
Enhancing the Quality of Data on Income

Recent Innovations from the HRS

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ABSTRACT

This paper evaluates two survey innovations introduced in the HRS that aimed to improve income measurement. The innovations are (1) the integration of questions for income and wealth and (2) matching the periodicity over which income questions are asked to the typical way such income is received. Both innovations had significant impacts in improving the quality of income reports. For example, the integration of income questions into the asset module produced in HRS an across-wave 63 percent increase in the amount of income derived from financial assets, real estate investments and farm and business equity. Similarly, asking respondents to answer using a time interval consistent with how income is received substantially improved the quality of reports on social security income. Fortunately, we also suggest ways that these innovations can be introduced into other major social science surveys.

I. Introduction

There has been concern about the reliability of survey estimates of income and wealth ever since such measures began to be collected systematically in the 1940's and 1950's (Sudman and Bradburn 1974; Radner 1982). Obtaining accurate and unbiased household wealth measures has been problematic due to the reluctance of the extremely wealthy to participate in social science surveys at all,

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and the widespread prevalence of item nonresponse to wealth questions in particular. Ironically, using new survey innovations, there has been considerably greater progress in mitigating problems for wealth measurement than for income. For example, given the extreme skew in wealth distributions, the bias resulting from the substantially higher nonresponse rates among very wealthy households has been dealt with in the various Surveys of Consumer Finances conducted since 1983 by the use of special sampling frames (such as tax files) that oversample the super-wealthy. Similarly, the growing use of unfolding bracket techniques to handle missing data problems have resulted in reduced measurement error and lower bias due to nonignorable item nonresponse to wealth questions (Juster and Smith 1997). To date, no parallel progress has been documented for income measurement.

In this paper, we attempt to remedy this situation by evaluating two survey innovations aimed at improving income measurement. These innovations are (1) integrating the question sequences for income and wealth which may elicit more accurate estimates of income from capital than has been true in the past, and (2) changes in the periodicity over which income flows are measured, which may provide a closer match between what the survey respondent knows best and the periodicity contained in survey measurement. These innovations have been introduced into both the Health and Retirement Study (HRS) and the study of Asset and Health Dynamics Among the Oldest Old (AHEAD). Based on the results reported in this paper, the potential return in quality of income measurement from these innovations is substantial.

The paper is organized as follows. In the next section, we document the extent of income under-reporting in household surveys and discuss the data on which this research will rely. In Section III, we investigate the implications of integrating questions about income from capital with the questions about household wealth. Section IV explores the implications of changes in the reference period for certain types of income flows.

II. Data Sources and Bias in Income Reporting

Questions about income rank among the most difficult to answer in household surveys (Sudman and Bradburn 1974; Coder and Scoon-Rogers 1995). Besides any reluctance respondents may have in revealing information they consider private and sensitive, significant cognitive issues exist that may make it difficult for respondents to accurately report their incomes. Especially when asked about the incomes of other family members, their knowledge about the actual income amounts may be quite limited. Some incomes are received on an irregular basis so that accuracy of reports may depend on how soon after the last receipt the survey questions are asked. Similarly, the dollar amounts involved may be variable from period to period, or taxes and other expenses may or may not be deducted. Finally, respondents may be asked to report their incomes over a time span that is different from how their incomes are received or remembered. These factors may result both in a significant bias (typically underreporting) or in misreporting or random measurement error.

Table 1 gives some indication about the extent of income under-reporting by comparing Current Population Survey (CPS) estimates of various types of income relative to external benchmark estimates according to CPS validation studies. Across

all income sources, CPS income reports are 89 percent of the benchmark indicating an 11 percent underreport on average. However, there exists considerable variation around that average. There is a little bias in CPS wage and salary incomes which are 98 percent of the benchmark. Social Security income contains more bias (95 percent of the benchmark), but appears to be less understated than the other major source of retirement income—private pensions. But private pensions may be a case where the benchmark is too high since it includes lump sum withdrawals and roll-overs to other accounts such as IRAs and Keoghs. Excluding such lump sum payments places the CPS pension income at about 84 percent of the benchmark (Woods 1996; Schieber 1995). By far, the most severe underreporting occurs in interest and dividends, where CPS reports are about half the external benchmarks. Even when these income sources are reported without bias, there remains the problem of substantial measurement error in reports of amounts (Ferber 1966; Moore, Stinson, and Welniak 1997).

Our research will rely on data from three well-known surveys—the Health and Retirement Survey (HRS), the Asset and Health Dynamics of the Oldest Old (AHEAD), and the Current Population Surveys (CPS). HRS is a national sample of about 7,600 households (12,654 individuals) with at least one person in the household born between 1931 and 1941 (51–61 years old at the interview date). At baseline, an in-home, face-to-face interview of some 90 minutes was conducted starting in the spring of 1992 and extending into early 1993. Given its focus on the preretirement years, the principal objective of HRS is to monitor economic transitions in work, income, and wealth, as well as changes in many dimensions of health status.

AHEAD has 6,052 households (8,204 individuals) from the birth cohorts of 1923 or before, thus with at least one person aged 70 or over in 1993. The baseline AHEAD interview was done in 1993 using computer-assisted telephone techniques for respondents aged 70–79 and computer-assisted in-person interviews for those aged 80 and over. Given its older age span, AHEAD's objectives shift toward the relationship between economic status and changes in physical and cognitive health in old age, the maintenance of independent living arrangements, and dis-savings and asset decline.¹

HRS and AHEAD are both longitudinal surveys with data collected every other year. Both surveys obtained extensive information about the economic situation of the households, including a complete accounting of assets stock and income flows. In addition to housing equity (with separate detail for the first and second home), assets were separated into the following categories in HRS and AHEAD: other real estate; vehicles; business equity; IRAs or Keoghs; stocks or mutual funds; checking, savings, or money market accounts; CDs, government savings bonds, or treasury bills; other bonds; trusts and estates; other assets; and other debt. Similarly, separate questions were asked in both surveys about a long list of income sources for both the respondent and spouse: wages and salaries, self-employment income, tips and bonuses, unemployment compensation, workers' compensation, Social Security in-

1. In both surveys, African-Americans, Hispanics, and residents of Florida were over sampled at a rate of two to one. Baseline response rates were 82 percent in HRS and 81 percent in AHEAD, and each survey conducted follow-ups at approximately two-year intervals. Attrition rates for these surveys averaged about 7 percent per wave.

come, supplemental security income, private pension income, welfare, disability income, veterans' benefits, or a military pension. In addition, questions were asked at the household level about rental income, income from business, interest and dividends, annuities, and food stamps.

There are two specific enhancements implemented in HRS and AHEAD aimed at improving the quality of income measurement—the integration of income from asset questions with questions about the assets from which such income is derived, and the use of periodicity questions that for certain income sources more closely reflect the frequency with which such income is received. We discuss these enhancements in detail below. HRS and AHEAD income and asset modules are given to the “knowledgeable financial respondent”—the eligible respondent most knowledgeable about the household’s financial situation. Especially in AHEAD, proxy respondents are occasionally used if the financial respondent is not physically able to respond or suffers from severe cognitive problems. Because the integration of asset and income questions took place between the second and third waves of HRS and the first and second waves of AHEAD, across-wave comparisons of reports of income from capital provide a convenient way of evaluating the impact of this integration. Since AHEAD did not vary the periodicity of income reporting, on that issue we must turn to another survey for a comparison.

The Current Population Surveys (CPS) are the most widely used source to monitor labor force and income changes by year in the United States, and thus represent a useful standard of comparison to HRS and AHEAD. CPS conducts interviews each month with the number of households interviewed varying from 47,000 to 57,000 households during the 1990s (Current Population Reports). CPS households are interviewed for four successive months, are not interviewed for the next eight months, and then are interviewed once again for four successive months. Annual incomes from many sources are obtained during the March interview. Consequently, although CPS is normally not thought of as panel, approximately half the respondents are interviewed across two adjacent March interviews.

Since no questions are asked about the value of household assets, the CPS cannot be used to evaluate the merit of integrating asset and income questions. However, CPS does ask questions about a long list of income sources using varying reporting periodicities. CPS income sources include wages and salaries, self-employment income, tips and bonuses, unemployment compensation, workers' compensation, Social Security income, supplemental security income, private pension income, welfare veterans' benefits, or a military pension. In addition, questions were asked at the household level about rental income, income from business, interest and dividends, annuities, and food stamps. CPS questionnaires are typically answered by one household member who may or may not be the most knowledgeable about its financial affairs.

III. The Measurement of Income from Assets

Table 1 indicated that the most serious under-reporting of income takes place in measures of income from capital. Some of this under-reporting no doubt stems from the positive skew in ownership of assets from which these income

Table 1
CPS Income as a Percent of Independent Sources

Wages and Salaries	98.2
Social Security and Railroad Retirement	94.8
Interest	51.3
Dividends	42.9
Net rents and royalties	81.3
Private pensions and annuities	70.6
All income	89.2

Derived from Current Population Reports Consumer Income Series P-60. Money Income of Households, Families, and Persons in the United States. Department of Commerce, Bureau of Census. Numbers produced here are average of Volume No. 180 and 184.

flows derive, but we will demonstrate here that this is far from the whole story. One enhancement implemented in HRS and AHEAD involves the measurement of income from assets. How do the better social science surveys typically attempt to measure income from assets? As in CPS, toward the end of the income sequence, there is likely to be a series of questions asked in close proximity to each other about rental income, interest and dividend income, and income from ownership of a business or farm. There are either no survey questions about the underlying assets that yield the income, or questions about those assets appear in a different part of the survey module (the wealth module).² Therefore, the normal feature of economic modules in surveys is that all the asset questions are strung together in one section, and all the income questions are strung together in another section. The fact that the assets and the income are closely related is not exploited as a way to enhance data quality by joggng the respondent's memory.

The cleanest case is interest and dividend income, since the underlying sources of the income flows—holdings of common stock, bonds, CDs, checking and savings accounts, money market funds, etc.—are more likely to be reliably reported by the household than the income generated from these assets. But a comparison of the fraction of households who report holding asset and the fraction who report receiving any interest or dividend income from that asset strongly suggests that survey estimates of income from assets are badly underestimated. In the typical survey, the fraction of households reporting interest or dividend income is much smaller than the percentage reporting ownership of assets that might yield an interest or dividend income flow. To illustrate, 75 percent of HRS Wave 2 households report holding some financial assets, but less than 30 percent report having any interest or dividend income.

2. The Census and CPS are good examples of surveys without a wealth module that ask questions about income in this way. The PSID, SCFs, SIPP and the set of National Longitudinal Surveys are examples of surveys with separate wealth and income modules where the income questions are not integrated with the questions on wealth categories that generate that income.

In light of this gross inconsistency in income and asset reports, we revised in the third wave of HRS and the second wave of AHEAD the way income questions were asked. Essentially, we created a “merged” asset and income module in which questions about particular types of assets were followed immediately by questions about income from the asset. The key to this entire sequence is the way in which income-yielding assets are handled. The standard question sequence we developed asked first about ownership of the asset; for those households reporting ownership we then asked about the value of the assets. We next asked whether any income was received from the asset and, if so, about the periodicity and whether approximately the same amount was received every period. For households reporting ownership, value, some income, and a monthly periodicity, with about the same amount received every month, the idea was to calculate last year’s income from the periodic amount and the periodicity. For households reporting that the amount received every period wasn’t always the same, we branched to a question about the amount of income received from the asset in the prior calendar year. This question sequence was used for the four types of financial assets included on HRS and AHEAD (checking, savings, and money market accounts; CDs, savings bonds and Treasury Bills; stocks; and bonds), as well as for real estate investment equity and business and farm equity.

Comparisons of results from this new way of asking about income from assets (used in HRS3 and AHEAD2) with estimates of income from assets produced by the conventional survey methodology (as reflected by HRS and AHEAD1) show dramatic differences in income amounts reported. Table 2 highlights the impact by listing mean income and the value of asset holdings by source in HRS2 and 3 and AHEAD1 and 2. The effects of the integration are quite dramatic. Between HRS2 and HRS3, income from these financial assets, real estate investments, and business and farm equity combined increased from \$5,669 a year to \$9,266 a year. Part of this increase in income may be due to the growing asset values common to the 1990s, but this can explain only a small part of the increase. While the value of assets goes up by about 14 percent between HRS2 and 3, income from assets increased by 63

Table 2
Weighted Means of Assets and Income of HRS and AHEAD

Categories	HRS3	HRS2	AHEAD2	AHEAD1
Asset values, four financial flows	73,139	56,771	91,929	50,766
Income from four financial flows	3,218	1,502	6,740	2,991
Real estate value	49,527	41,700	25,591	24,231
Rental income	2,592	1,564	1,399	554
Asset value, own business or farm	22,064	28,839	NA	NA
Income from own business or farm	3,456	2,603	NA	NA
Total nonhousing asset values, in dollars	144,730	127,310	117,520	82,010
Total income from assets, in dollars	9,266	5,669	8,138	3,545

percent, While the integration of asset and income questions affected all income sources, the impact was largest in income amounts from the four financial assets (a greater than a two-fold increase), and smallest in income from business and farm (a 32 percent increase). Following the integration of the asset and income questions, capital income increases of an even larger magnitude (more that \$8,000 compared with about \$3,500) appear between AHEAD1 and 2.

The failure to report interest or dividend income using the conventional survey format, while in an absolute sense related to the size of asset holdings, appears to apply throughout the full range of asset holdings. Table 3 provides the relevant data for HRS2 and 3, dividing the sample into asset categories ranging from none to more than a quarter of a million, and then subdividing income into categories starting with none and going up to \$25,000 or more. Examine first the relationship between asset holdings and income flows for the sum of the four financial assets contained in the surveys. Ninety percent plus of households in HRS2 who report a small number of financial assets (\$1–2499) also report zero interest or dividend income. In contrast, 63 percent of HRS3 households in the same asset group report zero interest or dividend income.

But the most dramatic results occur among those with a great deal of these assets. For example, 31 percent of HRS2 households who had more that \$250,000 of financial assets still reported that they received no income at all from these assets. That result is not plausible and indicates that without tying the income questions to the presence and amount of the asset there is a substantial understatement of the prevalence and level of income from assets. The integration of the asset and income question resulted in a substantial decrease in the inconsistency between asset and income reports. In HRS3 among those with more than \$250,000 in these financial assets, only 3 percent did not report any income from this source.

Similar but less dramatic results show up in our analysis of the value of real estate holdings compared with reports of rental income, and the value of owned businesses or farms compared with income from those businesses or farms. Of those reporting more than \$250,000 in investment real estate holdings, 52 percent reported zero

Table 3
Distribution of Income from Assets

	Total	None	<\$50	\$50-	\$250-	\$1K-	\$5K-	>\$25K
A. Interest or Dividend Income								
from Four Financial Assets								
HRS3								
None	1,243	97.2	0.8	0.8	0.9	0.2	0.1	0.0
\$1–2,499	1,351	63.1	17.2	11.6	6.5	1.3	0.4	0.0
\$2,500–9,999	956	27.0	15.6	28.8	19.6	8.5	0.5	0.1
\$10K–49,999	1,520	10.0	6.8	17.6	29.8	32.1	3.6	0.1
\$50K–249,999	1,275	6.7	2.0	4.0	8.8	43.2	31.8	3.5
>\$250K	371	3.0	0.8	1.1	1.1	16.7	48.8	28.6
Total N	6,716	38.2	7.8	11.4	12.7	17.9	9.7	2.3

Table 3 (continued)

	Total	None	<\$50	\$50-	\$250-	\$1K-	\$5K-	>\$25K
HRS2								
None	1,322	98.5	0.2	0.5	0.5	0.2	0.2	0.0
\$1-2,499	1,294	91.8	2.1	3.1	1.6	1.4	0.1	0.0
\$2,500-9,999	1,123	76.6	2.0	8.8	8.5	3.7	0.5	0.0
\$10K-49,999	1,703	60.0	1.1	7.0	16.4	12.6	2.5	0.4
\$50K-249,999	1,217	43.1	0.9	2.6	10.9	26.9	14.3	1.2
>\$250K	278	30.6	0.7	2.5	6.1	15.1	30.9	14.0
Total N	6,937	71.8	1.2	4.4	7.9	9.3	4.5	0.9
B. Rental Income								
HRS3								
None	5,153	99.8	0.0	0.0	0.0	0.1	0.1	0.0
\$1-2,499	22	77.3	0.0	0.0	4.6	13.6	4.6	0.0
\$2,500-9,999	123	86.2	0.0	1.6	0.8	7.3	4.1	0.0
\$10K-49,999	483	64.0	0.0	1.2	1.5	20.1	13.0	0.2
\$50K-249,999	641	40.6	0.0	0.3	0.3	16.2	38.1	4.5
>\$250K	294	27.9	0.0	0.3	1.0	8.5	29.9	32.3
Total N	6,716	88.1	0.0	0.2	0.2	3.7	6.1	1.9
HRS2								
None	5,299	95.5	0.0	0.0	0.6	2.3	1.6	0.1
\$1-2,499	50	88.0	0.0	0.0	0.0	8.0	4.0	0.0
\$2,500-9,999	141	90.8	0.0	0.7	2.1	4.3	2.1	0.0
\$10K-49,999	539	73.1	0.0	0.7	2.4	13.2	10.2	0.4
\$50K-249,999	666	51.5	0.0	0.6	1.8	15.3	26.4	4.4
>\$250K	242	51.7	0.0	0.0	0.8	5.8	25.6	16.1
Total N	6,937	87.8	0.0	0.1	0.9	4.6	5.5	1.1
C. Income from Own Business or Farm								
HRS3								
None	5,966	98.9	0.0	0.0	0.0	0.3	0.5	0.3
\$1-2,499	24	33.3	8.3	0.0	0.0	16.7	33.3	8.3
\$2,500-9,999	117	31.6	1.7	0.0	2.6	7.7	29.9	26.5
\$10K-49,999	117	32.5	0.0	0.9	3.4	16.2	24.8	22.2
\$50K-249,999	361	33.0	0.0	0.6	3.3	12.5	26.6	24.1
>\$250K	131	21.4	0.0	0.0	0.8	3.8	20.6	53.4
Total N	6,716	91.3	0.1	0.0	0.3	1.5	3.4	3.5
HRS2								
None	6,009	95.9	0.0	0.3	0.4	1.0	1.6	0.8
\$1-2,499	34	64.7	0.0	0.0	0.0	20.6	11.8	2.9
\$2,500-9,999	74	74.3	0.0	1.4	5.4	8.1	10.8	0.0
\$10K-49,999	226	72.6	0.0	0.4	3.1	6.2	9.3	8.4
\$50K-249,999	416	64.7	0.0	1.2	2.2	7.9	15.4	8.7
>\$250K	178	57.9	0.0	1.1	2.3	6.7	11.2	20.8
Total N	6,937	91.9	0.0	0.4	0.7	1.9	3.0	2.1

rental income in HRS2 compared with 28 percent in HRS3. Among those with more than one-quarter million dollars in farm or business assets, 58 percent, reported no income in HRS2 while only 21 percent did so in HRS3.

It is not surprising if people with a few dollars of interest or dividend income report that they had zero interest and dividend income. It is quite surprising that many people with more than a quarter of a million dollars of financial asset holdings report zero interest or dividend income when the question is asked in the conventional format relative to what they report when the question is asked in the merged format. We believe that the better quality income reports are obtained with the merged format as a respondent has just been asked to think about the existence and size of asset holdings. This merged format makes it difficult to report zero income having just reported substantial asset holdings. Whatever the explanation, the merged income/asset format produces a dramatic improvement in the reporting of income flows from assets

There are also some income distribution consequences to the enhanced reporting of income from capital. This income tends to be held by wealthier households so that underreporting of income may simultaneously understate the extent of income inequality in the population. This issue is examined in Table 4 which stratifies households into quintiles by the amount of their total household income in HRS1, and within each quintile, lists in the amount of total capital income reported in HRS2 and HRS3. While HRS3 numbers indicate that much more capital income is reported in the aggregate, the increased reporting to income from capital had very little impact on those households in the bottom fifth of the income distribution whose income declined relative to incomes in all other quintiles. In contrast, those households in the top quintile registered an increase in capital income of more than \$7000 between HRS2 and HRS3. In general, the size of the increase in capital income between Waves 2 and 3 grew across income quintiles. This pattern implies that the absolute income gap of the well-to-do relative to the poor is understated by conventional survey methods of obtaining household income.

Table 4

Weighted Means of Capital Income Flows by HRS-1 Total Household Income Quintiles

HRS1		Weighted Means		
Total Household Income				
Quintile	Mean Value	HRS2 Capital Income	HRS3 Capital Income	Change in Capital Income
First	9,886	1,652	2,003	351
Second	25,428	2,107	4,366	2,259
Third	40,762	3,571	5,371	1,800
Fourth	59,660	5,018	10,193	5,175
Fifth	116,397	16,757	23,956	7,199

IV. The Effect of Income Periodicity

The second survey innovation we evaluate concerns the time span or periodicity over which income is reported. For simplicity, many surveys have respondents report all income sources in the same periodicity even though periodicity and regularity of payments may vary a great deal by source. Yet, especially for income sources which are not variable, respondents may know and answer best if the question refers to the time interval at which they normally and most recently receive that income (Tourangeau, Rips, and Rasinski 2000). When respondents are requested to report in a periodicity different from that of usual receipt, we may be asking them to perform quickly some difficult cognitive and computation tasks. The value of a specific periodicity may be highest for income flows that tend to continue indefinitely, to change slowly (perhaps due to a COLA adjustment), and to arrive with uniform periodicity (typically a month).

Given these specifications the most likely income flows to gain from alternative periodicities may be income sources generally received by older and retired households. The most common source in this category is Social Security benefits, which are received monthly, are adjusted annually for Cost of Living changes, do not have taxes withheld, and involve withholding only to the extent that respondents select Medicare Part B as an option (more than 90 percent do). In this case, asking the amount of last month's Social Security check may produce better estimates of Social Security income than asking, as is the usual case, for Social Security benefits paid during the most recent calendar year. Thus, it seems better to estimate Social Security benefits by asking about last month's Social Security check, multiplying it by twelve for respondents who began to receive Social Security payments prior to the beginning of the most recent calendar year (and multiplying it by the appropriate number of months for households who began to receive payments sometime during the prior calendar year).

Since—at least for subpopulations of recipients—the “truth” is known, Social Security may also represent the ideal income source to gauge respondents' ability to report their income accurately. By age 70 when there are no earnings tests or Social Security disability income, Social Security income is fixed legislatively by a formula that depends on the history of past earnings and on family composition. If there are no changes in family composition due to divorce, separation, or death, Social Security income is only revised across calendar years by a universal Cost of Living Adjustment (COLA) first given in the January check each year. To eliminate such demographic reasons for changes in Social Security income, we restricted our AHEAD sample to households where both respondents were at least 70 years old in the first wave and where no marital status changes or deaths occurred between the first and second wave. We also required both respondents to have received some Social Security income in each wave so that there is no ambiguity that we are dealing with program beneficiaries. Finally, cases were deleted when Social Security income was imputed in either wave of the panel.

Given these sample restrictions, Social Security income in our remaining sample should only change due to a COLA. To compare reports of Social Security income across successive waves, we adjusted the Wave 1 report by any COLA that would have taken place given the month and year of interviews. Between waves, most (86.5

Table 5
Percentiles of Differences in Annual Social Security Income

Percentile	CPS				
	AHEAD	1996–97			
	1994–95	1992–93	All	Monthly 1 ^a	Monthly 2 ^b
95	1,563	3,415	3,799	2,682	2,167
90	863	1,965	1,948	1,271	1,134
75	208	545	435	301	256
50	-57	46	-36	-49	-47
25	-263	-405	-540	-369	-310
10	-807	-1,973	-1,921	-1,161	-1,034
5	-1,578	-4,062	-3,956	-2,499	-2,232

a. Based on CPS respondents using monthly reporting intervals.

b. Based on CPS respondents using monthly reporting intervals and after Medicare deduction.

percent) AHEAD respondents had two COLA adjustments, but 8.4 percent had only one while 5.1 percent had three. If all respondent reports were completely accurate, these adjusted Wave 1 and actual Wave 2 reports of Social Security income would be identical. Differences between them therefore reflect reporting error.

The first column in Table 5 displays percentile distributions of arithmetic differences in Wave 1 Social Security income (adjusted for subsequent COLAs) and Wave 2 Social Security income. While respondents report monthly incomes, for comparison with other surveys, we list differences on an annual basis for the year 1995. The specific year chosen does not affect the results. The median difference in Social Security income is small—the COLA-adjusted Wave 1 report is \$57 higher per year greater than the Wave 2 report of Social Security income. Half of respondents give reports that are no more than \$200 apart, 80 percent give reports within roughly \$800 of each other, and 90 percent lie no more than \$1,500 (or 23 percent) apart. Reporting errors appear to be symmetric so that each wave is equally likely to be higher than the other.

Are these AHEAD income reporting errors large or small? The answer depends on the context in which the data are used. For cross-sectional analyses since mean Social Security incomes were about \$9,600 in 1995, Table 5 indicates that AHEAD reporting errors are 9 percent or more for one in five respondents. But for analysis relying on the panel nature of the data, within-person changes in Social Security income, the problem is far more serious. To illustrate, all within-person variation in Social Security income in our sample in Table 5 represents measurement error by construction.

Another way to answer this question is to compare AHEAD income reports to those obtained from other prominent surveys that rely on different methodologies

to obtain data on income. The Current Population Surveys (CPS) provide such a comparison. During the 1990s, CPS made several revisions in the way it asks income questions, including Social Security income. Before 1994, CPS respondents were asked to report Social Security income for the last calendar year. Starting in 1994, respondents first selected the periodicity (monthly, quarterly, or annual) in which they wanted to report and then gave a dollar amount for this periodicity. There is a clear preference for a monthly interval for Social Security income. In 1996, for example, 77 percent of CPS respondents selected monthly as the easiest way of reporting Social Security income while 23 percent selected yearly. No matter which periodicity was chosen, the income still referred to the last calendar year. For example, if the respondent chose monthly, they were asked to give their monthly income during an average month last year. CPS staff would then convert all incomes to an annual basis which is the way income is available on public use tapes.

We matched respondents across two successive March panels for 1992 and 1993 (when CPS asked for annual Social Security income) and 1996 and 1997 when the new CPS reporting system had been in place for a while. Individuals were matched based on their sex, race, age, education, and line number. Matches had to be exact on sex, race, and line number and no more than two years apart in age and at most one year of schooling apart. We then imposed the same sample deletions used in the AHEAD sample. That is, we retained only cases in which each respondent (and spouse) were at least 70 years old in the first March survey, no deaths or marital changes occurred between March interviews, Social Security incomes were not imputed in either interview, and there was a positive report of Social Security income in both March interviews.

The second and third columns in Table 5 list percentile differences in Social Security income from the second March CPS interview minus the COLA adjusted Social Security income from the previous March CPS. Once again, the median difference was small—less than 50 dollars a year. However, differences in CPS reports of Social Security income are considerably larger than those in AHEAD. For example, the 90th and 10th percentiles in the CPS were about plus and minus \$1,900 compared with approximately \$800 in AHEAD. Alternatively, roughly one-fifth of CPS respondents had measurement errors in their Social Security incomes of 20 percent or more. In general, reporting errors appear to be about twice as large in CPS as in AHEAD. Moreover, the size of these CPS reporting errors seem to be about the same when the new reporting methodology was used in March of 1992 and 1997 is used as when the old CPS annual income methodology was used in March of 1992 and 1993. Apparently, these revised CPS methods did not lead to any overall improvement in the quality of income reports for Social Security income.

Why then are the quality of AHEAD reports on Social Security income apparently superior to those obtained in CPS? Several factors could produce these differences. In particular, CPS does not necessarily interview the most “knowledgeable financial respondent,” a problem that may be compounded by interviewing someone else other than the older person or his/her spouse. However, when we restricted our analysis to single person households (where there were no options about whom to interview), we found that reporting errors were still about twice as large in CPS as in AHEAD. A more likely explanation is that CPS respondents do not report in the

form in which they received their most recent check—a monthly check which excludes the deduction of the Medicare Part B premium.

To see this, the penultimate column in Table 5 lists differences in CPS Social Security income among those reporting in a monthly interval in both 1996 and 1997. CPS errors in Social Security incomes are much smaller when consistent monthly units reporting is employed. In fact, more than 60 percent of the difference between CPS and AHEAD reporting errors is explained by the use of a monthly interval. The final column in Table 5 indicates some additional quality improvement is obtained by limiting CPS respondents to those reporting in a monthly interval and after Medicare premium deductions in both 1996 and 1997. Much of the remaining difference with AHEAD is likely a consequence of the fact that, even using monthly intervals, CPS is asking respondents to perform the more difficult computational task of calculating what they received in an average month last year while AHEAD is simply asking them to remember the last check. Requiring those respondents who said they found it easier to report in a yearly interval to report monthly instead is likely to result in improved reports as the preference for yearly reporting has little conviction behind it. Even among respondents who reported in a yearly interval in 1996, two-thirds of them reported in a monthly interval one year later.³

V. Conclusion

Although under-reporting of income is often thought to be a problem for those at the bottom of the economic strata, the results presented in this paper indicate that at least for some sources of income it is more of a problem for those at the top of the heap. These income sources include income from financial assets, rental income from property, and income from business. These income sources are understated by a factor of two in conventional household surveys. Fortunately, this appears to be a problem with a solution at hand—integration of asset and income modules in surveys. Such an integration was introduced into the third wave of the Health and Retirement Survey and second wave of AHEAD. The net result was an almost doubling of these income components as well as a much more consistent reporting by households of their income and their assets.

Can the benefits of this innovation carry over to other surveys? The merged income/asset module will work best for surveys like PSID, NLS and SIPP which

3. A monthly reporting interval is not the only factor influencing the quality of income reports. Using a proportional error model of the absolute difference in reports of Social Security income, the difference in reports are about 4 percent smaller when the financial respondent is answering questions about his (her) own Social Security income than when the report is about the spouse's income. Similarly, the use of a proxy respondent leads to a 5 percent greater discrepancy in Social Security reports. The most troubling situation—especially for longitudinal analysis—occurs. In the fortunately rare case when the financial respondent changes between survey waves, the discrepancy in income reports is 25 percent. The cognitive ability of respondents is also important for the quality of income reports. For example, each remembered word in the AHEAD word count measure reduces the across-wave discrepancy in Social Security income by one percent. Finally, the more important Social Security is as a source of family income the more accurately Social Security income is reported. Individuals whose standard of living during retirement largely depends on their monthly Social Security check are more likely to remember the numbers printed on it.

are designed to collect information about asset holdings and about income flows and which have about the same number of asset categories as HRS. But the merged module may work less well in studies like the SCF, which has very detailed asset holdings (roughly 100 categories in all) so that a merger of the income and asset modules is impractical.

The interesting case involves surveys like CPS that do not currently obtain data on asset holdings in part because data on assets are thought to be sensitive (thereby encouraging refusals) and also to take too much survey time to administer. To deal with these concerns, an interesting possibility is to experiment randomly with modified versions of the merged income/asset module design that may be less sensitive and less time consuming than the full HRS treatment. One idea would be to ask about the presence or absence of asset holdings, but not about amounts. If assets were present, one would next ask whether there is any income associated with those assets and the periodicity and amount of income flows. Asking simply about the presence of assets is unlikely to be as sensitive or time consuming, but may produce some of the data quality benefits of associating income flows with assets. Another possibility is to ask about asset values but only within very broad intervals. Such knowledge may be sufficient to remind respondents of the likely income amounts they receive from these assets.

Similarly, asking respondents to answer using a time interval consistent with how income is received significantly improves the quality of reports about income. This is certainly the case with Social Security, where the same amount is received many times in a regular periodicity. The same rationale may hold for many major sources of income. Pension payments are much like Social Security payments, except that some fraction of pension payments will involve tax withholding, and many pensions are not adjusted for Cost of Living changes. But question sequences that ask about tax withholding and about Cost of Living changes should handle this problem quite well. A similar situation is likely to be the case for Veterans' Benefit payments which have the same features as Social Security or Pensions payments—once they start, they continue until the death of the recipient, and may continue beyond that depending on demographic circumstances.

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