THE SURVEY OF INCOME AND PROGRAM PARTICIPATION

Asset Record Use and Measurement Error

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Abstract

In household surveys, encouraging respondents to look at financial records has the potential to improve data quality. In this paper, I look at how record use affects the asset data in the Survey of Income and Program Participation (SIPP). I find that record users are more likely to give precise, non-rounded values, suggesting more accurate reporting. My regression analysis shows that, holding other factors constant, record users on average report higher values for assets and less credit card debt. This possibly suggests that responses for non-record users may be subject to a pessimism bias in which respondents believe they have less net worth than they actually have, although other confounding factors could explain this result.   In future work, I will look at changes made to the SIPP in the 2011 and 2014 Panels that increased the number of respondents who used financial records for answering asset questions. This will help me further separate out the effects of records use on data quality from others confounding factors.

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1. Introduction

The Survey of Income and Program Participation (SIPP) is one of only a few large-scale household surveys that collect data on assets and debt for the general U.S. population. These data provide valuable insight into the distribution of wealth in the United States; changes in wealth inequality over time; and how net worth affects other types of economic behavior, such as the transition out of unemployment (e.g., Chetty (2008)). One concern with asset data from surveys is whether respondents are able to report their account balances accurately. While some respondents may pay careful attention to their account balances, many others may only look at these balances infrequently and could be unsure about the exact value at the time of the survey. If respondents systematically underreport or overreport their net worth, then this could bias estimates of median net worth and wealth inequality in the United States.

To mitigate problems with measurement error, respondents in the SIPP are encouraged to look at financial records when answering asset questions. During the interview, the interviewer records whether the respondent used records to answer any of the questions on assets in the survey. This variable of record use provides an opportunity to examine how the use of financial records affects the quality of data respondents give as well as how asset measurement error affects the distribution of reported assets. I find evidence that supports that record users do indeed report more precise data, as indicated by their lower item-nonresponse rates along with their reporting of fewer rounded numbers on average, which possibly suggests that their data is more accurate. To look at the distribution of reported assets, I conduct a regression analysis in which I examine how record use correlates with the mean and variance of reported assets, holding other factors constant. I find that for most of the assets with the most frequent rates of ownership, the use of records increases the mean and variance of reported values. For credit card balances, I find that record use decreases the mean and variance of

reported values. Overall, these results show that record use is associated with higher net worth, holding other observed factors constant.

One explanation for this finding on report asset values could be that record use is correlated with some other factor that increases net worth, such as financial literacy, even after controlling for other observed characteristics. To address this problem in future work, I will look at changes made to the SIPP in the 2011 and 2014 Panels that increased the number of respondents who used financial records for answering asset questions.[2] This will provide experimental variation for the use of financial records, which will help control for other unobserved factors associated with record use.   As the asset data for the 2014 Panel is in the middle of data processing, I will conduct these analyses once this process is complete.

The rest of the paper proceeds as follows: In section 2, I discuss the literature on measurement error in asset data. I discuss the structure of the SIPP and details of the asset record use question in Section 3. I present results in Section 4 that show record use is associated with respondents reporting more precise values and, in Section 5, I present results on how the distribution of reported assets varies by record use. Finally, Section 6 concludes.

2. Literature Review

The literature on the effects of record use on data quality is relatively small. The most similar paper to this one is Couper et al. (2013), which look at two experiments for the Health and Retirement Study (HRS) Internet Survey designed to encourage respondents to use records for asset questions. They found that these experiments increased the proportion of respondents who used records but did not

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[2] The 2011 Panel was a field test for the 2014 Panel. The 2011 Panel had a much smaller sample size and the data is not available to the public.

significantly increase the precision of the data, as measured by the amount of rounding in the answers and by item-nonresponse rates. Besides this paper, most of the other papers in the literature have been non-experimental technical papers, which examine record use in a particular survey (Couper et al. 2013). For example, Safir and Goldenberg (2008) find that record use is associated with higher total expenditures in the Consumer Expenditure Survey (CEX).

In addition to Couper et al. (2013), there is another experiment on assets and record use found in Maynes (1968). This experiment looks at a sample of individuals with savings accounts and loans from the Census Federal Credit Union. In this mail survey, respondents were randomly assigned a condition that instructed them either to consult records or not to consult records. Overall, they found that for both conditions, the mean and standard deviations of reported assets matched the actual mean and standard deviations very well. However, record-users were more accurate in their reported values, with 85% of records users giving values that were within 1% of the true value versus only 49% of individuals who did not use records. Therefore, while non-record users gave less accurate values, these errors, in aggregate, did not decrease the accuracy of the estimates of the distribution of assets for this sample.

This paper builds upon Couper et al. (2013) and Maynes (1968) in several ways. First, I am able to look at the effects of record use on a larger set of assets than in Couper et al. (2013) and Maynes (1968), which can provide a better picture of how record use might affect estimates of net worth. Second, my sample size is much larger, allowing me to obtain estimates that are more precise. Third, my sample is nationally-representative, which allows me to look at the effects of record use for the general population. Forth, this paper looks at the effects of record use in a personal interview setting, while the other studies are for self-administered surveys. It is possible that the effects of encouraging respondents to look at records may be different when an interviewer is present, so looking at record use in this setting provides a contribution to the literature.

The main limitation of my project compared to Couper et al. (2013) and Maynes (1968) is that my experimental variation is potentially confounded with other concurrent changes to the survey. In the 2011 and 2014 SIPP Panels, there were direct changes made to the record use questions which increased the proportion of individuals who used records. However, there were also many other changes made to the survey at the same time, which could confound my estimates. Even with this limitation, the SIPP data still offers several important benefits, such as showing how record use affects data for a wide variety of assets and having a large nationally representative sample. Such benefits provide new information for the effects of record use on data quality.

3. Data

I use the 2004, 2008, 2011, and 2014 panels of the Survey of Income and Program Participation (SIPP).[3] The SIPP collects information about the income, assets, labor market activity, and participation in government welfare programs of U.S. households. Information on a wide variety of assets and debts is collected and includes variables covering financial information about savings accounts, checking accounts, retirement accounts, property values, and credit card debt. Data are collected separately for assets that are owned individually and assets that are owned jointly with a spouse. To reduce respondent burden, the SIPP only asks one spouse for the value of jointly held assets and only asks the main household respondent for the value of primary residences, mortgages, and other real estate. Table 1 lists the assets for which data are collected in the 2004 and 2008 SIPP Panels.

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[3]More details about the 2004, 2008, and 2014 Panels can be found at http://www.census.gov/sipp/. The 2011 Panel was a field test for the 2014 Panel. The 2011 Panel has a much smaller sample size and only low-income areas were included in the sampling frame. Currently, the data for the 2011 Panel is only available to Census employees.

Table 1: Asset Variables in 2004 and 2008 SIPP

Variable name	Type of variable
Interest Earning Account (Self)	Person-Level
Interest Earning Account (Joint)	Spouse-Level
Bonds/Securities (Self)	Person-Level
Bonds/Securities (Joint)	Spouse-Level
Equity in investments	Person-Level
Stocks and Mutual Funds (Self)	Person-Level
Stocks and Mutual Funds (Joint)	Spouse-Level
IRA	Person-Level
Keogh	Person-Level
401k	Person-Level
Sale of Business	Person-Level
Savings Bonds	Person-Level
Regular Checking (Self)	Person-Level
Regular Checking (Joint)	Spouse-Level
Other Debt (Self)	Person-Level
Other Debt (Joint)	Spouse-Level
Other Loans (Self)	Person-Level
Other Loans (Joint)	Spouse-Level
Credit Cards (Self)	Person-Level
Credit Cards (Joint)	Spouse-Level
Property Value	Household-Level
Principal on Mortgage	Household-Level
Mortgage Amount	Household-Level
Other Real Estate	Household-Level

Table lists the asset variables which are collected in the 2004 and 2008 SIPP Panels. The type of variable column indicates whether data was collected from all adult members, only one spouse, or only the household respondent. For the spouse-level and household-level variable, the asset record use indicator corresponds to the person who answered the asset/debt question.

3.1 Description of the 2004 and 2008 Panels

In the 2008 SIPP panel and prior panels, households were interviewed about their monthly activities every four months for a period of about five years. For assets that produce dividends or income, data on ownership and income were collected every four months in the main part of the

interview. [4] Data on asset values, debt, and assets which do not produce income, such as checking accounts and personal property values, were collected less frequently. In the 2004 Panel, these data were collected in waves 3 and 6, and in the 2008 Panel, these data were collected in waves 4, 7, and 10 after the main part of the interview. The 2004 Panel had approximately 43,700 interviewed households and the 2008 Panel had approximately 42,000 households. In my analyses, I only include individuals who completed an in-person interview, which excludes people whose information was collected through a proxy, people whose data were completely imputed, and children. I make this restriction because proxies may know less about the person's asset balances and might not have access to the target person's records. This exclusion ensures that the separate imprecision of a proxy interview does not confound my main estimates on the effect of records use on the precision of an interview. I also use the unedited values of the asset variables rather than the edited public use values to ensure I am obtaining the original response of the individual rather than a value which could have been modified slightly for public use. [5]

During the course of the main part of the interview, respondents are encouraged to consult their financial records when answering questions on assets and debt. After data on employment, participation in social assistance programs, and ownership of assets is collected, the interviewers reads the text:

> *The next part of the interview is about your income since August 1st. We want to be as accurate and efficient as we can, so it would be very helpful if you could refer to any records you might have.*

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[4] The SIPP calls the main part of the interview the "Core" and the parts which are collected less frequently after the main interview as the "topical modules".
[5] For most observations, the unedited values are the same as edited public use values when respondent report a numeric answer. For spouses and business partners,, values are divided amongst the owners.

After this text is read, data on income from employment, social assistance programs, and assets are collected. At the end of the asset income section, the CAPI instrument prompts the interviewer with the following text (which is not read to the respondent):

Did the respondent use any records to answer any asset questions?

The answer to this question is available on internal Census Bureau datasets but not the public use files. There are three important characteristics about this question and its placement in the CAPI instrument that have implications for my paper. First, this question is only asked if a respondent reports owning at least one asset that generates income, such as an interest-earning savings accounts and stocks. If someone only owns a vehicle and a non-interest earning checking account, the question is not asked and I do not have data on whether the respondent used records to answer the asset questions. Because of this, I am unable to include such people in my analyses. Therefore, my results for the 2004 and 2008 Panel are based on a subset of the population that is likely to be wealthier than the general population and therefore might be more financially literate, so my sample of interest is not nationally representative. Second, because some members of the household are not asked about certain assets, I use the indicator of record use for only the member of the household that was asked the question. For example, because only the household respondent is asked the value of the primary residence, I only use the household respondent's indicator of record use when analyzing this variable. Third, the questions on assets values and debt were asked much later in the interview than the questions on asset income and the question on record use. Because of this, the indicator of record use does not directly indicate whether records were used to answer the asset value question. I discuss whether there is evidence that record users are reporting more accurate values even for these later questions in section 4.

3.2 Description of the 2011 and 2014 Panels

In the mid-2000s, the SIPP came under pressure to reduce operating costs. Because of this pressure, Census Bureau Staff redesigned the SIPP into an annual survey. In 2010, the new version of the survey was tested on a small sample who were only interviewed once. In 2011, a new test panel began in which households were reinterviewed in 2012 and 2013. In this test panel, only some states were included in the sampling frame, and within each state, only high-poverty areas were included in the sample. The time frame for the 2008 and 2011 Panels overlap, which allows for the data to be compared while controlling for any business-cycle effects. Finally, in 2014, the new annual survey was administered to a new large nationally-representative sample.[6]

In the new annual version of the SIPP, the most substantial change made was the introduction of the event history calendar (EHC), which is a visual method of collecting retrospective data on the timing of events, such as when someone lost their job or health insurance.[7] The asset questions were not included in the EHC section of the survey. However, there was still a variety of changes made to the asset questions. Many of the questions were reworded, and additional questions on student loans and education savings account were introduced. In addition, the questions on the income and value from assets were grouped together, so respondents no longer experience a gap in the survey between the time when income data are collected and time when data on account balances and market value are collected.

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[6] The interviews for the 2008 panel ran through the end of 2013, and the interviews for the 2014 panel started in 2014, so the timeline does overlap for these panels. However, no data on asset values was collected for the 2013 for the 2008 Panel, so the timeline for the asset value data does not overlap between the 2008 and 2014 Panel.
[7] See Belli (2007) for more information on the event history calendar.

In terms of the record use question, changes were made to increase the proportion of individuals who use financial records in the asset section.   For the part of the interview which requests respondents to consult records, the new scripted text was modified to pertain to only asset records:

> *The next part of the interview is about your income and the value of your assets between January 1st and the end of December 2013. We want to be both as accurate and efficient as we can, so it would be very helpful if you could refer to any records you might have.*

After data on asset values and income are collected, the survey instrument asks the interviewer the following question (which is not read to the respondent):

> *Did the respondent use any records to answer any asset questions?*

> *If this is a telephone interview, please record whether you can tell if the respondent used any records. Has the respondent mentioned anything in passing (for example, "Hold on, let me check that.")? Has the respondent reported exact amounts (for example, $1,234.56)? Could you hear papers shuffling? If yes, or if you could tell in some other way that the respondent used records, enter 1. If you cannot tell whether the respondent used records, enter CTRL+D*

Two important points should be made about the new record use question. First, this question is now asked right before the asset income and value section, so the recency effect should encourage more respondents to use financial records. Second, this question was asked to the interviewer about respondents who owned any asset, not just of assets which generated income. For example, someone who only owned a non-interested earning checking account and a car would not be asked the record use question in the 2008 Panel, but they would be asked the question in the 2014 Panel.

Table 2: Frequencies of Record Use and Sample Size

Sample	Sample Size	Record use=yes (%)	Standard Error
2004-2008 Panel, All Observations, Weighted	125676	14.0	0.2
2004-2008 Panel, All Observations, Unweighted	125676	14.5	0.1
2008 Panel, Restricted Sample, Weighted	3492	9.5	0.3
2011 Panel, Weighted	4364	20.1	0.6
2014 Panel, Unweighted	36050	26.3	0.2

Table displays the frequency of asset record across various SIPP Panels for people who completed in-person interviews and were asked the record use question.   The 2004, 2008 and 2014 Panels have large nationally representative samples. For the 2004 and 2008 Panels, I only includes the waves in which asset value data was collected. The sample for the 2011 Panel was much smaller and only including some states and only included high-poverty areas. The restricted sample for the 2008 Panel includes only the areas and years covered by the 2011 Panel, which allows for estimates to be compared between these two panels. Note that for statistical comparison, I only compare the 2008 Restricted Sample to the 2011 Panel and the unweighted estimates for the 2004 and 2008 Panel to the unweighted estimates for the 2014 Panel, and the differences are highly significant (p<.01). I also exclude observation in which the response to the record use question was Don't Know or Refuse.

Both of the points mentioned above may affect the proportion of individuals who use financial records in the SIPP. Table 2 displays results for the frequency of record use in several SIPP panels. The data show that the percent of respondents who used records increased after the survey redesign. To compare estimates from the 2008 Panel and the 2011 Panel, I impose sampling restrictions on the 2008 Panel to include only the years, states, and high-poverty areas sampled for the 2011 test panel. Under these restrictions, the proportion of respondents who use records in 2008 is 9.52%, but the proportion for the 2011 Panel is 20.15%, and the difference is highly significant. To compare the 2004-2008 Panels with the 2014 Panel, I look at unweighted estimates because sample weights have not been created yet for the 2014 Panel. Without weights, the frequency for the 2004-2008 Panels is 14.52% and the frequency for the 2014 Panel is 26.33%, and the difference is highly significant. Overall, these results suggest that changes made to the record use question for the annual survey increase the proportion of individuals who use records. In future work, this change will provide experimental variation for looking

at the effects of record use on data quality. I do not use the data from the new panel in this paper

because the 2014 Panel is currently being processed.

4. Record Use and Accuracy

In this section, I provide evidence that record users report more accurate information in the 2004

and 2008 SIPP panels than non-record users. Table 3 lists the proportion of individuals who say they

don't know the value of an asset or refuse to give a value, conditional on ownership. Standard errors

are constructed using replicate weights to account for complex sampling.[8] This table shows that record

users are more likely to give a numeric answer for the value of these assets. For example, the

proportion of record users who do not report a value for joint interest earning accounts is 22.3 percent,

but for non-record users, this jumps to 43.1 percent. The differences in item non-response rates

between the two groups are larger for the assets which have higher overall don't know or refusal rates.

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[8] A discussion of the replicate weights used in the SIPP can be found in U.S. Census Bureau (2001) and a more detailed discuss about the general method used by the Census Bureau to construct these weights along with how a researcher can construct standard errors using these weights can be found in U.S. Census Bureau (2009).

Table 3: Frequency of Missing Values (Don't Know/Refuse)

Variable name	Record Use		Difference	Standard Error of the Difference
	Yes	No		
Interest Earning Account (Self)	0.20	0.39	***0.19	0.008
Interest Earning Account (Joint)	0.22	0.43	***0.21	0.009
Bonds/Securities (Self)	0.34	0.63	***0.30	0.036
Bonds/Securities (Joint)	0.34	0.66	***0.32	0.030
Equity in investments	0.29	0.49	***0.20	0.028
Stocks and Mutual Funds (Self)	0.29	0.58	***0.29	0.015
Stocks and Mutual Funds (Joint)	0.33	0.61	***0.28	0.013
IRA	0.23	0.44	***0.21	0.008
Keogh	0.39	0.67	***0.28	0.045
401k	0.25	0.44	***0.19	0.008
Sale of Business	0.08	0.18	**0.09	0.038
Savings Bonds	0.23	0.42	***0.19	0.011
Regular Checking (Self)	0.06	0.18	***0.12	0.007
Regular Checking (Joint)	0.09	0.22	***0.13	0.010
Other Debt (Self)	0.03	0.08	***0.05	0.005
Other Debt (Joint)	0.06	0.10	***0.04	0.009
Other Loans (Self)	0.04	0.12	***0.08	0.010
Other Loans (Joint)	0.08	0.18	***0.10	0.012
Credit Cards (Self)	0.04	0.11	***0.06	0.004
Credit Cards (Joint)	0.07	0.14	***0.07	0.005
Property Value	0.07	0.18	***0.10	0.005
Principal on Mortgage	0.09	0.19	***0.10	0.005
Mortgage Amount	0.10	0.20	***0.10	0.006
Other Real Estate	0.11	0.20	***0.08	0.013

Data from 2004 and 2008 SIPP. Only individuals who completed an in-person interview and report owning an asset which generates income are included. Sample weights used for points estimates and replicate weights used to construct standard errors. Significance asterisks: *** p<.01   ** p<.05   * p<.1 . The standard error in the right column is the standard error of the

Table 4: Differences in Mean Number of Zeroes in Reported Values by Record Use

Variable name	Modal n. digits	Sample Size	Record Use		Difference in Means	Standard Error of the Difference
			Yes	No		
Interest Earning Account (Self)	4	17359	2.34	2.58	***0.24	0.02
Interest Earning Account (Joint)	4	12469	2.44	2.65	***0.21	0.02
Bonds/Securities (Self)	5	543	2.95	3.51	***0.56	0.11
Bonds/Securities (Joint)	5	361	3.00	3.47	***0.47	0.12
Equity in investments	5	759	2.83	3.31	***0.48	0.11
Stocks and Mutual Funds (Self)	5	2776	2.98	3.37	***0.40	0.05
Stocks and Mutual Funds (Joint)	5	2869	3.00	3.44	***0.45	0.05
IRA	5	11402	2.89	3.31	***0.42	0.03
Keogh	5	205	3.31	3.49	*0.18	0.10
401k	5	13497	3.07	3.33	***0.26	0.02
Sale of Business	5	206	3.09	3.32	0.23	0.18
Savings Bonds	3	4314	1.79	1.82	0.03	0.02
Regular Checking (Self)	4	5890	2.42	2.58	***0.16	0.03
Regular Checking (Joint)	4	5577	2.52	2.68	***0.16	0.03
Other Debt (Self)	5	4439	3.21	3.34	***0.14	0.04
Other Debt (Joint)	4	2815	2.54	2.65	***0.11	0.04
Other Loans (Self)	4	1894	2.54	2.64	**0.09	0.04
Other Loans (Joint)	4	1931	2.63	2.67	0.04	0.05
Credit Cards (Self)	4	14154	2.59	2.67	***0.08	0.02
Credit Cards (Joint)	4	13483	2.63	2.72	***0.09	0.01
Property Value	6	45221	3.93	3.95	*0.02	0.01
Principal on Mortgage	6	18801	3.47	3.63	***0.16	0.02
Mortgage Amount	6	21190	3.52	3.60	***0.08	0.02
Other Real Estate	5	2509	3.45	3.52	*0.07	0.04

Table display the average number of zeroes an individual reports in their answer for a given number of digits. The standard error in the right column is the standard error of the difference. The number of digits picked for this table is the modal number of digits for each asset. Data from 2004 and 2008 SIPP. Only individuals who completed an in-person interview and report owning an asset which generates income are included. Sample weights used for points estimates and replicate

I also explore the tendency respondents have to round their answers and how this varies across record use. Maynes (1968) showed that individuals who gave more rounded values for their account balances (that is, values that had more zeroes for a given number of digits) were less accurate in their reports. This result indicates that less precision in responses implies less accuracy in responses. Therefore, one indicator of accuracy in the SIPP could be the number of zeroes a value contains. In

Table 4, I report the mean number of zeroes an individual gives in his or her answer for a given number of digits.[9] To conserve space, I only report the modal number of digits for each asset.[10] This table shows that record users give more precise and less rounded numbers, on average, suggesting they are reporting values that are more accurate. For example, in individually owned stocks and mutual funds, record users who gave a value between 10,000 and 99,999 had on average 2.98 zeroes in their answers, while non-record users had on average 3.37 zeroes in their answers. The exception in this table appears to be property values, which despite its large sample size, has a small difference between record user and non-record users which is only significant at the 10% level. This could be due to home values being more salient for individuals as well sale prices and country assessments being rounded to the nearest thousands.

Overall, the results from Table 3 and Table 4 suggest that individuals who use records are more aware of the values of their assets and debt and give more precise reports. Even though the record-use variable in the SIPP does not indicate which assets an individual looks at records for, the evidence from these table suggests that all or most of the assets in the SIPP are being collected more precisely for record users. This increased precision appears to hold even though the asset value data are collected after record use question is asked to the interviewer. However, one aspect of data quality Table 3 and Table 4 do not address is how measurement error might affect summary statistics of assets, such as the mean and variance. In the next section, I look at the implications record use has for the distribution of reported assets in the SIPP.

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[9] I condition on the number of digits because record users tend to report higher values of their assets. Because larger number can have more zeroes than smaller numbers, this effect could potentially confound my results if I don't condition on the number of digits.
[10] The results for other number of digits are similar, with some of the differences being insignificant for digits and asset combinations with low sample sizes.

5. Record Use and the Distribution of Assets

In this section, I explore how the distribution of reported assets varies by record use to examine how measurement error might affect the distribution of net worth calculated through survey data. There are a variety of ways measurement error could affect the distribution of reported assets. Measurement error is typically assumed to have a mean of zero and be independent of the key explanatory variable of interest. In this case, measurement error should not affect the mean of assets but would increase the variance, because extra variability is introduced into the measured variable. However, if respondents systematically underreport or overreport their assets, then this would affect the overall means. In addition, Maynes (1965) also proposes the "average man hypothesis" which states that in order to appear to be more normal to the interviewer, individuals with large balances tend to *underreport* and individuals with small balances tend to *overreport.* This form of measurement error would decrease the variance of assets measured in surveys and have an ambiguous effect on the mean of assets. In the rest of this section, I explore how the mean and variances of assets vary by record use to investigate the form of measurement error that might be present in asset data.

Table 5 shows how the mean, standard deviation, and coefficient of variation (CV) for selected assets vary by record use. I exclude the top 1% for each asset to reduce the effect of outliers. For interest-earning accounts, 401ks, and checking accounts, record users have a higher mean and standard deviation but a lower coefficient of variation. The coefficient of variation measures dispersion around the mean, so the positive value for the differences indicates that conditional on record users reporting higher values for their assets, the responses of record users appear to be less dispersed than the responses of non-record users. Record users also report lower credit card debt, which is consistent with record use being associated with other factors that are associated with higher net worth. Results for other variables not shown in this table are comparable, with less frequently owned assets tending to have differences that were insignificant due to smaller sample sizes.

Table 5: Mean, Standard Deviation, and Coefficient of Variation of Assets by Record Use

| Variable name | Statistic | Record Use | | Difference | Standard Error of the Difference |
		Yes	No		
Interest Earning Account (Self)	Mean	16,260	9,689	***-6,571	522
Interest Earning Account (Self)	Std. Dev.	1,887,031	1,449,291	***-437,740	56,929
Interest Earning Account (Self)	CV	11,605	14,958	***3,352	297
401k	Mean	66,448	57,018	***-9,430	1,979
401k	Std. Dev.	5,289,426	4,818,463	***-470,963	157,554
401k	CV	7,960	8,451	***491	177
Regular Checking (Self)	Mean	2,149	1,709	***-440	88
Regular Checking (Self)	Std. Dev.	188,444	167,617	**-20,827	9,824
Regular Checking (Self)	CV	8,769	9,808	***1,038	293
Credit Cards (Self)	Mean	4,473	4,805	***332	129
Credit Cards (Self)	Std. Dev.	328,421	362,225	***33,804	10,815
Credit Cards (Self)	CV	7,343	7,539	196	201

Individuals in the top 1% of values for each asset are excluded to reduce the effect of outliers. The standard error in the right column is the standard error of the difference. The CV is the coefficient of variation and is equal to 100 times the ratio of the standard deviation divide by the mean. Data from 2004 and 2008 SIPP. Only individuals who completed an in-person interview and report owning an asset which generates income are included. Sample weights used for points estimates and replicate weights used to construct standard errors. Significance asterisks: *** p<.01 ** p<.05 * p<.1 The number of person-month observations used to generate these statistics is 48,793 for Interest Earning Account, 26,074 for 401k, 14,079 for Regular Checking, and 25,818 for Credit Cards.

Table 6: Descriptive Statistics by Record Use (Means)

| Variable name | Record Use | | Difference in means | Standard Error of the Difference |
	Yes	No		
Age	52.5	49.9	***-2.6	0.24
White	0.82	0.77	***-0.0517	0.0055
Married	0.54	0.54	0.0019	0.0060
High School	0.96	0.94	***-0.0126	0.0025
College	0.16	0.13	***-0.0342	0.0048
Earned Income (Monthly)	2,817	2,626	**-192	86

Earned Income is the total personal earned income for the reference month. The High School mean reflects the proportion of individuals who have a high school diploma or GED. The standard error in the right column is the standard error of the difference. Data from 2004 and 2008 SIPP. Only individuals who completed an in-person interview and report owning an asset which generates income are included. Sample weights used for points estimates and replicate weights used to construct standard errors. Significance asterisks: *** p<.01 ** p<.05 * p<.1 The number of person-month observations used to generate these statistics is 125,676.

One potential limitation of the results in Table 5 is that record use could be associated with other observed factors. Table 6 examines how the mean of age and earned income and the proportion of individuals who are white, married, have a high school diploma, and a college degree varies across record use. I find that individuals who use records are more likely to be older, be more educated, earn more money, and be white. Because of this, I attempt to control for these factors by estimating a system of linear equations. The first equation I estimate is a linear equation where an asset variable $A_{i,t}$ for person i at time t is function of an indicator of record use $R_{i,t}$, other explanatory variables $\boldsymbol{X_{i,t}}$, and error $u_{i,t}$:

$$A_{i,t} = \alpha_0 + \alpha_1 R_{i,t} + \boldsymbol{\alpha_2 X_{i,t}} + u_{i,t}.$$

This model measures how record use is correlated with the mean of reported assets holding other variables constant.[11] If the value of a_1 is statistically significant, then record users have a different average value for asset *A*, controlling for other observed variables. The other observed variables included in $\boldsymbol{X_{i,t}}$ are age; personal earned income; indicators of being white, married, a high school graduate, and a college graduate; and panel-wave dummies.

Because I am also interested in how record use affects the variance of reported assets, I also estimate the equation

$$\log(u_{i,t}^2) = \beta_0 + \beta_1 R_{i,t} + \boldsymbol{\beta_2 X_{i,t}} + v_{i,t,}$$

in which the β coefficients represent the present change in $E(u_{i,t}^2) = V(u_{i,t})$ due to a one-unit change in the explanatory variable.[12] A positive value for β_1 would indicate that the error term $u_{i,t}$ is

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[11] This model shows how record use affects the conditional mean. Because wealth is highly skewed, this model may be sensitive to outliers. In future work, I may estimate a quantile regression model in order to look at how record use affects median asset values.

[12] Because I do not observe $u_{i,t}$, I replace $u_{i,t}$ with $\hat{u}_{i,t}$ using the estimates form the first equation. Replacing the dependent variable with estimate values still leads to consistent estimates of the regression coefficients for this type of model (Lewis and Linzer 2005).

heteroskedastic with respect to the indicator of record use, and that record use is associated with more

dispersed values around the conditional mean.

Table 7: Regression Analysis

Variable Name	Main regression: α_1	Standard Error	Residual regression (logs): β_1	Standard Error
Interest Earning Account (Self)	***4,456	487	***0.80	0.09
Interest Earning Account (Joint)	***4,736	916	***0.45	0.11
Bonds/Securities (Self)	-5948	17345	0.01	0.36
Bonds/Securities (Joint)	25257	21879	0.24	0.45
Equity in investments	-4741	17247	0.06	0.37
Stocks and Mutual Funds (Self)	3261	4850	0.11	0.14
Stocks and Mutual Funds (Joint)	-1795	5074	-0.12	0.15
IRA	**4,458	2148	0.07	0.09
Keogh	**-34,9012	15340	*-0.86	0.52
401k	**4,541	1941	**0.17	0.07
Sale of Business	306	10979	-0.24	0.44
Savings Bonds	444	290	0.27	0.17
Regular Checking (Self)	***252	85	0.18	0.12
Regular Checking (Joint)	***349	108	***0.37	0.11
Other Debt (Self)	*-1,259	750	-0.19	0.12
Other Debt (Joint)	-950	1005	-0.11	0.17
Loans (Self)	-944	1658	-0.20	0.31
Loans (Joint)	*5,578	3269	0.50	0.36
Credit Cards (Self)	***-392	130	***-0.20	0.06
Credit Cards (Joint)	**-421	170	**-0.25	0.10
Property Value	**8,928	3751	**0.11	0.05
Principal on Mortgage	901	2526	**0.11	0.05
Mortgage Amount	1304	2658	*0.10	0.06
Other Real Estate	-10556	8323	-0.18	0.18

Table presents results from regressions that look at the associate between record use on the mean and variance of assets. Reported coefficients represent the effect record use has on the mean and variance of reported assets, holding other factors constant. Individuals in the top 1% of values for each asset are excluded to reduce the effect of outliers. Data from 2004 and 2008 SIPP. Only individuals who completed an in-person interview and report owning an asset which generates income are included. Sample weights used for points estimates and replicate weights used to construct standard errors. Significance asterisks: *** $p<.01$ ** $p<.05$ * $p<.1$

Estimates of the parameters α_1 and β_1 for the record use variable are given in Table 7. For most

of the commonly owned assets, the estimates in Table 7 follow the same pattern as in Table 5. In both

these tables, record users report high values on average and their reported values also have a higher

variance around their conditional average. For interest-earning accounts in own name, for example,

record users have a unconditional mean that's $6,571 higher in Table 5. Conditional on other

covariates, Table 7 shows that record users report values that are $4,456 higher, on average. In Table 7,

the coefficient for Keogh accounts has a negative sign in both equations, which if different from all the

other assets. This could be due to idiosyncrasies of the self employed population or the idiosyncrasies

of the few self employed individuals in my sample who own a Keogh account.

Results for the debt variables are somewhat mixed, but overall suggest that record users report

less debt. The estimates for the loans and other debt equations are less precisely estimated. For the

main regression on own other debt, the coefficient is negative and significant at the 10% level, and for

the main regression on joint loans, the coefficient is positive and significant at the 10% level. The

coefficients equation for credit cards is more precisely estimated than the other loan and other debt

equations, and shows that record use is associated with lower credit card debt and lower variance in

credit card debt, holding other factors constant. This matches the differences reported in Table 5 as

well.

Overall, these results show that record use is associated with higher net worth, holding other

observed factors constant. Maynes's (1965) "average man hypothesis" is not supported by the results in

Table 5 because record users have a lower variance for credit card debt. This lower variance in credit

card debt is also evidence against classical measurement error adding extra variability in the data. These

results should be interpreted with some caution as record use is not a randomly assigned variable.

Because of this, one explanation for this finding could be that record use is correlated with some other

factor that increases net worth, such as financial literacy However, if my regression analyses do control for the other unobserved factors that increase net worth, then my results would support that responses for non-record users may be subject to a pessimism bias in which respondents believe they have less wealth than they actually do when they do not consult their records.

As for why record users might report higher asset values, the data I have on hand unfortunately do not allow me to investigate the possible mechanisms that would create measurement error in the SIPP. One explanation for my results could be context effects related to earlier questions in the survey. It could be that asking respondents about unemployment and participation in welfare programs causes them to think they are in a worse financial situation than they actually are. This explanation could also explain the findings from Czajka, et al. (2003) which found that the wealth estimates in the SIPP were lower than estimates in the Survey of Consumer Finances, which mainly only asks questions related to assets. Respondents could also have the impression that the average American has low assets and high debt, which could influence the answers they themselves give. But without an experiment which affects the ordering or wording of questions, it is impossible to determine which explanation is more likely.

6. Conclusions and Future Work

In this paper, I examined how the use of financial records is associated with the value of assets that respondents report in the SIPP. In the 2004 and 2008 Panels, I find evidence that record users report more precise data, as suggested by their lower don't know/refusal rate along with reporting less rounded numbers on average. For the distribution of reported assets, I find that, conditional on other explanatory variables, record users report higher net worth, have higher variability in their reported assets, and lower variability in their reported credit card debt. These results suggest that responses for non-record users may be subject to a pessimism bias in which respondents believe they have less wealth than they actually have. Overall, my current results show that record use has a statistically significant

effect on reported asset data, and that further encouragement for respondents to consult their financial records when responding to the survey could improve data quality.

One limitation of my current results with the 2004 and 2008 Panels is that there could be other unobserved factors associated with record use, such as financial literacy, which may confound my results. Because of this, in future work, I will look at the experimental variation provided by the 2011 and 2014 Panels, in which changes to the record use questions increased the proportion of individuals who used asset records. In these analyses, I will use both the 2011 and the 2014 Panel. The 2011 Panel offers the benefits of collecting asset data at the same time as the 2008 Panel, but has a much smaller sample that is not nationally representative. The 2014 Panel offers the benefit of having a much larger sample, but the wealth data are collected in different years, so any difference between the 2008 and 2014 Panels could be confounded by business-cycle effects. While the effects of changes in the record use question could still be confounded with effects from other changes in the survey made at the same time, the effects of the record use question should still be the predominant effect when looking at some indicators of data quality, such as the prevalence of rounding. Therefore, incorporating data from these new SIPP panels will provide new information and insights as to how record use affects data quality.

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