

August 2000

**ENHANCING THE QUALITY OF DATA ON INCOME:
RECENT DEVELOPMENTS IN SURVEY METHODOLOGY**

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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 1940s and 1950s (Sudman and Bradburn 1974, Radner (1982)). Obtaining accurate and unbiased household wealth measures has been particularly problematic due to the reluctance of the extremely wealthy to participate in social science surveys at all, and the widespread prevalence of item non-response 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 non-response 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 (e.g., tax files) that over-sample 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 non-ignorable item non-response to wealth questions (Juster and Smith (1997)). To date, no parallel progress has been documented for the measurement of income.

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 2, we investigate the implications of integrating questions about income from capital with questions about household wealth. Section 3 explores the implications of changes in the reference period for certain types of income flows.

Section 1: Data Sources and Bias in Income Reporting

There is legitimate concern that questions about income rank among the most difficult to answer in household surveys (Sudman and Bradburn (1974) and Coder and Scoon-Rogers (1995)). Besides any reluctance respondents may have in revealing information they may 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 the 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, 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 than how their incomes are received or remembered. These factors may result both in a significant bias (typically under-reporting) or in mis-reporting 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 benchmark estimates from reliable sources. Across all income sources, CPS income reports are 90 percent of the benchmark indicating a ten percent under-report on average. However, there exists considerable variation around that average. There appears to be little bias in CPS wage-and salary incomes which are 99 percent of the benchmark. Social Security Income contains more bias (92% of the benchmark), but appears to be considerably ahead of the other major source of retirement income-private pension income. But private pensions may be a case where the benchmark is too high since it includes lump sum withdrawals and rollovers 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 (Wood (1996), Schieber (1995)). Yet, the most severe under-reporting occurs in interest, dividends, rents and royalties where CPS reports are less than half the external benchmarks. Even when these income sources are reported without bias, there remains the problem of substantial measurement error in reports (Ferber (1966), Moore et al (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 pre-retirement 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 includes 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 conducted in 1993 using computer-assisted telephone techniques for respondents 70-79 and computer-assisted in-person interviews for persons aged 80 and over. Given its older age span, AHEAD's objectives shift toward the relationship between changes in physical and cognitive health in old age, the maintenance of independent living arrangements, and dis-savings and asset decline. 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% in HRS and 81% in AHEAD and each survey conducted follow-ups at approximately two year intervals. Attrition rates for these surveys averaged about seven percent per wave.

In each round, HRS and AHEAD obtained extensive information about the economic situation of the households who are interviewed. The surveys asked for a complete accounting of assets and income. In addition to housing equity (with separate detail for the first and second home), assets were separated into the following eleven categories in HRS and AHEAD: other real estate; vehicles; business equity; IRA or Keogh; stocks or mutual funds; checking, savings, or money market funds; CD's, 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 income,

supplemental security income, private pension income, welfare, disability income, veterans benefit or 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 the HRS and AHEAD aimed at improving the quality of income measurement- the integration of income from capital questions with questions about the assets from which such income are derived and the use of periodicity questions that-at least for certain income sources- more closely reflect the manner in which such income is received. We will discuss below these enhancements in more detail. HRS and AHEAD income and asset modules are given to the 'knowledgeable financial respondent'-that is the eligible respondent most knowledgeable about the financial situation in the household. Occasionally, especially in AHEAD, proxy respondents are used if the age eligible respondents are infirmed or suffer 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 these reports of income from capital provide a convenient way of evaluating the impact of this integration. However, HRS and AHEAD did not vary the periodicity of income reporting so that 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 consequently 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 (Consumer Income Series P-60). 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 a panel, approximately half the respondents will be interviewed across two adjacent March interviews.

Since no questions are asked in the CPS 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 benefit or 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.

Section 2- The Measurement of Income From Assets

Table 1 indicates that the most serious under-reporting of income takes place in income from capital. Some of this under-reporting no doubt stems from the positive skew in ownership of assets from which these income 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 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). 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 jogging 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. But a comparison of the fraction of households who report holding an 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 percent reporting ownership of assets that might yield an interest or dividend income flow. To illustrate, 75% of HRS wave 2 households report holding some financial assets, but less than 30 percent report having any interest or dividend 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 that 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 or not about 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, 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 HRS 3 and AHEAD 2) with estimates of income from assets produced by the conventional survey methodology (as reflected by HRS 2, and AHEAD 1) 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 HRS 2 and 3 and AHEAD 1 and 2. The effects of the integration are quite dramatic. Between HRS 2 and HRS 3, income from these combined income sources increased from \$5,669 a year to \$9,266 a year. Some 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% between HRS 2 and 3, income from assets increased by 63%. 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 2.1 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 appear between AHEAD 1 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 in a relative sense. Table 3 provides the relevant data for HRS 2 and 3 by dividing the sample into asset categories ranging from none to more than a quarter of a million, and then income is sub-divided in 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 (checking, savings and money market accounts; CDs, savings bonds and Treasury Bills; stocks; and bonds). Ninety percent plus of the households in HRS 2 who reported a small amount of financial assets (\$1-\$2499) also reported zero interest or dividend income. In contrast, only about sixty percent of HRS 3 households report zero interest or dividend income for the same asset group. But the most dramatic results occurs among those with a great deal of these assets. For example, thirty-one percent of HRS 2 households who had more than \$250,000 of such 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 HRS 3 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 analysis of the value of real estate holdings compared to reports of rental income, and the value of owned businesses or farms compared to income from those businesses or farms. Of those reporting more than \$250,000 in investment real estate holdings, 52 percent reported zero

rental income in HRS 2 compared to 28% in HRS 3. Among those with more than one-quarter million dollars in farm or business income, 58% reported no income in HRS 2 while only 21% did so in HRS 3.

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 also 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 better results about income are obtained with the merged format since the respondent has just been thinking about the existence and size of asset holdings. This merged format makes it difficult for the respondent to report zero income having just reported substantial asset holdings. Whatever the explanation, the use of 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 under-reporting 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 the amount of total capital income reported in HRS 2 and HRS3. While the HRS 3 numbers indicate that substantially more capital income is reported in the aggregate, the increased reporting of 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 over \$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 ascertaining household income.

Section 3- 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 the 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 receive that income. When respondents are requested to report in a periodicity different than 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 those income flows that tend to continue indefinitely, to change slowly (perhaps due 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% 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 to us 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 sub-populations 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 seventy 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 one report by any COLA that would have taken place given the month and year of interviews. Between waves, most (86.5%) AHEAD respondents had two COLA adjustments, but 8.4% had only one while 5.1% had three. If all respondent reports were completely accurate, these adjusted wave one and actual wave two 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 one social security income (adjusted for subsequent COLA's) and wave two social security income. While respondents report monthly incomes, for purposes of 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 two hundred dollars apart (three to four percent), 80% give reports within roughly \$800 of each other (13%), and 90% lie no more than \$1,500 (or 23%) 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, measurement error represents a relatively small fraction of total income variation. Since mean social security incomes were about \$9600 in 1995, Table 5 indicates that reporting error is relatively small for a large fraction of cases. But for analysis relying on the panel nature of the data, by construction all within person variation in social security income in our sample represents measurement error.

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. For example, in 1996, 77% of CPS respondents selected monthly as the easiest way of reporting social security income while 23% 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 the years 1992 and 1993 (when CPS asked for annual social security income) and for years 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 1 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 fifty 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 to approximately \$800 in AHEAD. 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 of March of 1996 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% 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 who reported in a monthly interval and after Medicare premium deductions in both 1996 and 1997. Much of the remaining difference with AHEAD is likely to be 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 an yearly interval to report monthly instead is likely to result in improve reports since 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.

A monthly reporting interval is not the only factor influencing the quality of income reports. Table 6

presents models of determinants of differences in social security income reports between waves of the AHEAD survey. We measure the quality of annual income reports by the absolute value of the difference in the report in wave two minus the COLA adjusted income report in wave one. Since we take no a priori position on whether reporting errors are arithmetic or proportionate, arithmetic and ln models versions were estimated. The quality of reports could reflect several factors- including the knowledge and cognitive ability of the respondent and the salience of social security as a household income source. Thus, our models contain indicators of the likely knowledge of the reporting (or financial) respondent- whether the income in question is that of the financial respondent, whether the financial respondent changed between survey waves, and whether a proxy respondent was used in either survey wave. Our measure of salience is social security income as a fraction of total household income. Finally, variables indicating the respondents' age, gender, and education are included.

The results obtained for education in Table 6 suggest that it may be useful to think of reporting errors as proportional. The reason for this conclusion is that the arithmetic model indicates that reporting errors are larger for more educated respondents while the percentage errors in income reports are independent of respondents' schooling. It is typical thought that education is positively associated with cognitive ability and quality of reports in surveys (Sudman and Bradburn (1974)) and the ln model is more consistent with this general finding. Using this proportional error model, the difference in reports about social security income are about 4% 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% greater discrepancy in social security reports. The most troubling situation-especially for longitudinal analysis-occurs when the financial respondent changes between survey waves. In this fortunately rare case, the discrepancy in income reports is 25%. The negative coefficient on the AHEAD word count measure indicates that the cognitive ability of respondents is important for the quality of income reports. Each remembered word reduces the across wave discrepancy in social security income by one percent. Finally, the more important social security is 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. The general implication of the results obtained in table 6 is twofold- first, surveys should collect and include in public release data measures of reporting quality; second, researchers conducting longitudinal analysis should include measures of reporting quality in their analysis. This inclusion will mitigate any bias due to correlation of reporting errors with the effects researchers want to estimate.

Conclusion

Although under-reporting of income is often thought to be a problem of 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 the 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.

Similarly, asking respondents to report using a time interval consistent with how income is received significantly improves the quality of responses 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 also hold for many major sources of income. Pension payments tend to be 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 Pension 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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Table 1: CPS Income as a Percent of Independent Sources

Wages and Salaries	99.0
Social Security and Railroad Retirement	91.7
Interest	45.0
Dividends	45.4
Net Rents and Royalties	48.1
Private Pensions and Annuities	63.0
All Income	90.1

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

Categories	HRS-3	HRS-2	AHEAD-2	AHEAD-1
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 Non-housing Asset Values, \$	144,730	127,310	117,520	82,010
Total Income from Assets, \$	9,266	5,669	8,138	3,545

Table 3: Distribution of Income from Assets

<i>A. Interest or Dividend Income from Four Financial Assets</i>								
	Total	None	< \$50	\$50-	\$250-	\$1K-	\$5K-	> \$25K
HRS-3								
None	1208	97.2	0.8	0.8	0.9	0.2	0.1	0.0
\$1 - 2499	852	63.1	17.2	11.6	6.5	1.3	0.4	0.0
\$2500 - 9999	258	27.0	15.6	28.8	19.6	8.5	0.5	0.1
\$10K - 49,999	152	10.0	6.8	17.6	29.8	32.1	3.6	0.1
\$50K - 249,999	85	6.7	2.0	4.0	8.8	43.2	31.8	3.5
> \$250K	11	3.0	0.8	1.1	1.1	16.7	48.8	28.6
Total N	2566	38.2	7.8	11.4	12.7	17.9	9.7	2.3
HRS-2								
None	1302	98.5	0.2	0.5	0.5	0.2	0.2	0.0
\$1-2499	1188	91.8	2.1	3.1	1.6	1.4	0.1	0.0
\$2500 - 9999	860	76.6	2.0	8.8	8.5	3.7	0.5	0.0
\$10K - 49,999	1021	60.0	1.1	7.0	16.4	12.6	2.5	0.4
\$50K - 249,999	525	43.1	0.9	2.6	10.9	26.9	14.3	1.2
> \$250K	85	30.6	0.7	2.5	6.1	15.1	30.9	14.0
Total N	4981	71.8	1.2	4.4	7.9	9.3	4.5	0.9
B. Rental Income								
	Total	None	< \$50	\$50-	\$250-	\$1K-	\$5K-	> \$25K
HRS-3								
None	5140	99.8	0.0	0.0	0.0	0.1	0.1	0.0
\$1 - 2499	17	77.3	0.0	0.0	4.6	13.6	4.6	0.0
\$2500 - 9999	106	86.2	0.0	1.6	0.8	7.3	4.1	0.0
\$10K - 49,999	309	64.0	0.0	1.2	1.5	20.1	13.0	0.2
\$50K - 249,999	260	40.6	0.0	0.3	0.3	16.2	38.1	4.5
> \$250K	82	27.9	0.0	0.3	1.0	8.5	29.9	32.3
Total N	5914	88.1	0.0	0.2	0.2	3.7	6.1	1.9

HRS-2

None	5059	95.5	0.0	0.0	0.6	2.3	1.6	0.1
\$1-2499	44	88.0	0.0	0.0	0.0	8.0	4.0	0.0
\$2500 - 9999	128	90.8	0.0	0.7	2.1	4.3	2.1	0.0
\$10K - 49,999	394	73.1	0.0	0.7	2.4	13.2	10.2	0.4
\$50K - 249,999	343	51.5	0.0	0.6	1.8	15.3	26.4	4.4
> \$250K	125	51.7	0.0	0.0	0.8	5.8	25.6	16.1
Total N	6093	87.8	0.0	0.1	0.9	4.6	5.5	1.1

C. Income from Own Business or Farm

	Total	None	< \$50	\$50-	\$250-	\$1K-	\$5K-	> \$25K
HRS-3								
None	5899	98.9	0.0	0.0	0.0	0.3	0.5	0.3
\$1-2499	8	33.3	8.3	0.0	0.0	16.7	33.3	8.3
\$2500 - 9999	37	31.6	1.7	0.0	2.6	7.7	29.9	26.5
\$10K - 49,999	38	32.5	0.0	0.9	3.4	16.2	24.8	22.2
\$50K - 249,999	119	33.0	0.0	0.6	3.3	12.5	26.6	24.1
> \$250K	28	21.4	0.0	0.0	0.8	3.8	20.6	53.4
Total N	6129	91.3	0.1	0.0	0.3	1.5	3.4	3.5

HRS-2

None	5765	95.9	0.0	0.3	0.4	1.0	1.6	0.8
\$1-2499	22	64.7	0.0	0.0	0.0	20.6	11.8	2.9
\$2500 - 9999	55	74.3	0.0	1.4	5.4	8.1	10.8	0.0
\$10K - 49,999	164	72.6	0.0	0.4	3.1	6.2	9.3	8.4
\$50K - 249,999	269	64.7	0.0	1.2	2.2	7.9	15.4	8.7
> \$250K	103	57.9	0.0	1.1	2.3	6.7	11.2	20.8
Total N	6378	91.9	0.0	0.4	0.7	1.9	3.0	2.1

Table 4
Weighted Means of Capital Income Flows by HRS-1 Total Household Income Quintiles

HRS-1 Total Household Income Quintile	HRS-1 Mean Value	Weighted Means		
		HRS-2 Capital Income	HRS-3 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

Table 5: Percentiles of Differences in Annual Social Security Income

Percentile	<u>AHEAD</u>	<u>CPS</u>			
	<i>1994-1995</i>	<i>1992-1993</i>	<i>1996-97</i>		
			All	Monthly 1 ^a	Monthly 2 ^b
95	1563	3415	3799	2682	2167
90	863	1965	1948	1271	1134
75	208	545	435	301	256
50	-57	46	-36	-49	-47
25	-263	-405	-540	-369	-310
10	-807	-1973	-1921	-1161	-1034
5	-1578	-4062	-3956	-2499	-2232

^aBased on CPS respondents using monthly reporting intervals.

^bBased on CPS respondents using monthly reporting intervals and after Medicare deduction.

Table 6: Models of Absolute Value of Difference in Reports of
Social Security Income–AHEAD

	Arithmetic		Log	
	coefficient	“t”	coefficient	“t”
Financial Resp.	-131	(2.38)	-.039	(4.15)
Ä Fin. Resp.	1576	(7.26)	.252	(6.72)
Female	-267	(5.67)	.001	(0.16)
Proxy	273	(2.91)	.051	(3.17)
Word Count	-29	(2.26)	-.010	(4.32)
Age 80-89	-52	(1.03)	-.016	(1.88)
Age 90+	-69	(0.54)	.012	(0.53)
Ed 12-15 Years	63	(1.27)	-.008	(0.97)
Ed College or More	229	(2.55)	-.008	(0.49)
Ed Advanced Degree	359	(3.37)	-.003	(0.16)
% of Income that is Soc. Sec.	-1.22	(1.34)	-.001	(4.03)
Intercept	1102	(10.33)	.219	(11.84)