reveals that nonresponse in wave 2 of the 2004 panel was most often resolved via the dependent question procedures – about three-fourths of the successful resolutions of an initial nonresponse were of this type, and about one-fourth came from use of the "range" procedures, having bypassed the dependent questions for one reason or another. About two-thirds of the nonresponse resolutions using dependent procedures (i.e., one-half of all resolutions) involved presenting the respondent with a specific dollar amount report from the previous wave; the remainder presented the previous wave's amount range report.

earning accounts asset subset, separately by rotation group, which of course are comprised of different sets of respondents. Note the large upward trend in use of the “L” option across the four groups: the rate essentially doubled from rotation group 1 to rotation group 4. Obviously, this trend is independent of respondents’ actions, and can only reflect changes in interviewer behavior.

There is no mention of this problem in any of the observation reports from the Methods Panel testing phase. However, during recent consultations with SIPP field staff on the development of refresher training materials to try to curb overuse of the “L” option it became clear that a misperception about the “L” option existed among some of the latter. The Methods Panel intent was that “L” was a response option like any other, to be recorded by the interviewer only if respondents uttered appropriate words (i.e., words to the effect that the amount in question was “the same as the **l**ast interview”). The refresher training development surfaced another interpretation entirely, which was that the presence of the “L” option was a signal to interviewers that a prior wave answer was available for their examination.

This misperception triggered a review of the wave 2 training materials (U.S. Census Bureau, 2004) which found some unintended support for it. Nowhere do the training materials explicitly note that “L” is only to be entered if “same as last time” (or something similar) is what the respondent actually *says*; instead, the impression is left that interviewers may access the prior wave information whenever it is available. Sometimes this permission is implied:

> Throughout each section of the instrument, you will see the use of dependent data. As you know, dependent data is information provided by a respondent in the previous interview. It is only used when:
> – There is no Respondent Identification Policy (RIP) problem;
> – The person is a continuing respondent, that is, the person was a household member during the previous interview, and
> – We have data for that particular question from the previous interview.
> ...
> If the respondent answered “yes” to the RIP question in the previous interview, we are free to use dependent data in the next interview, no matter who in the household we speak with. [p H-3; also p I-3]

And sometimes it is quite explicit:

> [as part of a practice interview, an interviewer is conducting the “earnings” section of a wave 2 interview, reading the SAME screen:]
> I have recorded from before your biweekly paychecks are the same each time. What is that gross biweekly amount before deductions?
> [note to instructor:] **(Interrupt and say:)**
> This is an example of dependent data from the last interview. Go ahead and enter “L” now. [p H-93; also p I-70]

Thus, it is possible that interviewers' misuse of the "L" option derives from an initial training that was at best unclear, and at worst misleading. A wave 6 refresher training package was developed in an attempt to address the problem; whether it can effectively counteract a misunderstanding that has gone unchallenged for several survey waves remains to be seen.

4.5. Research Limitations

It is rare that any research offers unassailably definitive findings; this project is certainly no exception. Several factors limit the confidence with which conclusions may be drawn from this research, chief among which may be the fact that it had to use a "natural experiment" as opposed to a designed one. As a result, the analysis must rely on an underlying assumption of equivalent survey conditions when in fact the survey conditions were not controlled. It is easy to identify many differences, in addition to those of primary interest here:

(a) the many other questionnaire design differences which were confounded with those of interest to this investigation;
(b) the use of different interviewer pools (overlapping, to be sure, but by no means identical);
(c) different sample designs;
(d) different immediate survey contexts – e.g., the 2001 advance letter advised respondents that "answering the questions is voluntary"; the 2004 letter tried to reduce the likelihood of complete nonresponse by presenting voluntary cooperation in a different light ("you may decline to answer any particular question") which may have affected item nonresponse proclivities; and
(e) different socio-cultural milieus (i.e., almost all of the 2001 wave 1 and 2 interviews took place before the 9/11 terrorist attacks).

No doubt there are many other differences as well, all of which are ignored in this investigation, and all of which could affect the 2001-2004 comparisons in unknown ways. Another important limitation is the use of the unedited and unweighted "TransCASES" data files; edited and weighted data may yield different results. While it is necessary to note these caveats about potential confounds, it is just as essential to note that there is no indication that any of them actually *did* affect the results in important ways, or the conclusions drawn from them.

Finally, it is useful to acknowledge once again that the analysis of the benefits of the various questionnaire design changes on item nonresponse assumes an equivalence between the response to a follow-up procedure and an initial dollar amount report. While this may be true in the case of a respondent's confirmation that a prior wave amount (or its corrected value) is appropriate for the current wave, it is certainly not as defensible when the follow-up report is in the form of an amount range.

5. Conclusions and Discussion

The two new follow-up procedures employed in waves 1 and 2 of the SIPP 2004 panel explicitly to combat nonresponse to asset income amount items were very effective at obtaining some information from those who failed to provide an amount report initially. As a result, compared to the 2001 panel, final nonresponse rates for amount items – defined here as the absence of any useful asset income information – was significantly reduced in the 2004 panel, in some cases to less than half the rate that had been experienced in the past. The same conclusion cannot be said to apply to the new procedure allowing respondents to choose a reporting period for their asset income reports; while it may have been useful in other ways, this procedure does not appear to have yielded any payoff in the form of reduced nonresponse to asset amount items.

The benefits of the new follow-up procedures did not come without costs, however, and this is especially the case with regard to the dependent procedures. Particularly troubling are the very large increases in initial nonresponse in wave 2, which are almost certainly due to those procedures. This appears to be a matter of bringing interviewer behavior under better control, so that they allow the natural response process to unfold before turning to the follow-up options. Whether this is possible, given the understandable natural pressures on interviewers to access those procedures with little delay, and given the apparent need to "unlearn" what is by now perhaps an habitual practice (encouraged, unfortunately, by some off-target early training), remains to be seen. Other costs of these procedures are more practical and operational in nature, though no less important – dependent interviewing procedures add complexity to a survey instrument, and complicate data analysis, and require that much additional effort be devoted to such activities as the extraction of the appropriate data from one survey wave, and the transfer of those data to the next wave.

This research highlights several obvious candidates for future research, some of which have already been alluded to. Can interviewer behavior be modified? What is the impact, if any, of the wave 6 refresher training on their tendency to be too quick to access dependent information? What impact does the ability to access prior wave amount data have on other aspects of data quality, such as measurement error? And what is the impact of the new focus of the "range" follow-up questions, and their expansion to all asset types? What evidence can be marshaled that this information improves the quality of the imputations that must be implemented to fill in an otherwise missing point-estimate dollar amount? In concert with the present study, which does suggest some clear positive benefits to the new procedures, additional research on these and other topics will allow a more thorough cost-benefit evaluation.

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Tables

Table 1: Initial and Final Item Nonresponse Rates for Asset Income Amount Reports in Waves 1 and 2 of the SIPP 2001 and 2004 Panels, by Asset Type
[Data source: TransCASES data files, unweighted]

Asset Type	Nonresponse ("N-R") Stage	Wave 1		Wave 2	
		2001	2004	2001	2004
Part 1: Interest-Earning Accounts					
CHECKING ACCTS (01)	Initial % N-R	28.7[a]	28.9[a]	37.2	57.4
	FINAL % N-R	9.9	8.6	14.2	6.1
	(n)	(13,877)	(19,195)	(11,647)	(19,244)
SAVINGS ACCTS (02)	Initial % N-R	33.3[a]	32.8[a]	41.6	60.4
	FINAL % N-R	10.5	9.8	15.0	6.8
	(n)	(22,811)	(31,278)	(18,904)	(30,950)
MONEY MARKET DEPOSIT ACCTS (03)	Initial % N-R	38.8	42.0	47.6	68.7
	FINAL % N-R	15.6	17.1	20.5	13.1
	(n)	(6,076)	(8,154)	(4,999)	(7,830)
CERTIFICATES OF DEPOSIT (04)	Initial % N-R	45.6[a]	45.6[a]	55.2	71.3
	FINAL % N-R	17.3	19.6	22.5	15.2
	(n)	(5,736)	(6,253)	(4,672)	(6,062)
MUNICIPAL / CORPORATE BONDS (05)	Initial % N-R	48.0[a]	47.0[a]	54.3	73.7
	FINAL % N-R	22.8[b]	21.9[b]	27.4	16.7
	(n)	(1,278)	(1,590)	(1,028)	(1,509)
US GOVERNMENT SECURITIES (06)	Initial % N-R	49.8[a]	47.1[a]	57.3	72.7
	FINAL % N-R	24.8[b]	21.4[b,c]	30.9	17.8[c]
	(n)	(548)	(656)	(455)	(614)

[Table 1 continued on next page...]

Table 1: Initial and Final Item Nonresponse Rates for Asset Income Amount Reports in Waves 1 and 2 of the SIPP 2001 and 2004 Panels, by Asset Type
[Data source: TransCASES data files, unweighted]

Asset Type	**Nonresponse ("N-R") Stage**	**Wave 1**		**Wave 2**	
		2001	**2004**	**2001**	**2004**
Part 2: Mutual Funds and Stocks (no n-r follow-ups in 2001)					
MUTUAL FUNDS (07)	Initial % N-R	39.6	49.9	45.8	74.0
	FINAL % N-R		21.7		18.0
	(n)	(5,793)	(8,180)	(3,916)	(7,731)
STOCKS (08)	Initial % N-R	34.6	42.3	40.5	66.8
	FINAL % N-R		19.3		16.3
	(n)	(6,333)	(10,334)	(4,461)	(9,839)
Part 3: Other/Miscellaneous Assets (no n-r follow-ups in 2001)					
RENTAL PROPERTY	Initial % N-R	18.7	20.6	25.8	47.4
	FINAL % N-R		15.6		28.3
	(n)	(2,008)	(2,948)	(1,526)	(2,897)
MORTGAGES	Initial % N-R	42.9	28.7	57.3[b]	57.6[b]
	FINAL % N-R		16.1[a]		13.3[a]
	(n)	(347)	(465)	(255)	(459)
ROYALTIES	Initial % N-R	16.4	22.0	22.9	56.2
	FINAL % N-R		12.4[a]		9.2[a]
	(n)	(403)	(500)	(315)	(411)
OTHER ASSETS	Initial % N-R	15.6[a]	15.7[a, b, c]	22.1	17.3[b]
	FINAL % N-R				14.6[c]
	(n)	(1,047)	(1,270)	(742)	(1,300)

[Table 1 continued on next page...]

Table 1: Initial and Final Item Nonresponse Rates for Asset Income Amount Reports in Waves 1 and 2 of the SIPP 2001 and 2004 Panels, by Asset Type
[Data source: TransCASES data files, unweighted]

Asset Type	Nonresponse ("N-R") Stage	Wave 1		Wave 2	
		2001	2004	2001	2004
Part 4: SUB-TOTALS AND TOTALS, ALL ASSET TYPES					
Part 1 SUB-TOTAL Interest-Earning Accounts	Initial % N-R	34.6[a]	34.5[a]	43.1	61.9
	FINAL % N-R	12.2	11.7	16.8	8.4
	(n)	(50,326)	(67,126)	(41,705)	(66,209)
Part 2 SUB-TOTAL Mutual Funds and Stocks	Initial % N-R	37.0	45.7	43.0	70.0
	FINAL % N-R		20.4		17.0
	(n)	(12,126)	(18,514)	(8,377)	(17,570)
Part 3 SUB-TOTAL Other/Miscellaneous Assets	Initial % N-R	19.8[a]	20.3[a]	27.3	41.3
	FINAL % N-R		15.4		21.9
	(n)	(3,805)	(5,183)	(2,838)	(5,067)
TOTAL, ALL ASSET TYPES	Initial % N-R	34.2	35.9	42.2	62.3
	FINAL % N-R	17.2	13.7	21.5	10.9
	(n)	(66,257)	(90,823)	(52,920)	(88,846)

Table 1 Notes:
(1) The "(n)" row indicates the number of respondents who were presented with at least one asset amount question for that asset type.
(2) "Initial % N-R" and "FINAL % N-R" – see text (especially section 4.1., pages 9-10) for explanation.
(3) Matching superscripts indicate estimates that are not statistically significant at the p<.10 level; all other reasonable comparisons are statistically significant, minimally at the p<.10 level, but mostly at the p<.001 level or beyond.

Table 2: Percent Distribution of Initial Responses to SIPP 2004 Wave 2 Amount Items for all Interest-Earning Accounts Combined, by Rotation Group
[Data source: TransCASES data files, unweighted]

Initial Response	Rotation Group			
	1	2	3	4
Reported a $ amount (inc. 0 or "None")	40.0	32.7	28.0	25.0
"L" ("same as last time")	**29.9**	**45.4**	**52.8**	**56.2**
Don't know / Refused	30.2	21.9	19.2	18.8
Total (n)	100% (17,505)	100% (17,451)	100% (17,726)	100% (16,652)

Note: Rotation Group 1 categories do not add to 100% due to rounding.