



Wealth, Pensions, Debt, and Savings: Considerations for a Panel Survey

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I. Introduction

Wealth is a key component of household well-being. A household's financial resources affect its ability to spend, to make long-term investments, and to weather shocks such as unemployment or illness. Household wealth often provides a more complete picture of a household's capacity along these dimensions than income does. As a result, understanding how households accumulate these resources is of central interest for policymakers and researchers.

Specific questions of interest include longstanding issues about which our understanding remains incomplete, such as:

- What are the major determinants of wealth accumulation? What are the roles of labor income, savings, capital gains, portfolio allocation, financial literacy, inheritances, and tax policy in wealth accumulation?
- Will households be prepared financially for retirement? Will defined-contribution pension plans prove sufficient as the main household tool for retirement savings?
- How do trends in income inequality, wealth inequality, and consumption inequality differ or mirror one another? How much mobility is there within the wealth distribution over short horizons as well as across generations, and what are the implications for the persistence of wealth inequality and equality of opportunity?

The 2007–09 recession also brought several questions related to household wealth to the fore, including:

- What is the relationship between debt and consumption? To what extent did “debt overhang” exacerbate the recent recession, and to what extent are tight credit conditions hindering the recovery?
- How do fluctuations in stock or house prices affect a household's ability to fund an education, start a small business, or prepare for retirement? Is homeownership an effective wealth-building tool for lower-income households?

- What are the effects of student loans on a household's financial position in both the near term and long term? Does student debt, for example, impede some individuals' life outcomes and decisions, such as marriage, childbearing, and career choice? Do student loans "pay off" over a longer horizon in the form of higher lifetime income and wealth?
- How will the Affordable Care Act affect household wealth accumulation? Will saving decrease because households have less of a need to self-insure against medical expenses? Will household wealth become more stable, and will rates of bankruptcy or foreclosure filings decrease?

Because financial resources are accrued over a lifetime, household panel data have the potential to improve significantly our understanding of this wealth-accumulation process and its determinants. The United States currently has three long-running panel surveys that ask households about their wealth holdings. The Panel Study of Income Dynamics (PSID) has collected wealth data since 1984 on a nationally representative sample of families; the 1979 National Longitudinal Survey of Youth (NLSY) has collected wealth data since 1985 on a cohort of individuals born between 1957 and 1964; and the Health and Retirement Study (HRS) has collected wealth data since 1992 on cohorts of households ages 50 or older.

Other surveys track changes in household wealth over shorter periods of time. The Consumer Expenditure Survey (CE) interviews households for one year, and, in the last interview, households are asked about the current value of their financial assets as well as the change in the value of these assets over the past year. The CE, however, does not collect data on the value of some nonfinancial assets, such as businesses. The redesigned 2014 Survey of Income and Program Participation (SIPP) will collect wealth data over a three-year period. (Earlier SIPP panels collected wealth data for periods of differing length.) Finally, although the Survey of Consumer Finances (SCF) is generally a cross-sectional survey, the Federal Reserve has twice sponsored collection of panel data: households in the 1983 SCF cross-section were reinterviewed in 1986 and 1989, and households in the 2007 SCF cross-section were reinterviewed in 2009.

In principle, researchers should be able to address many of the most pressing questions about household wealth accumulation with these existing data sets. And in fact, the PSID wealth data have been used by Hurst, Luoh, and Stafford (1998) to explore wealth dynamics in the 1980s and

1990s; by Charles and Hurst (2003) to explore the correlation of wealth across generations; by Cooper (2013) to study the relationship between housing wealth and consumption; and by Dynan (2012) to consider the role that debt overhang plays in consumption. Numerous studies have used the HRS data to explore wealth changes before and after retirement—Love, Palumbo, and Smith (2009) and Poterba, Venti, and Wise (2011) are two such examples—as well as other aspects of wealth accumulation, such as family investments in college education (Brown, Scholz, and Seshadri, 2012). Zagorsky (1999) used the NLSY data to examine the wealth accumulation patterns of baby boomers in their first two decades as adults, and Bricker et al. (2011) explore changes in household wealth during the 2007–09 recession with the 2007–09 SCF panel.

In practice, however, measurement error and other data quality issues appear to constrain the usefulness of these data for research, particularly research focused on changes in the value of assets and liabilities over time. For example, Zagorsky (1999) notes, “Findings suggest that not cleaning NLSY79 wealth data causes non-sensical results.” Bosworth and Smart (2009) indicate “the estimates of saving and the change in net worth for both the PSID and the HRS are quite volatile across subperiods and subgroups... the calculations are also affected by outliers in the reported values of the wealth components and active savings. Various algorithms for identifying those outliers indicate a substantial number of implausible answers to the wealth and saving questions, either due to problems in the original responses or coding errors.” Similarly, Venti (2011) notes, “Troublesome outliers [in the HRS] are still plentiful enough to confound some analyses.”

Does the United States need a new panel study on household wealth?

Our assessment is that the existing panel data sets are insufficient to examine the broad determinants of household wealth accumulation for two reasons. First, many of these data sets are limited in their scope. The HRS and the NLSY collect wealth information for specific subsets of the population. The CE, SIPP, and 2007–09 SCF panels collect wealth data for short periods of time. Only the PSID measures wealth accumulation patterns for all types of households over extended periods. Second, data quality concerns make it difficult to draw clear or possibly even reliable conclusions from many of these surveys.

Given the challenges of collecting wealth data, however, we think it would be unwise to create a new panel survey that includes wealth data without an accompanying commitment to: i) setting up data collection systems in which measurement error is less likely to occur (for example, by extensively pretesting questions and training interviewers); and ii) comprehensive editing and imputation once the data are collected. The noise in the existing data sets appears to have limited its usefulness for research, so there is little to be gained by creating new data that exhibit the same shortcomings. If resources are not available for addressing the measurement issues, we suggest collecting a more limited set of covariates that would serve as useful control variables in analyses of other issues.

In the sections that follow, we explore some of the difficulties in accurately measuring wealth, gauge which wealth components appear to be relatively well-reported on surveys, and assess the implications of these findings for panel wealth data.

II. Why are wealth data so noisy?

Accurate data on household wealth are notoriously hard to collect for several reasons, including:

- Households may monitor the values of their assets or the amount of their liabilities only sporadically, so respondents may be unable to accurately provide exact values without consulting documents. In addition, households may round their asset and debt values when they report them.
- The values of assets that are thinly traded or idiosyncratic are hard to measure. For example, although a homeowner may be able to gauge the value of her house from its tax assessment, web sites such as Zillow, or sales prices of nearby properties, these estimates can vary significantly from each other. These values may also diverge from the homeowner's personal valuation, that is, the amount the homeowner would accept if she had no reason to move. A homeowner will only truly observe the market value of her house at the time of its purchase or sale. Similarly, the market value of a small business may only be known upon purchase or sale.

- Even when the value of an asset or debt can be readily measured, a question could be phrased in a way that respondents find difficult to understand, or a respondent may not have the financial acumen to answer the question correctly. For example, Bucks and Pence (2006) demonstrate that the share of borrowers in the 2001 SCF that reported that their mortgage was federally guaranteed and the share that reportedly carried private mortgage insurance (PMI) were both greater than the corresponding shares in lender-reported data. These discrepancies may reflect borrower misunderstanding of the phrase “federally guaranteed” (particularly the role of government sponsored enterprises) and confusion of PMI with other types of insurance on the home.¹
- Money is a private topic, and households may be reluctant to reveal details of their personal finances. Some households may be more comfortable providing a broad range rather than the exact value of an asset. Other emotions associated with money, such as shame or embarrassment, may also lead households to provide inaccurate responses about the amount or even existence of categories of income, assets, or debt (see, for example, Tourangeau et al., 2000).
- The wealth distribution is skewed, and getting an accurate estimate of the full distribution or aggregate amount of wealth requires a concerted effort to identify and over-sample households that are more likely to be wealthy. Such households may be more difficult to reach, and less forthcoming with their financial information. The response rate in the area-probability component of the 2004 SCF, for example, was 69 percent, compared with about 35 percent of households in the list-sample stratum likely to be least wealthy responded and 10 percent for list-sample households most likely to be wealthy (Kennickell, 2006).

The challenges of collecting and disseminating reliable wealth data are even more profound for panel data. For example, given the issues with collecting wealth data, any measured change in wealth—especially over a short period of time—may reflect measurement error as much as an actual change in household portfolios. At the same time, however, a household’s financial

¹ In line with this conjecture, the SCF added an instruction to interviewers for the 2007 SCF that Fannie Mae and Freddie Mac should not be included as federal guarantors.

situations can change dramatically over short periods of time for legitimate reasons. Individuals may marry or divorce, have a relative or other person move in or out of the household, inherit significant amounts of money, sell a small business, or incur a devastating expense. Therefore, researchers cannot assume that a large reported change is necessarily incorrect, and disentangling legitimate jumps in wealth from those induced by measurement error can be challenging. Major shocks to the household can further complicate measurement of household wealth over time if such shocks are correlated with the ability to follow households and to retain their cooperation.

In addition, wealth data are typically subject to comparatively high rates of missing or seemingly erroneous values, so developing accurate wealth data requires comprehensive imputation routines. Imputation for longitudinal data can take advantage of reported values in other waves, but it can also be more difficult than imputation of cross-sectional data. Finally, because of their perceived sensitivity, cross-sectional financial and wealth data generally require close disclosure review and procedures to minimize disclosure risk, including potentially restricting access. These concerns and the necessary steps to mitigate disclosure risk are greater for longitudinal data.

These issues are significant even in the Survey of Consumer Finances, which is considered to provide the highest-quality wealth data for the United States. Part of the reason for the SCF's success is that wealth data are the primary focus of the survey, and it has developed many procedures to increase the quality of these data. The survey asks detailed questions about an exhaustive list of assets and liabilities, and these questions are carefully sequenced and framed. The interviewers receive specialized training on the components of household wealth. In other surveys, the fact that wealth data are not the main focus may affect the quality of the data. For example, Zagorsky (1999) notes about the 1979 NLSY, "The wealth module is intentionally placed at the survey's end, to ensure that all other information is captured even if wealth questions offend the respondent and result in a refusal to continue. After answering questions for an hour, it is highly probable that respondents are tired and not answering as precisely as earlier."²

² In the subsequent 1997 NLSY panel, questions about drug-dealing and sexual activity are asked after the wealth module. This ordering aligns with the ranking of relative topic sensitivity from Bradburn, Sudman, and Associates (1979) as reproduced in Tourangeau et al. (2000).

Even with this emphasis on collecting wealth data, the SCF data requires considerable editing. In the 2007–09 panel, for example, 40 percent of cases required “substantial” edits. These edits resulted in non-negligible changes to the wealth distribution—most percentiles of the edited wealth distribution differed from the equivalent percentiles of the unedited distribution by 5 to 10 percent (Kennickell, 2014).

Hill (2004) similarly illustrates the importance of editing and review of wealth data in the Health and Retirement Study. Thirteen percent of households who answered the 1998 and 2000 HRS surveys and met other criteria also reported changes over that period of at least \$50,000 in one component of net worth, and at least \$150,000 in total net worth. These households were contacted to verify their data, and in more than half of the cases, the households indicated that one or more of the data pieces used to construct the change was incorrect. This finding suggests both a high rate of measurement error and the difficulty of distinguishing measurement error from actual changes. Correcting these issues cut the variance in the measured change for the sample in half and improved the measured correlation of changes in net worth and income.

III. What components of wealth data appear to be reported accurately?

Measurement error in self-reported wealth data might be usefully classified into two broad types: (1) the asset or liability has an exact value, but the household either does not know the value or prefers not to reveal it; and (2) the exact value of the asset or liability is not knowable or potentially ambiguous, as in the case of a small business. The first type of error can perhaps be addressed; the second may be more difficult.

Researchers have taken a few different approaches to infer potential measurement error. One indicator of measurement error is the share of households who report that they do not know the value of an asset or a liability, or the share who report a range instead of an exact value. However, reporting an exact value does not rule out measurement error, as households may report a value that is incorrect. To explore this possibility, researchers typically compare survey data with administrative records. In the best cases, researchers can match these data sources for the same person and same account; generally, though, researchers are only able to compare aggregates or distributions. Finally, researchers with panel data can explore the share of changes in ownership or values that seem implausible.

Ownership of assets and liabilities

In general, households rarely report that they “don’t know” whether they own a particular type of asset or owe a certain type of liability. Kennickell (2011) notes that, for the SCF, “variables indicating ownership or receipt of a given item... are rarely missing,” and Zagorsky (1999) indicates “Very few individuals [on the 1979 NLSY] have missing answers for questions which determine whether the respondent has a given asset or liability.”

To demonstrate this point more fully, Table 1 shows the distribution of the internal edit codes for the 2009 wave of the 2007–09 SCF panel for each of the ownership variables. The edit codes show whether:

- the SCF staff deemed the response to the question as reasonable (“Original value”);
- the initial response was edited but not imputed, for example, if a respondent’s reported defined-benefit pension plan looked more likely to be a 401(k) plan (“Edited value”);
- the respondent reported “Don’t know” or refused to answer the question (“Refused”); or
- survey staff set the value to missing to be imputed because likely value (or, for dollar amounts, a range) could not be inferred (“Missing”).

We consider any code other than “reported value” an indication that the household had difficulty with the question or that measurement error may be a factor.

For most categories of ownership of financial assets, nonfinancial assets, and liabilities, the respondent’s original answer is nearly always used in the survey data. Three notable exceptions are retirement plans, the cash value of whole life insurance, and mortgages on properties other than the primary residence. In the case of retirement plans, the large number of edited values stems from respondents who reported different pension types in 2007 and 2009 for what was presumably the same plan, and from respondents who reported retirement plans in 2009 that appear to have existed in 2007, but were not reported then (Kennickell, 2011). “Edited” values are also a touch elevated for IRAs, real estate, and businesses.

Other studies have also documented apparent inaccuracies in self-reported pension and IRA ownership. As suggested above, respondents generally know whether they have a pension, but have difficulty identifying whether their pensions are defined-benefit or defined-contribution plans. Gustman, Steinmeier, and Tabatabai (2007) compare worker and employer assessments in the HRS of whether the worker has a defined-benefit or defined-contribution plan and find that these two reports differ more than one-third of the time. Further, many HRS respondents report patterns of pension and IRA ownership over time that appear to be inconsistent. Venti (2011), for example, finds that about a quarter of HRS respondents who report owning an IRA also report patterns of IRA ownership over time that seem implausible. In addition, about 20 to 30 percent of HRS respondents who report that their jobs and pensions have not changed between two waves of the survey also report different pension plan types in the two waves.

Ownership of other types of assets, including automobiles and homes, is generally considered to be well-measured. However, Kojien, Van Nieuwerburgh, and Vestman (forthcoming) offer a sobering exception to this conclusion based on a match of administrative and household-reported data on auto purchases in Sweden. They find that households failed to report almost 30 percent of car purchases observed in the administrative data. Some of this discrepancy may stem from households misreporting when they purchased a car, rather than misreporting car ownership, or it may reflect shortcomings with the underlying surveys.³ We tend to put less weight on this finding because it differs so dramatically from the “don’t know” results.

Values of assets and liabilities

Households appear to have more difficulty reporting the values of their assets and liabilities than in reporting whether they own the assets or owe the liabilities. In part, this pattern is by construction: in general, the set of households who do not know the value of an asset includes both households who do not know if they own that asset as well as households who know they own it but are uncertain of its value.

Table 2 repeats the earlier edit-code analysis for the variables corresponding to the asset and liability values. This table includes an additional category—“range”—for cases in which the

³ The Swedish household survey asks households whether they purchased vehicles within a certain look-back period.

respondents reported a range instead of an exact value, or in which the SCF staff re-coded a reported value as a range. The values in this table are calculated for households whose edit code for the corresponding ownership variable was “exact value.” We do so because other edit codes for the ownership values generally will lead to missing values for the corresponding amount of holdings, and we want to isolate the extent of confusion, uncertainty, or reservations in reporting the value of a given asset or debt.

Financial assets, as ranked by household knowledge of their values, appear to fall in three broad categories. In the first category, around 85 percent of respondents provided exact values for transaction accounts, certificates of deposit, or savings bonds, about 10 percent provided or were assigned a range for these values, and less than 2 percent reported “don’t know.” In the second category, 75 to 80 percent of respondents provided exact values for bonds, stocks, mutual funds, IRAs, and Keoghs, around 15 percent of values were ranges, and 2 to 5 percent reported “don’t know”. In the third category, 60 to 70 percent provided an exact value for pensions from their current or past jobs, the cash value of life insurance, or trusts and annuities, around 15 percent were ranges, and 6 to 16 percent reported “don’t know.” The shares of “refused” and missing responses are generally smaller than the fraction of “don’t know” responses.

Nonfinancial assets also sort into three broad categories. First, nearly 90 percent of respondents provided an exact value for their home or automobile, 10 percent provided or were assigned ranges, and only a handful reported “don’t know.” Second, around 80 percent of respondents provided values for second homes, other residential real estate, nonresidential real estate, and actively managed businesses; 11 to 14 percent of values were ranges; and “don’t know” rates are quite low, although a touch higher for non-residential real estate. Third, only 67 percent of households provided an exact value for businesses that they did not actively manage, with 17 percent being a range and 13 percent reporting “don’t know.” Refusals account for the smallest share of responses for each of the types of nonfinancial assets.

Household debt is generally well-reported, with 80 to 90 percent of respondents providing an exact value. Edited values and ranges account for the majority of other responses. Data quality is a bit worse for mortgages, as edited values, ranges, and missing values are a bit more prevalent for mortgages against the primary residence than for the other types of liabilities, and the share

of respondents with non-residential real estate who responded “don’t know” to its value is greater than the corresponding rates for other liabilities.

The patterns of “don’t know” rates on other surveys are broadly consistent with the SCF. In the 1985 to 1996 waves of the NLSY79 data, “don’t know” rates are 3 percent or lower for homes, mortgages, cash saving, cars, and household debt; around 7 percent for businesses; and 10 percent or higher for certificates of deposit, IRAs, 401(k)s, stocks, bonds, and trusts (Zagorsky, 1999). The codebook for the 2011 wave of the PSID also suggests that “don’t know” rates are lower for transaction accounts, certificates of deposit, government bonds, houses, cars, mortgages, and consumer debt than for stocks, mutual funds, IRAs, 401(k)s, businesses, and the cash value of whole life insurance.

As a complement to this analysis, we review the fairly small number of studies that have gauged the quality of survey-reported data by comparing distributions and aggregates from those data to those estimated from administrative data. The studies also find that households appear to provide reasonably accurate estimates of their house values and their debt levels. Bucks and Pence (2006), Goodman and Ittner (1992), Henriques (2013), and Kiel and Zabel (1999) are among the studies that establish the general reliability of self-reported home values, though in some cases, homeowners appear to overstate their house values a bit. Brown et al (2013) show that aggregate measures of mortgage debt, home equity lines of credit, and auto loans estimated from credit bureau files line up well with the corresponding SCF aggregates. In contrast, they find that credit bureau totals for credit-card debt and student loans are larger than the SCF measures, which may indicate that households under-report the value of these debts on surveys. Henriques and Hsu (2013), however, also compare the SCF and credit-bureau data, and find a closer correspondence of the two measures of credit card debt. Henriques and Hsu also note that aggregate mortgage debt in the SCF and the Financial Accounts of the United States line up well.

To summarize, households appear to report the values of transaction accounts, houses, vehicles (or at least their make and model, from which survey researchers can establish the value), mortgages, auto loans, and perhaps credit card debt fairly accurately. As indicated in Table 3, these well-reported assets comprise about 40 percent of aggregate household assets, whereas

these types of debt comprise most aggregate debt.⁴ The least-reliable wealth components—retirement accounts, cash value of whole life insurance, and small businesses—represent 33 percent of aggregate assets. Retirement accounts in particular are broadly held, with more than half of households having these accounts. These findings suggest that simply collecting data on categories that are well-reported by households may significantly understate many households’ wealth.

IV. Implications for a new panel survey

As noted above, in our assessment, the United States does not currently have a panel survey with sufficiently comprehensive and accurate wealth data to answer the most pressing policy questions related to household wealth and wealth accumulation. Three general approaches to filling this gap come to mind: i) improve the quality of the wealth data on an existing panel survey—most naturally, to our minds, the PSID; ii) add a panel component to the Survey of Consumer Finances; iii) or start a new panel survey. The merits of each of these options depend in large part on their ability to address measurement error. Thus, before we evaluate the options, we consider two approaches to addressing this challenge.

The first approach would be to draw heavily on the best practices of the SCF and other household wealth surveys such as the new Eurosystem Household Finance and Consumption Survey (HFCS). The SCF emphasizes the prevention of measurement error through careful design and sequencing of the questions; specialized training for the interviewers on household wealth; and ongoing monitoring of the survey process for breakdowns. Respondents are encouraged to bring financial records; perhaps households might place a higher priority on doing so in response to financial incentives. The SCF also invests heavily in data editing that includes review of interviewer comments, and the same is true for surveys that comprise the HFCS (European Central Bank, 2013). The SCF instrument also incorporates screens that translate numeric dollar amounts to into words that are read back to the respondent for confirmation.

⁴ The asset and debt categories shown in Table 3 differ in some instances from those shown in Tables 1 and 2. For example, retirement accounts in Table 3 are the sum of the IRA/Keogh account balances, current-job account-type pensions for the respondent, and past-job pensions shown in Tables 1 and 2 as well as current-job account type pensions for the spouse/partner (if applicable).

In addition, the HFCS surveys and the SCF utilize range and consistency checks. In the same vein, studies based on the British Household Panel Survey suggest that “dependent interviewing,” in which respondents are asked during the interview to reconcile their answers within or across waves, can improve the accuracy of data on some dimensions, including data-entry errors and under-reporting of, for example, benefits receipt (Jäckle, 2009; Lynn et al., 2012; Lugtig and Jäckle, 2014). Particularly with the introduction of the European HFCS surveys, it seems likely that refining data collection techniques like these will be an area of active and fruitful research and experimentation in the coming years.

A second approach to mitigating measurement error would be to rely more heavily on administrative data. For example, in recent years, researchers have turned to data from credit-bureau files to examine changes in household liabilities. One such example is the Federal Reserve Bank of New York’s Consumer Credit Panel, which includes quarterly data from 1999 to the present on household liabilities. (See Lee and van der Klaauw, 2010, for more information.) These data are substantially more timely than survey data: they are available about a month after the end of each quarter, and summary results are posted quarterly on the Federal Reserve Bank of New York’s web site. The data are also enormous—records corresponding to more than 38 million individuals are covered—and so precise estimates of changes over time are available for narrowly defined groups and geographic regions. Bhutta (2012), for instance, used these data to examine changes in household mortgage debt, and Mian, Rao, and Sufi (2013) have used similar data—albeit aggregated to the zip-code level—to explore the relationship between household debt and spending.

These data are presumably more accurate than survey data, although they are not immune from measurement error. A measure reported in the data may not align perfectly with the relevant concept for research or policy purposes. Some creditors do not report all data fields, some supply erroneous information to credit bureaus, and some do not supply data to all three credit major credit bureaus. Reporting practices may vary across loan servicers and over time, and when loans are transferred from one servicer to another, they may disappear from temporarily from the credit files. When households move, their credit files may “fragment,” although the credit bureaus have fairly sophisticated algorithms for tracking these transitions.

Credit bureau files of course do not capture the entire household balance sheet. Data on assets are missing, and some forms of non-traditional credit, such as payday loans, are not reported to the credit bureaus. Almost no characteristics of the household—most notably income—are on the data, although researchers often circumvent this link in neighborhood or demographic information based on geographic information.

Transforming credit bureau data into a viable public-use dataset could be challenging. Credit records are sensitive information, and misuse of these data is heavily penalized by the Fair Credit Reporting Act. The data were not designed for research purposes, and the amount of documentation and user support tends to be considerably less than with a household survey. Finally, the data are collected by a private company which is likely to want to be well-compensated for its efforts.

To summarize, panel data derived from credit bureau files are proving to be increasingly useful for understanding the dynamics of household debt and for providing policy-makers with near real-time information on shifts in household debt. Whether these data will be useful for understanding long-term wealth accumulation is a bit of an open question. As suggested earlier, debt is relatively well-measured on household surveys. The greater measurement issues center on household assets, which credit bureau data cannot address. Perhaps comprehensive administrative panel data on assets will be derived at some point from tax records, property lien data, or other sources. Some such products exist for nonfinancial assets—Polk collects automobile registration data, for example, and CoreLogic collects property tax and transactions data. However, comprehensive data on financial assets, one of the more poorly measured categories, are not collected anywhere (although income and estate tax data may offer some proxies), and these various sources of asset data are not integrated into a central, standardized repository like that for credit bureau records.

Assessing the three options

1. Improve the quality of wealth data on an existing panel survey. In considering the possibility of building on an existing panel data, the Panel Study of Income Dynamics appears to be the

most promising candidate because it surveys households of all ages.⁵ However, we believe that there is scope to improve the accuracy of the wealth data collected in the PSID and, in turn, the usefulness of the data for analyzing policy and research questions.

The PSID, like all surveys in the U.S. other than the SCF, does not oversample households in the top of the wealth distribution. Measuring these households is important for understanding the distribution of wealth as a whole. However, the most pressing policy questions about the adequacy of household saving center on lower- and middle-class households, and all but the top one percent or so of the wealth distribution appears to be well-captured by the SCF's area-probability sample (Kennickell, 2008). Therefore, we think the lack of these high-wealth households in the PSID is not a significant disadvantage.

Bosworth and Smart (2009), Venti (2011), Hill (2006), and others suggest that much of the noise in panel wealth data stems from implausibly large changes in wealth over time, likely due to inconsistent reports by respondents. Increased use of dependent interviewing techniques may be a partial solution. The PSID already asks about some possible reasons for changes in wealth, such as purchase or sale of a property or business, or receipt of an inheritance. Presumably the survey could also ask whether any of these factors explain any large changes in the levels of wealth from one wave to the next.

The wealth questions on the PSID could be revamped to reduce respondent burden and improve the accuracy of the data.

- The survey asks for the net values (that is, the value of the asset minus any corresponding debt) for automobiles, stocks, and financial assets. Asking for the asset and debt components separately would likely increase the quality of the data, since for many assets, such as vehicles, thinking in “net” terms is probably not intuitive for most households. This change would also provide researchers with richer data on household portfolios. The change would also be a further step in a direction that the PSID has already taken, as the survey appears to have made this change in collecting data on second homes, other types of real estate, and businesses in the 2013 questionnaire.

⁵ For the purposes of this discussion, we assume that the data remain representative and have not been compromised over time by attrition or other issues.

- The mutual fund questions, which are currently split up on the PSID, could be revised. Stock mutual funds are asked as part of the “do you own stock” question, but bond mutual funds are not mentioned in the 2013 questionnaire. In the 2011 survey, bond mutual funds were asked about jointly with cash value of life insurance, trusts, and valuable collections. This question structure may cause households to under-report mutual funds, especially “balanced” funds that combine stocks and bonds. Tabulations from the 2010 SCF suggest that 17 percent of households that have mutual funds hold a combination stock and bond mutual fund.
- The PSID also groups many types of assets into one question. For example, respondents are asked to report jointly their balances in checking and savings accounts, money market funds, certificates of deposit, government savings bonds, and Treasury bills. Asking separately about some of these assets might prompt respondents to remember more types of assets.
- A comparison of the PSID and SCF (Pfeffer, Schoeni, Kennickell, and Andreski, 2014) suggests that the SCF measures of the values of closely-held businesses are much higher than the PSID measures, even when the households in the SCF high-wealth oversample are excluded from the estimates. Businesses are, admittedly, quite hard to value, so perhaps the scope for improving these questions is limited.
- To make room for these new questions, PSID staff might consider streamlining some of the more detailed questions on the pension module. As noted earlier, the existing literature is fairly pessimistic about respondents’ ability to answer these questions correctly. The elevated “don’t know” rates in the PSID for these questions are consistent with this view. For example, around 45 percent of respondents for whom the question was applicable reported that they didn’t know their expected pension benefits upon retirement.
- The “legal bills” and “loans from relatives” questions could also be dropped, as they do not pertain to many households and are likely not an important factor in wealth dynamics. The cash value of whole life insurance might also be dropped since this asset is poorly measured and is a small component of household wealth.

The survey could also explore supplementing the survey with administrative data. For example, the PSID already collects the make, model, and year of the vehicles that the household owns; the survey could generate the NADA value of the vehicles, as is done on the SCF. An external measure of the house value could be generated from Zillow or from local tax assessments, though such information likely could only be released as part of restricted-access of the data. Measures of debt could be generated from credit bureau files, although the privacy and consent issues may prove daunting. Finally, there may be additional avenues for improving data quality by, for example: providing additional interviewer training on financial topics; developing materials for respondents to help them understand, classify, and report various assets and liabilities; and encouraging households to refer to financial records during the interview.

2. *Add a permanent panel component to the Survey of Consumer Finances.* Given the measurement issues involved in collecting wealth data, a natural approach would be to build on the well-developed SCF infrastructure to collect panel data.⁶ This approach would also build on the SCF's research experience when it re-interviewed the 2007 respondents in 2009 in order to capture the full dimensions of the effect of the financial crisis and recession on household balance sheets.

It may not be straightforward to adapt the "SCF model" to a survey intended to address a range of topics. One of the reasons that the SCF wealth data are so high-quality is that the SCF asks detailed questions about almost all components of household wealth. Because the wealth questions are so exhaustive, however, there is not room on the survey to add extensive batteries of questions on other topics, such as consumption. As it is, the survey takes from around 40 minutes to several hours to complete. The SCF's sample design might further limit the topics that a new longitudinal survey could address: Given budget or other constraints on sample size, a consequence of oversampling wealthier households is that fewer households of interest for other topics can be sampled.

It is also not clear how readily the SCF framework could be applied to long-running panel studies. The previous SCF panels have been relatively short, so a lengthier SCF panel would represent uncharted territory. The SCF obtains a relatively high response rate given the topic and

⁶ For the purposes of this discussion, we assume that the Board of Governors and its staff are interested in such a project.

length of the interview, and nearly 90 percent of eligible 2007 SCF households were re-interviewed in 2009 as part of that two-year panel. Nonetheless, households may be reluctant to participate in such a comprehensive interview multiple times, so attrition could be an even greater concern than for other panel data sources.⁷

As a starting point, one approach to developing longitudinal SCF data would be a sequence of shorter panels. Such panels would be well-suited to analyzing, for example, the immediate effects of policy changes and households' responses to macroeconomic shocks. Other questions, such as the determinants of wealth accumulation and intergenerational wealth mobility, would require data that span a longer period.

3. *Collecting wealth data as part of a new panel.* Finally, a perhaps obvious question is whether it is possible to collect longitudinal wealth data in a way that borrows and balances the strengths of the PSID and SCF. We believe that a reasonable starting point would be to forego the SCF's approach of over-sampling wealthier households but incorporate SCF procedures for collecting accurate wealth data such as interviewer training on the particular challenges of collecting financial data, range and consistency checks, and comprehensive editing and imputation.

If resources are limited, one alternative is to collect information on a carefully chosen, abbreviated set of assets and debts. The aim in capturing information on only a subset of wealth components would not be to accurately estimate household net worth but instead to collect data that could be used to construct an index that was correlated highly with households' net worth. A preliminary analysis of SCF data suggests that a ranking of households based on assets and debts that appear to be accurately reported is strongly correlated with the ranking based on net worth. Such an index would likely be more useful as a control variable for analyses of other topics than as a dependent variable in a study of wealth accumulation.

The choice of assets and debts to collect should be primarily based on which of these households appear to report accurately and, secondarily, how well a given asset or debt helps to differentiate households by net worth. This prioritization reflects not only the challenges of collecting accurate data on all wealth components but also recognition that in-depth editing and imputation,

⁷ The experience of the Spanish EFF household wealth survey suggests that refreshment samples can be used to mitigate this concern.

though critical, are costly. Collecting a subset of relatively well-reported variables should reduce the costs of data editing and imputation.

As noted above, we believe that collecting information individually for different types of assets or debts—for example, the total balance of all checking accounts separately from balances in savings accounts or the value of CDs—would improve the accuracy of these data. This would also maintain comparability with the SCF. Similarly, it seems advisable to mirror the wording, order, and structure of the SCF. In doing so, researchers could more plausibly use data on the limited set of wealth components in such a new panel survey in conjunction with SCF data to model “full” net worth (or a conditional distribution of net worth) for households.

Ideally, collecting data on a smaller set of variables and at an aggregate level (rather than separately for each account or loan) would yield a shorter wealth module. A shorter module would allow the survey to capture information on other topics, just as the PSID currently collects more extensive data on consumption than the SCF, which allows for a fuller understanding of household financial flows.

V. Conclusions

The U.S. has several panel surveys that collect wealth data. These data have contributed significantly to our understanding of household wealth dynamics. For example, aggregate household net worth declined by 15 percent from 2007 to 2009.⁸ However, these wealth declines were not experienced by all households. Bricker et al. (2011), using the SCF data, indicate that around 60 percent of households lost wealth over this period, but about 25 percent had wealth gains of 27 percent or more.

Despite this abundance of data, our understanding of the long-term determinants of wealth accumulation remains incomplete. All the available datasets have limitations, such as following only specific cohorts of individuals, or spanning short periods of time. More broadly, the considerable measurement issues inherent in wealth data inhibit our ability to estimate changes in wealth precisely and accurately.

⁸ Source. Financial Accounts of the United States. The change is calculated from 2007:Q3 to 2009:Q3, which corresponds roughly with the dates of the SCF survey waves.

Given the scope of the measurement issues, perhaps researchers should consider alternatives to household-survey panel data to explore wealth accumulation. For example, researchers can construct “synthetic” panels from repeated cross-sectional surveys by grouping households by time-invariant characteristics, such as age in a given year. These groups form the “panel” observations. Maki and Palumbo (2001) and Sabelhaus and Pence (1999) have used these techniques to explore wealth accumulation patterns during the 1990s; Mian, Rao, and Sufi (2013) follow a similar approach—using zip-codes as the panel observations—to study the relationship between debt and spending. Another possibility is to rely more heavily on administrative data sources; as noted earlier, credit-bureau records are proving to be a rich source of information on household debt dynamics.

These approaches can enrich our understanding of household wealth dynamics, but we believe that household-survey panel data are still an irreplaceable part of the puzzle. Synthetic panel techniques, by definition, eliminate much of the identifying variation in the data, a point made by Parker, Souleles, and Carroll (forthcoming) in arguing for maintaining the panel component of the Consumer Expenditure Survey. And comprehensive administrative data on household assets seems a distant prospect, in part because of the formidable privacy issues involved.

The potential to learn from the experiences of the redesigned SIPP, the 2007–09 SCF panel, and the HFCS surveys gives us some hope that survey methodologists will make headway on some of the measurement issues in wealth data. We believe that pairing continued innovation in measurement along with the development of a new household panel survey on wealth—or the refinement of an existing survey—would be an important step towards understanding household wealth accumulation.

References

- Bhutta, Neil. 2012. "Mortgage Debt and Household Deleveraging: Accounting for the Decline in Mortgage Debt Using Consumer Credit Record Data." FEDS Paper 2012-14.
- Bosworth, Barry P., and Rosanna Smart, 2009. "Evaluating Micro-Survey Estimates of Wealth and Saving." Center for Retirement Research at Boston College Working Paper 2009-04. <http://ideas.repec.org/p/crr/crrwps/wp2009-4.html>.
- Bradburn, Sudman, and Associates, 1979. *Improving Interview Method and Questionnaire Design*. San Francisco: Jossey-Bass.
- Bricker, Jesse, Brian Bucks, Arthur B. Kennickell, Traci L. Mach, and Kevin B. Moore, 2011. "Surveying the Aftermath of the Storm: Changes in Family Finances from 2007 to 2009," Finance and Economics Discussion Series 2011-17. Board of Governors of the Federal Reserve System (U.S.).
- Brown, Meta, Andrew Haughwout, Donghoon Lee, and Wilbert van der Klaauw. 2013. "Do We Know What We Owe? A Comparison of Borrower- and Lender-Reported Consumer Debt," Federal Reserve Bank of New York Staff Reports, 523, October 2013 (revised).
- Brown, Meta, John Karl Scholz, and Ananth Seshadri, 2012. "A New Test of Borrowing Constraints for Education." *Review of Economic Studies*, 79: 511-38.
- Bucks, Brian, and Karen Pence. 2006. "Do Homeowners Know Their House Values and Mortgage Terms?" Finance and Economics Discussion Series 2006-03. Washington: Board of Governors of the Federal Reserve System, January, www.federalreserve.gov/pubs/FEDS/2006/200603/200603pap.pdf
- Bucks, Brian, and Karen Pence, 2008. "Do Borrowers Know their Mortgage Terms?" *Journal of Urban Economics*, 64, 218-33.
- Charles, Kerwin, and Erik Hurst, 2003. "The Correlation of Wealth across Generations." *Journal of Political Economy*, 111(6), 1155-1182.
- Cooper, Daniel October, 2013. "House Price Fluctuations: The Role of Housing Wealth as Borrowing Collateral." *Review of Economics and Statistics*, 95(4): 1183-1197
- Dynan, Karen E., 2012. "Is a Household Debt Overhang Holding Back Consumption?" *Brookings Papers on Economic Activity*, Spring: 299-344.
- European Central Bank, 2013. "The Eurosystem Household Finance and Consumption Survey Methodological Report for the First Wave," European Central Bank Statistics Paper Series No 1.

- Goodman, John L., and John B. Iltner. 1992. "The Accuracy of Home Owner's Estimates of House Value," *Journal of Housing Economics*, 2, pp. 339–57.
- Gustman, Alan, Thomas Steinmeier, and Nahid Tabatabai, 2007. "Imperfect Knowledge of Pension Plan Type." NBER Working Paper 13379.
- Henriques, Alice, 2013. "Are Homeowners in Denial about their House Values? Comparing Owner Perceptions with Transaction-Based Indexes." FEDS Working Paper 2013-79.
- Henriques, Alice, and Joanne Hsu, 2013. "Analysis of Wealth Using Micro and Macro Data: A Comparison of the Survey of Consumer Finances and Flow of Funds Accounts." FEDS Working Paper 2013-46.
- Hill, Daniel H., 2006. "Wealth Dynamics: Reducing Noise in Panel Data." *Journal of Applied Econometrics*. 21: 845-860.
- Hurst, Erik, M. C. Louh, and Frank P. Stafford, 1998. "Wealth Dynamics of American Families, 1984-1994," *Brookings Papers on Economic Activity*.
- Jäckle, Annette, 2009. "Dependent Interviewing: A Framework and Application to Current Research." In *Methodology of Longitudinal Surveys*, edited by Peter Lynn, 93–111. John Wiley & Sons, Ltd.
- Juster, F. Thomas, James P Smith, and Frank Stafford, 1999. "The Measurement and Structure of Household Wealth." *Labour Economics* 6(2), 253–275.
- Kennickell, Arthur, 2006. "How Do We Know if We Aren't Looking? An Investigation of Data Quality in the 2004 SCF"
- Kennickell, Arthur B, 2008. "The Role of Over-sampling of the Wealthy in the Survey of Consumer Finances," *The IFC's contribution to the 56th ISI Session, Lisbon, August 2007*, vol. 28, Bank for International Settlements, p. 403-408.
- Kennickell, Arthur, 2011. "Looking Again: Editing and Imputation of SCF Panel Data." 2011.
- Kennickell, Arthur, 2014. "Dirty and Unknown: Statistical Editing and Imputation in the Survey of Consumer Finances." Presentation, 2014 Joint Statistical Meetings.
- Kiel, Katherine A., and Jeffrey E. Zabel, 1999. "The Accuracy of Owner-Provided House Values: The 1978-1991 American Housing Survey," *Real Estate Economics*, 27(2): 263-98.
- Koijen, Ralph, Stijn Van Nieuwerburgh, and Roine Vestman. Forthcoming. "Judging the Quality of Survey Data by Comparison with 'Truth' as Measured By Administrative Records: Evidence from Sweden." In Christopher Carroll, Thomas Crossley, John Sabelhaus, (eds.), *Improving the Measurement of Consumer Expenditures*, NBER Book Series Studies in Income and Wealth, University of Chicago Press.

- Lee, Donghoon, and Wilbert van der Klaauw. 2010. "An Introduction to the FRBNY Consumer Credit Panel." Staff Report No. 479. Available at http://newyorkfed.org/research/staff_reports/sr479.pdf
- Love, David, Michael Palumbo, and Paul Smith, 2009. "The Trajectory of Wealth in Retirement." *Journal of Public Economics*, Vol. 93 (February), pp. 191-208.
- Lugtig, Peter, and Annette Jäckle. 2014. "Can I Just Check...? Effects of Edit Check Questions on Measurement Error and Survey Estimates." *Journal of Official Statistics* 30 (1): 45–62.
- Lynn, Peter, Annette Jäckle, Stephen P. Jenkins, and Emanuela Sala. 2012. "The Impact of Questioning Method on Measurement Error in Panel Survey Measures of Benefit Receipt: Evidence from a Validation Study." *Journal of the Royal Statistical Society: Series A (Statistics in Society)* 175 (1): 289–308.
- Maki, Dean M., and Michael G. Palumbo. 2001. "Disentangling the Wealth Effect: A Cohort Analysis of Household Saving in the 1990s," Finance and Economics Discussion Series 2001-21. Board of Governors of the Federal Reserve System (U.S.).
- Mian, Atif, Kamelesh Rao, and Amir Sufi. 2013. [Household Balance Sheets, Consumption, and the Economic Slump](#), *Quarterly Journal of Economics*, 1687-1726.
- Parker, Jonathan, Nicholas Souleles and Chris Carroll. Forthcoming. "The Benefits of Panel Data in Consumer Expenditure Surveys" in *Improving the Measurement of Household Consumption Expenditures*, Chris Carroll, Thomas Crossley, and John Sabelhaus eds, University of Chicago Press.
- Pfeffer, Fabian T., Robert F. Schoeni, Arthur Kennickell, and Patricia Andreski, 2014. "Measuring Wealth and Wealth Inequality: Comparing Two U.S. Surveys." working paper.
- Poterba, James, Steven Venti, and David Wise, 2011. "The Composition and Drawdown of Wealth in Retirement." *Journal of Economic Perspectives*. 25(4): 95-118.
- Sabelhaus, John, and Karen Pence. 1999. "Household Saving in the '90s: Evidence from Cross-Section Wealth Surveys," *Review of Income and Wealth*, vol. 45, no. 4, pp. 435-453.
- Tourangeau, Roger, Lance J. Rips, and Kenneth Rasinski, 2000. *The Psychology of Survey Response*, Cambridge University Press: Cambridge.
- Venti, Steven F., 2011. "Economic Measurement in the Health and Retirement Study." http://www.dartmouth.edu/~bventi/Papers/Venti-DMC-review_final_1-22-11.pdf
- Zagorsky, Jay L, June 1999. "Young Baby Boomers' Wealth." *Review of Income and Wealth* 45(2): 135-156.

Table 1. Reporting rates for ownership of selected assets and liabilities, 2009 wave of 2007–09 SCF

Percent

Type of asset or debt	Original value	Edited value	Don't know	Refused	Missing
Financial assets					
Checking	99.6	0.3	0.0	0.1	0.0
Savings	99.2	0.7	0.1	0.0	0.0
Certificates of deposit	99.6	0.3	0.1	0.0	0.0
Savings bonds	99.9	0.1	0.1	0.0	0.0
Directly held bonds	99.6	0.2	0.2	0.0	0.0
Directly held stocks	99.3	0.5	0.2	0.0	0.0
Mutual funds	98.8	1.0	0.2	0.0	0.0
IRA or Keogh	96.9	3.0	0.1	0.0	0.0
401(k) or other retirement account (current job)	76.5	20.3	1.6	0.0	1.6
401(k) or other retirement account (past job)	69.4	28.8	0.9	0.0	0.8
Cash value life insurance	74.5	23.9	1.1	0.1	0.5
Nonfinancial assets					
Cars, trucks, SUVs, etc.	99.7	0.3	0.0	0.0	0.0
Primary residence	97.6	2.4	0.0	0.0	0.0
Other residential real estate	96.6	3.4	0.0	0.0	0.0
Non-residential real estate	97.1	2.9	0.0	0.0	0.0
Business (actively managed)	95.8	4.2	0.0	0.0	0.0
Business (not actively managed)	95.3	4.7	0.0	0.0	0.0
Liabilities					
Mortgage on home	95.4	4.5	0.0	0.0	0.1
Mortgage on other residential properties	78.6	20.1	0.3	0.0	1.0
Mortgage on non-residential properties	81.0	17.6	0.1	0.1	1.1
Credit card debt	99.5	0.5	0.0	0.0	0.0
Vehicle debt	99.5	0.5	0.0	0.0	0.0
Student loans	99.8	0.2	0.0	0.0	0.0

Table 2. Reporting rates for values of selected assets and liabilities, 2009 wave of 2007–09 SCF

Percent

Type of asset or debt	Original value	Edited value	Range	Don't know	Refused	Missing
Financial Assets						
Checking	87	1	9	1	1.4	0.1
Savings	85	1	10	2	2.3	0.2
Certificates of deposit	84	1	10	2	2.6	0.05
Savings bonds	87	1	10	2	0.5	0.3
Directly held bonds	76	1	14	5	4.4	0.3
Directly held stocks	79	1	15	4	1.9	0.3
Mutual funds	79	2	15	2	2.1	0.2
IRA or Keogh	79	2	14	3	1.8	0.5
401(k) or other retirement account (current job)	68	9	16	6	0.6	0.6
401(k) or other retirement account (past job)	69	4	16	9	0.04	2.2
Cash value life insurance	60	7	16	16	1.2	0.3
Nonfinancial assets						
Cars, trucks, SUVs etc.	88	1	10	1	0.04	0.3
Primary residence	87	2	11	1	0	0.6
Other residential real estate	82	5	11	1	0.02	0.1
Non-residential real estate	78	4	13	5	0.2	0.3
Business (actively managed)	79	2	14	2	0.2	2.2
Business (not actively managed)	67	1	17	13	0.1	2.3
Liabilities						
Mortgage on home	83	4	8	0.4	0.4	4.4
Mortgage on other residential	89	7	4	0	0	0
Mortgage on non-residential properties	80	7	10	3	0.1	0
Credit card debt	93	1	5	0.4	0.2	0.1
Vehicle debt	93	0.3	6	1	0	0.1
Student loans	87	1	11	1	0	0

Table 3. Ownership rates, value of holdings, and share of total net worth for selected assets and liabilities, 2010 SCF

Type of asset or debt	Percent with asset or debt	Value conditional on ownership		Uncond'l mean (thousands)	Share of all assets or debts
		Median (thousands)	Mean (thousands)		
Financial Assets					
Transaction accounts	92	4	32	30	5
Certificates of deposit	12	20	73	9	1
Savings bonds	12	1	6	1	0
Bonds	2	137	587	10	2
Stocks	15	20	203	31	5
Pooled investment funds	9	80	387	34	6
Retirement accounts	50	44	171	86	15
Cash value life insurance	20	7	28	6	1
Other managed assets	6	70	242	14	2
Other financial assets	8	5	64	5	1
Nonfinancial Assets					
Vehicles	87	15	22	19	3
Primary residence	67	170	261	176	30
Other residential property	14	120	289	42	7
Equity in nonresidential property	8	65	322	25	4
Business equity	13	78	781	103	17
Other	7	15	67	5	1
Liabilities					
Mortgage on primary residence	45	109	152	69	70
HELOC on primary residence	7	26	54	4	4
Other residential debt	5	97	178	10	10
Credit card balances	39	3	7	3	3
Lines of credit not secured	2	6	48	1	1
Student loans	19	13	26	5	5
Vehicle loans	30	10	14	4	4
Other installment loans	12	3	15	2	2
Other	6	5	17	1	1